Annual report of the Supervising Surgeon General of the Marine Hospital Service of the United States : 1896

Contributors

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ANNUAL REPORT

OF THE

SUPERVISING SURGEON-GENERAL

OF THE

MARINE-HOSPITAL SERVICE OF THE UNITED STATES

FOR THE

FISCAL YEAR 1896.

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1896.

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REPORT TO THE SECRETARY.

TREASURY DEPARTMENT,
OFFICE SUPERVISING SURGEON-GENERAL, M. H. S.,
November 1, 1896.

Hon. J. G. CARLISLE,
Secretary of the Treasury.

SIR: I have the honor to transmit herewith the report of the Marine-Hospital Service of the United States for the fiscal year ended June 30, 1896, being the twenty-fifth annual report of the Service and the ninety-eighth year of its existence.

In addition to the statistical information pertaining to the fiscal year, the operations of the Service to the present date, being near the close of the quarantine season, are included.

MEDICAL CORPS.

Two boards have been convened for the examination of applicants for admission into the Medical Corps. The number of applicants for permission to appear before these boards was 61. Thirty-six presented themselves, 3 of whom passed successful examinations.

APPOINTMENTS AND PROMOTIONS.

During the fiscal year 2 successful candidates were appointed to the grade of assistant surgeon and 1 assistant surgeon was promoted after examination to the grade of passed assistant surgeon.

RESIGNATIONS.

One passed assistant surgeon and 2 assistant surgeons resigned during the fiscal year.

CASUALTIES.

Since my last report the corps has lost by death its senior surgeon, C. S. D. Fessenden. A brief statement of his services is included in the following announcement:

CIRCULAR LETTER ANNOUNCING THE DEATH OF SURG. C. S. D. FESSENDEN.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 31, 1896.

To the medical officers of the United States Marine-Hospital Service:

It is with regret that I have to announce to the medical officers of the Service the death on the 23d instant, from a complication of heart and kidney affections, of Surg. Charles Stewart Daveis Fessenden. Surgeon Fessenden was the senior surgeon of the corps, having served since April 4, 1861, a period of more than thirty-five years. He was born in Portland, Me., February 23, 1828, and was of a family noted in the annals of his native State and the nation. His father, Gen. Samuel Fessenden, was for many years a leader at the bar of Maine, and his eldest brother, William Pitt Fessenden, was the distinguished Senator of that State, and during the administration of President Lincoln became Secretary of the Treasury. Two nephews of Surgeon Fessenden rose to the rank of brigadier-general during the civil war, and others have been prominent in private life, two of them in the profession of medicine.

Surgeon Fessenden was fitted for college at the Portland Academy, and in 1844 entered Harvard University, where he pursued his studies for one year. Leaving Harvard, he became a student at Bowdoin College, from whence he was graduated in 1848.

He studied medicine under Charles W. Thomas, M. D., of Portland, Me., and, attending medical lectures at the Medical School of Maine and also in New York, was graduated in 1851 from the Medical School of Maine. From 1853 to 1856 he was physician in charge of the Portland City Hospital, after which date he became a private practitioner until his appointment as surgeon in the Marine-Hospital Service in 1861.

During the period of his membership in the corps he served as commanding officer at the ports of Portland, Me., New York, N. Y., St. Louis, Mo., Norfolk, Va., Louisville, Ky., and Mobile, Ala. During this period he was also a member of three boards of medical officers convened for the examination of applicants for the Service and of eight boards convened for the physical examination of candidates for admission to the Revenue-Cutter Service, besides serving on various special details as inspector.

On account of the failure of his health in the fall of 1895, he was ordered to appear before a board of medical officers for physical examination, and in accordance with the report of the board was placed on waiting orders November 22, 1895.

During the few months which intervened between this date and his demise Surgeon Fessenden resided at Salem, Mass., at which place his death occurred.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

The passed assistant surgeon reported in the last Annual Report as being upon waiting orders because of tuberculosis is still unable to report for duty.

Of the two assistant surgeons, mentioned in the last report, incapacitated by the same disease, one, after expiration of leave of absence, was again placed on waiting orders; the other, after being continuously on waiting orders since April 1, 1894, reported himself sufficiently improved, and was reassigned to duty July 21, 1896.

MEASURES FOR THE RELIEF OF THE LEGAL REPRESENTATIVES OF ASST. SURG. JOHN W. BRANHAM.

Referring to the comments in my last Annual Report upon the above-named measure, it is gratifying to be able to announce that a bill has passed the Senate and has been favorably reported from the Committee on Commerce of the House of Representatives, and it is believed that during the coming session of Congress the bill will be passed by the House. Following is a copy of the act:

AN ACT for the relief of the legal representatives of John W. Branham, late an assistant surgeon in the United States Marine-Hospital Service.

Whereas John W. Branham, late an assistant surgeon in the United States Marine-Hospital Service, contracted yellow fever while performing his duty as assistant surgeon in an infected city, and having died of yellow fever at his post of duty on the twentieth day of August, eighteen hundred and ninety-three: Therefore,

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Treasury be, and he is hereby, authorized and directed to pay, out of the money not otherwise appropriated, to the legal representatives of John W. Branham, the sum of four thousand one hundred and sixty dollars, being the amount of salary and allowances for two years.

Passed the Senate May 20, 1896.

Attest:

WM. R. COX, *Secretary.*

The report recommending the passage of the above bill, submitted by Mr. Martin from the Committee on Claims in the Senate, is in part as follows:

[Fifty-fourth Congress, first session. Report No. 997. To accompany S. 1434.]

The Committee on Claims, to whom was referred the bill (S. 1434) for the relief of the legal representatives of John W. Branham, late an assistant surgeon in the United States Marine-Hospital Service, respectfully report the same with the recommendation that it do pass.

A similar bill has, during the present session of Congress, been reported favorably to the House of Representatives by its Committee on Claims (House Report No. 775). A letter from the Supervising Surgeon-General of the Marine-Hospital Service to the Hon. A. P. Gorman, of date May 18, 1896, was laid before the committee by Senator Gorman. This communication from the Supervising Surgeon-General presents facts and reasons deemed worthy of consideration by the Senate in disposing of this matter, and the same is respectfully submitted as a part of this report.

The communication from the Surgeon-General above referred to contains the facts which have been previously printed in the Annual

Report of this Service for 1894, pages 10–12, with this additional statement:

I will only add to the above statement that Dr. Branham left a wife and two children without means of support; that in the discharge of his duty he was acting under direct orders, and not as a volunteer, and that his services were rendered in the interest of the whole country, and not for the protection of his own city or home. He was an officer of the Marine-Hospital Service, having a commission from the President of the United States, confirmed by the Senate, in a service which demands that its followers shall go to any portion of the United States and face any danger connected with epidemic disease without question.

OFFICERS DETAILED TO ATTEND MEDICAL AND PUBLIC HEALTH ASSOCIATIONS.

Since date of last report the following details have been made:

Surg. George W. Stoner to represent the service at the meeting of the American Medical Association, held at Atlanta, Ga., May 5, 1896.

Surg. Preston H. Bailhache, P. A. Surg. J. J. Kinyoun, and P. A. Surg. T. B. Perry, detailed to represent the Service at the meeting of the American Public Health Association, in Buffalo, September 15, 1896.

P. A. Surg. George T. Vaughan, detailed to represent the Service at the sixth annual convention of the Association of Military Surgeons of the United States, held in Philadelphia, May 12–14, 1896.

REPORT OF SURG. P. H. BAILHACHE UPON THE MEETING OF THE AMERICAN PUBLIC HEALTH ASSOCIATION, AT BUFFALO, N. Y.

PORT OF NEW YORK, N. Y., *September 28, 1896.*

SIR: I have the honor to submit herewith my report of the twenty-fourth annual meeting of the American Public Health Association, which convened at Buffalo, N. Y., on the 15th instant and continued in session until the 19th instant, when it adjourned to meet in Philadelphia, Pa., next year, at a date to be fixed by the executive committee.

The meeting was exceptionally large, and the increasing attendance from Mexico and Canada added much to the interest of the occasion, as an indication that public health is receiving special attention by our sister Republic and the Dominion of Canada.

Papers upon the following-named subjects were presented, and discussion of the same was participated in by the members of the association:

"Report of committee on car sanitation;" "Observations on the cleaning of railroad passenger cars;" "Possibilities of contagion of venereal diseases in railway cars;" "Report of the committee on steamship and steamboat sanitation;" "Report of the committee on animal diseases and animal food;" "The composition and infectiousness of milk;" "On pure milk;" "Contributions to the study of the pathogeny, etiology, and prophylaxis of typhus;" "Report of the committee on nomenclature and forms of statistics;" "On need of uniformity in the meaning of the term 'stillborn;'" "On dengue;" "On municipal responsibility for healthy schoolhouses;" "On woman in preventive medicine;" "Report of the committee on the disposal of garbage and refuse;" "Disposal of the garbage and waste of the household;" "A plea for the domestic disposal of garbage;" "Disposal of household garbage and excrement by cremation;" "Report of committee on transportation

and disposal of the dead;" "On the quick and the dead;" "On measures for the prevention of blindness;" "On miasmatic fevers in the State of Sonora;" "Summary of sanitary legislation in the State of Mexico," "Report of committee on national health legislation;" "Obiter dicta concerning sanitary organization;" "Some thoughts relative to national health legislation;" "On the sanitary administration of unincorporated districts;" "Report of the international committee on the prevention of the spread of yellow fever," "Contribution to the study of yellow fever from a medico-geographical point of view:" "Contribution to the study of yellow fever—epidemic in Cordoba;" "On isolation hospitals;" "Paludism in the State of Morelos and its prophylaxis by sanitary measures;" "Report of committee on the pollution of water supplies;" "Report of committee on river conservancy boards of supervision;" "Report of committee on protective inoculations in infectious diseases;" "The serum diagnosis test for typhoid fever;" "Prophylaxis of typhoid fever;" "Practical use of formic aldehyde as a disinfectant;" "Preliminary note on the use of formaldehyde for room and car disinfection," by P. A. Surg. J. J. Kinyoun, United States Marine-Hospital Service; "A convenient lamp for generating formaldehyde gas;" "On prophylaxis of paludism;" "Brief notes on public hygiene in the State of Tamaulipas;" "On public health in Tabasco, Mexico;" "On sanitation in hospitals for the insane;" "Report of committee on the cause and prevention of diphtheria," by J. J. Kinyoun, passed assistant surgeon, United States Marine-Hospital Service; "On diphtheria in Chihuahua;" "On bacteriological diagnosis as governing the admission and discharge of patients in diphtheria hospitals;" "Should measles be quarantined?" "Report of committee on causes and prevention of infant mortality;" "On mortality of infants, the causes and means of diminishing it;" "On diarrhea of children;" "Report of committee on the use of alcoholic drinks from a sanitary standpoint;" "On the bicycle in its sanitary aspect," "On the part that public instruction should have in the way of precaution against contagious diseases;" "On public bathing establishments, with a description of the new public bath in Brookline, Mass.;" "On public baths" (illustrated by stereopticon); "Report of committee on the relation of forestry to public health;" 'Report of committee on transportation of diseased tissues by mail;" "On statistics of vaccination and mortality from smallpox in the City of Mexico, 1872-1895," "On drunkenness as a vice, it should be so treated;" "On municipal cattle and meat inspection;" "On the prophylaxis of scurvy in prisons by pulque;" "On the relation of noises to public health;" "On the degeneration of the human animal through the nursery and schools;" "On the importance of supplies of pure water;" "On radical deterioration;" "On the protection of the innocent from gonorrhea," "The necessity of isolating beds in hospitals by means of windows between them;" "Filth deposits with regard to public health."

The "Report of committee on national legislation" being of special interest to the Service, I deem it proper to state that said committee presented to the association the following resolution, which was referred, under the rules, to the executive committee:

"*Resolved*, That it is the sense of this association that the committee on national sanitary legislation be continued, and that efforts be continued to influence the Congress of the United States to establish a department of public health at Washington, D. C.; and to this end it is recommended that the powers of the Marine-Hospital Service be enlarged and so organized as to provide for an advisory council composed of representatives from the State boards of health."

The executive committee returned the resolution to the association in the following emasculated condition:

"*Resolved*, That it is the sense of this association that the committee on national sanitary legislation be continued, and that efforts be continued to influence the

Congress of the United States to establish a department of public health at Washington, D. C."

Upon inquiry I learned that a "retired" officer of the Navy took it upon himself to overslaugh the work of the committee on national legislation, whose unanimous recommendation would seem to entitle it to more respect, and upon his individual demand the resolution was shorn of its only practical solution.

The following resolution was introduced by Surg. Gen. Walter Wyman, of the Marine-Hospital Service. It was subsequently recommended by the executive committee, and adopted by the association:

"Whereas yellow fever is believed to be the most subtle and dangerous of all epidemic diseases; and

"Whereas it is ordinarily conveyed into one country from an infected seaport of another; and

"Whereas the continued and persistent presence of this disease in any seaport is believed to be unnecessary, and may be prevented by proper engineering and other sanitary measures; therefore

"*Resolved* (1), That it is the duty of every government possessing seaports thus infected to institute such engineering and other sanitary measures as will remove this menace to the seaports of other nations; and

"*Resolved* (2), That it is the duty of all Governments continuously threatened with invasion of yellow fever from a seaport in which the disease is allowed to persist to make such representations to the Government in possession of the offending seaport as will induce it to adopt the sanitary measures necessary to remove this obstruction to commercial intercourse and menace to human life.

"*Resolved*, That a copy of these resolutions be transmitted to the executives of the several Governments represented in this association."

Very respectfully,

PRESTON H. BAILHACHE,
Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

REPORT OF SURG. GEORGE W. STONER UPON THE MEETING OF THE AMERICAN MEDICAL ASSOCIATION AT ATLANTA, GA.

MARINE-HOSPITAL SERVICE,
Baltimore, Md., May 11, 1896.

SIR: In pursuance of Bureau letter (B. W. B.) of the 29th ultimo, detailing me to represent the Marine-Hospital Service at the meeting of the American Medical Association in Atlanta, Ga., May 5, 1896, I have the honor to report that I left Baltimore on the evening of the 3d instant, arrived in Atlanta the following afternoon, and was in attendance at the said meeting during the several sessions from May 5 to May 8, inclusive, and that I this morning returned to Baltimore and resumed duty at this station. Being a member of the judicial council, also a member ex officio of the executive committee of the association, and, by virtue of my detail, a member of the nominating committee, it was not practicable for me to attend all the sessions of any one section. I was present at the general sessions, and in the section on State medicine took part in the discussion of vaccination; also attended meeting of surgical section and of the section on neurology and medical jurisprudence. The minutes of the general sessions and the several addresses of the gentlemen elected last year to deliver the same, also the numerous papers read by different members, will be published in the journal of the association. A resolution was introduced at the general session on Friday, the 8th instant, by Dr. Jerome Cochran, president of the State board of health of Alabama,

which was approved by the association, and which is of interest to the Marine-Hospital Service in that it proposes additional legislation by the United States for the improvement and extension of the existing public health (marine hospital and quarantine) service as against the creation of a new department of public health. A resolution was also presented and adopted memorializing Congress to make as the standard of weights and measures in this country the metric system. The presentation of these two resolutions to the association for consideration and action at the same meeting is an interesting coincidence in view of the fact that both of the objects sought by the said resolutions are now and have been for many years important features in the administration of the Marine-Hospital Service. Eighteen years ago the metric system of weights and measures was adopted by the Marine-Hospital Service, and the beginning of the quarantine (public health) work by the Service also dates from about the same time.

Very respectfully,

GEO. W. STONER,
Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

CONCERNING PRACTICE OF MEDICINE IN OHIO BY GOVERNMENT MEDICAL OFFICERS.

The following letter upon this subject has been received:

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
Cleveland, Ohio, April 22, 1896.

SIR: I have the honor to transmit herewith a copy of the act regulating the practice of medicine in Ohio, passed by the legislature of the State February 27, 1896, which may be of interest to the officers of the Service by reason of the clause marked with blue pencil, reading as follows:

"And this act shall not apply to any commissioned medical officer of the Army, Navy, or Marine-Hospital Service in the discharge of his professional duties."

Very respectfully, yours,

R. M. WOODWARD,
Passed Assistant Surgeon, M. H. S.

The SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

CUMULATIVE LEAVE FOR MEDICAL OFFICERS.

The propriety of granting cumulative leave to medical officers is explained in the following letter, addressed to the Solicitor of the Treasury, inquiring whether, under the present regulations, said leave can be granted:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., April 30, 1896.

SIR: Under the regulations of the Marine-Hospital Service the medical officers of the Service commissioned by the President are entitled to thirty days' leave of absence. It frequently happens that the officers of this Service, in the performance of their varied duties, are unable to apply for or to be granted the thirty days' leave. Application is sometimes made on the part of officers who have not taken the leave of absence granted them during a period of four years, for a cumulative leave of four months, representing the thirty days for each of the four years. This request is generally for the sake of self-improvement in professional matters by visiting foreign hospitals and foreign schools of instruction. It should be added

that the officers referred to are appointed, after examination, by the President, that their duties are not limited by the hours of day or night, and that they are not relieved of duty on Sundays and legal holidays.

I have respectfully to inquire whether a regulation allowing cumulative leave not to exceed four months in the case of an officer who has not taken his monthly leave in each of the four years preceding will be legal.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

The SOLICITOR OF THE TREASURY.
(Through Hon. W. E. Curtis, Assistant Secretary of the Treas ry)

In reply to the above letter an opinion was received from the Solicitor of the Treasury declaring that under the law cumulative leave could not be granted, but adding that the propriety of such leave was evident, and that Congress would doubtless, if called upon, authorize it.

The following has therefore been prepared, with a view to its being included in the legislative, executive, and judicial appropriation bill:

And hereafter the Secretary of the Treasury is authorized, in his discretion, to grant to the medical officers of the Marine-Hospital Service, commissioned by the President, without deduction of pay, thirty days' leave of absence in each calendar year, and that the leave of absence may be extended to sixty days' leave if taken once only in two years, or to three months if taken once only in three years, and to four months if taken once only in four years.

AID TO OTHER BRANCHES OF THE PUBLIC SERVICE.

(1) *Aid to the Life-Saving Service.*—During the year ended June 30, 1896, there were 1,297 keepers and surfmen of the Life-Saving Service examined physically, and 12 were rejected. Sixty-three applicants for admission to the Service as surfmen were also rejected on account of physical defects. Two hundred and five claims for pensions and other benefits provided by the act of May 4, 1882, made by keepers and crews of the Life-Saving Service have been passed upon in the office of the Surgeon-General.

(2) *Aid to the Inspection Service of Steam Vessels.*—During the year 1,103 pilots were examined with regard to their ability to distinguish colors, and 58 rejected on account of color-blindness.

No communication has been received from the Supervising Inspector-General of Steam Vessels in relation to the examination of the hearing of pilots, correspondence concerning which is included in the last Annual Report of this Service.

(3) *Aid to the Revenue-Cutter Service.*—Four officers of the Revenue-Cutter Service were examined physically to determine their fitness for promotion. Thirty candidates for the position of cadet were examined physically and 3 rejected, and 24 candidates for the grade of assistant engineer, of which number 5 were rejected. Five hundred and eighty-two seamen were examined prior to enlistment and 27 rejected.

In all, ten boards have been convened during the fiscal year for the physical examinations above mentioned.

The retiring board, a full account of whose organization and duties was given in the last Annual Report, has been convened but once since the date of said report. The board met in Philadelphia September 1, 1896, for the reexamination of an officer in the Revenue-Cutter Service with a view to his retirement, and reported unfavorably thereon. This board was dissolved by the President September 8, 1896.

(4) *Aid to the Immigration Service.*—Medical officers of the Marine-Hospital Service have been specially detailed for medical inspection of immigrants at the following ports. Portland, Me.; Boston, New York, Philadelphia, Baltimore, New Orleans, San Francisco, and Portland, Oreg. The regular officers on duty at other ports are available for this service when occasion requires. The following summary of reports received shows the number of immigrants inspected and rejected during the fiscal year 1896:

Portland, Me.—Number of immigrants inspected, 364; rejected, none.

Boston, Mass.—Number of immigrants inspected from Europe, 21,846; from Canada, 19,954; total inspected, 41,800. Number rejected, 10. Causes for rejection: Insanity, 5; pregnancy, 4; idiocy, 1.

New York, N. Y.—Number of steerage passengers inspected upon arrival, 289,020. Of these, there were physically examined and sent to hospital for treatment, 1,355; rejected and sent before the Board of Special Inquiry for action,[1] 216; certified and sent before the Board of Special Inquiry for action, 919; recorded (minor defects), 6,499; number of landed cases applying for relief, 384; of these, there were physically examined and sent to hospital for treatment, 307; certified for deportation and sent to hospital awaiting return, 76; remained in city awaiting return, 8; rejected (no case for the medical department), 69.

Philadelphia, Pa.—Number of immigrants inspected, 24,977; rejected, 38. Causes for rejection: Senility, 7; dementia, 1; idiocy, 1; melancholia, 1; insanity, 1; paralysis, 6; spinal disease, 2; deaf and dumb, 3; blindness, 1; diseases of the eye, 2; one leg, 3; broken leg, 2; fracture of the neck, 1; ankylosis, 1; pneumonia, 1; phthisis, 1; bronchitis and pleurisy, 1; heart disease, 1; pregnancy, 2; total, 38.

Baltimore, Md.—Number of immigrants inspected, 13,631; rejected, 7. Causes of rejection: Lack of physical development, 2; acute mania, 1; chronic articular rheumatism, 1; kyphoscoliosis, 1; general tuberculosis, 1.

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[1] The rejected cases were as follows:

Senility	136	Loss of left foot	1
Arthritis deformans	1	Tumor of abdomen	1
Favus	12	Deaf and dumb	1
Total blindness	8	Hunchback	1
Valvular disease of heart	1	Cirrhosis of the liver	1
Ankylosis left leg	1	Inflammation of lymph glands, groin	1
Cataract, left eye	1	Ununited fracture of hip	1
Paralysis	9	Pleurisy, chronic	1
Hemiplegia	3	Weak-minded	3
Palsy	1	Mental deficiency	4
Tubercle of lung	3	Insane	6
Sycosis	3	Idiot	3
Tubercle of the bone	1	Feeble-minded	2
Loss of all fingers left hand	1	Hysteria	1
Rheumatism, chronic	3	Dwarf	3
Bronchitis, chronic	1		
Loss of left leg	1	Total	216

New Orleans, La.—Number of immigrants inspected, 1,574; rejected, none.

Portland, Oreg.—Number of immigrants inspected, 85; rejected, 1—a case of syphilis.

San Francisco, Cal.—Number of immigrants examined, 886, since January 11, 1896: none rejected.

LACK OF SHELTER FOR DECK CREWS ON WESTERN RIVERS.

The hardships suffered by the deck crews of Western steamboats by reason of want of proper shelter in cold weather have formed the subject of a number of reports from the medical officers of this Service stationed on the Ohio and Mississippi rivers.

Attention is invited to the following contributed articles, contained in several annual reports of the Service, viz: By Surgeon Orasmus Smith, Annual Report for 1873; by Surgeon P. H. Bailhache, Annual Report for 1874; by the present Surgeon-General, Annual Reports for 1876–77, and 1882; by Assistant Surgeon Sprague, Annual Report, 1895.

These articles all set forth with precision the sufferings of this class of laborers and demonstrate an indifference thereto on the part of masters and owners seriously reflecting upon their humanity. Nothing short of a legal enactment, with penalty attached, will cause any attention to be paid to this disgrace to our civilization.

In February, 1895, a number of deck hands from the steamer *Anna B. Adams* were admitted to the care of the Marine-Hospital Service at Shreveport, La., suffering with frost-bitten extremities as a result of enforced exposure, while the vessel was under way, no shelter being provided. The matter was referred to the United States district attorney by the acting assistant surgeon in charge, with the result that the Federal grand jury in the following July returned true bills against the master and the mate of the steamer, under Revised Statutes, United States, section 5347; but the prosecution came to naught, as will be seen by the following letter from the United States district attorney:

HOMER, LA., *May 5, 1896.*

SIR: Replying to your letter of May 4, instant, in which you desire that I should render a statement or make a report as to the result of the trial of the cases of The United States *v.* The Master and Mate of the Steamer Anna B. Adams, recently tried in the Federal court at Shreveport, I have the honor to say that the defendants were indicted under section 5347, United States Revised Statutes. The evidence adduced on the trial established conclusively that the crew were made to perform manual labor, incident to loading the boat, at a time when their fingers were frozen. The judge charged the jury that this was not inflicting upon the members of the crew punishment within the intent and under the purview of the statute; that inflicting punishment under the statute referred to cases where the officers by force and violence punished the crew; that the language of the statute had a technical meaning, and compelling the crew to work in extreme cold weather while their hands were frost-bitten and frozen was not a violation of the statute since it was not such punishment as the lawmaker had in mind

when the law was enacted. The jury acquitted the prisoners under positive instructions from the court.

Very respectfully,

CHAS. W. SEALS,
United States Attorney.

Dr. A. R. BOOTH,
Acting Assistant Surgeon, Marine-Hospital Service, Shreveport, La.

During the past winter, in response to inquiries, the following letters from medical officers were received, testifying from the hospital records to the diseases and disabilities caused by this unnecessary exposure:

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
Evansville, Ind., March 15, 1896.

SIR: Referring to Bureau telegram of February 21, 1896, directing a record to be kept and report made of cases due to exposure on steamers from want of shelter for crew, I have the honor to transmit herewith a statement of such cases; but I do not affirm that they were caused solely by the kind of exposure referred to. They occurred exclusively among the roustabouts and deck hands, for whom, as is well known, no sleeping quarters are provided. It must be remembered that these people are rarely supplied with proper clothing, and that their duties entail much unavoidable exposure, from which it is impossible to shelter them, and which, as well as the want of shelter, is largely responsible for cases of illness like these herein reported. I have therefore included in the report which follows those cases which seemed, undoubtedly, to be due to exposure on steamers, excluding only such as could, by their histories, be fairly charged to the unavoidable exposure referred to. It may be pertinent to add that the winter at this port has been unusually mild.

Hospital cases.

Disease.	Steamer.	Date of admission.
Rheumatic fever	J. S. Hopkins	Dec. 16, 1895
Lobar pneumonia	do	Dec. 17, 1895
Lobar pneumonia, double	Rose Hite	Dec. 20, 1895
Bronchitis, acute	City of Clarksville	Dec. 25, 1895
Acute nephritis	Hussar	Jan. 6, 1896
Pneumonia, lobular	Bostona	Jan. 18, 1896
Bronchitis acute	do	Jan. 27, 1896
Pneumonia, lobar	Herbert Moran	Feb. 7, 1896
Bronchitis, acute	J. S. Hopkins	Do.
Rheumatic fever	do	Feb. 8, 1896
Pneumonia, lobular	do	Feb. 10, 1896
Bronchitis, acute	Joe Fowler	Feb. 21, 1896
Pneumonia, lobar	J. S. Hopkins	Feb. 26, 1896
Do	State of Kansas	Mar. 7, 1896
Do	Joe Fowler	Do.

From this list are excluded two cases of double and one of single lobar pneumonia which applied for treatment several days after leaving steamers.

Office cases.

Disease.	Steamer.	Date.
Acute coryza	Jno. Barrett	Dec. 2, 1895
Tubercle of lung	J. C. Kerr	Jan. 9, 1896
Bronchitis, acute	do	Jan. 20, 1896
Rheumatism	Gayosa	Jan. 21, 1896
Bronchitis, acute	J. S. Hopkins	Jan. 25, 1896
Do	J. C. Kerr	Jan. 28, 1896
Tonsilitis, follicular	J. S. Hopkins	Jan. 27, 1896
Rheumatism	J. C. Kerr	Jan. 30, 1896
Bronchitis and sore throat	J. S. Hopkins	Feb. 5, 1896
Do	J. C. Kerr	Feb. 10, 1896
Frostbite of feet	do	Do.
Tonsilitis, follicular	Gayosa	Feb. 17, 1896
Bronchitis, acute	J. S. Hopkins	Feb. 25, 1896
Do	Janie Rae	Do.
Do	Tell City	Mar. 5, 1896
Do	J. S. Hopkins	Mar. 6, 1896

This report covers the period from November 1, 1895, to March 15, 1896.

Very respectfully,

P. M. CARRINGTON,
Passed Assistant Surgeon, Marine-Hospital Service.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

OFFICE OF MEDICAL OFFICER IN COMMAND, H. M. S.,
St. Louis, Mo., March 15, 1896.

SIR: As directed in Bureau telegraphic orders of February 21, 1896, I have the honor to make the following report relative to cases treated at this station from November 1, 1895, to March 15, 1896, due to exposure to cold on steamers from want of shelter for crew.

The exceptional absence of low temperatures during the period stated is seen from the reports of the Weather Bureau: During November, on only ten days was the minimum 32° or lower, and the lowest was 16°; during December, minimum 32° or lower on 16 days, and lowest 7°; during January, minimum 32° or lower on twenty-one days, lowest 5° on two successive days; during February, minimum 32° or lower on twenty-two days, and lowest 5°. During the period, November 1, 1895, to March 15, 1896, no patient applied for treatment for frostbite, and only one case was seen.

This was roustabout George Davidson, colored, admitted to hospital February 20, 1896, for fracture of both bones of left forearm, who also had a frostbite of middle finger of left hand.

He had just completed a thirteen-day trip on the steamer *City of Sheffield* from this port to Florence, Ala., and return. The fracture was caused by a falling stick of cord wood five days before reaching this port, and he had received no treatment.

Davidson states he had no frostbite prior to the fracture, and, in fact, he had no knowledge of it whatever on admission to hospital.

This steamer employs 2 firemen, 2 deck hands, 2 stevedores, 2 men styled captain of watch, and 33 to 36 roustabouts, or carriers of freight and fuel.

Four bunks only are provided, and these are allotted to firemen, deck hands, stevedores, and "captains of watch." These men are on duty alternately, so one of each class has opportunity for sleep and shelter, while the other works. The

remaining 32 to 36 have no place to sleep in cold weather save under the boilers or on the floor of the engine room. Nearly all crowd into the engine room, between landings, but there is sufficient floor space for only a portion to lie down.

This is a fair picture of all steamers coming into this port. Inquiry and personal inspection have failed to develop one in which any better facilities are afforded. A moderate number of cases of acute pulmonary disease and rheumatism have been under treatment, but no one can be directly attributed to exposure from want of shelter, though in all probability some were so caused.

Respectfully, yours,

S. D. BROOKS,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
Cincinnati, Ohio, March 15, 1896.

SIR: In compliance with your telegram of February 21, I have the honor to report that no cases have been treated at this station, in hospital or as out-patients during the period named, whose illness could be traced to want of shelter on the vessels. The question as to whether a given case of illness is due to want of shelter while on the vessel, to exposure while at work, or to insufficient clothing, would be hard to decide.

It is taken for granted that the inquiry relates solely to that class of river men called roustabouts, as these are the only ones not provided with comfortable quarters.

The roustabouts (almost exclusively negroes) are employed in number from 15 to 25 on each boat on the Ohio River. Many of the side-wheel steamers have unfurnished bunks, but the larger number of stern-wheel boats have no such provision. The men in the latter case sleep about the boilers in very cold weather. The latter arrangement is the most harmful on account of the sudden change from the overheated boiler rooms to the cold air. In warm weather they sleep about the deck.

The negroes are very poorly clad, their shoes and clothing often so nearly worn out as to afford little protection. On long trips a considerable portion of their pay is spent at the bar, and as they are discharged at the end of the trip and are often idle some time before reshipping, there is little chance to refit in clothing, consequently there is much suffering regardless of any provision in the way of shelter that could be made.

Owing to extreme want of cleanliness among these men, the provision of mattresses and bedding would be a source of disease, and on this account it would seem that hammocks strung in the engine room of stern-wheel boats and in the aft part of the deck room of side-wheelers (these parts being already heated) would be the most comfortable and healthful solution of the question. The canvas hammocks might be supplied with a flap of canvas fastened on one side, to be turned over the occupant when needed. As only half of the crew is resting at one time (I am told they have lost the old custom of regular watches), only half the number of hammocks would be necessary.

Very respectfully,

P. C. KALLOCH,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

MARINE-HOSPITAL SERVICE, DISTRICT OF THE OHIO, SURGEON'S OFFICE,
Gallipolis, Ohio, March 15, 1896.

SIR: I have the honor of forwarding to you a report of hospital and dispensary cases due to exposure to cold on steamers from want of shelter for crew.

I know from personal knowledge that there is not a packet boat on this part of the Ohio or Kanawha rivers that provides any sleeping quarters for deck hands. They are compelled to sleep on the floor under the boilers, or on freight anywhere that they may get to lie down. They only carry one crew, and they are called out at every landing. All the sleep they get is what they catch between landings, unless one or two steal away behind some freight and sleep there. Then their food is of an inferior quality, handed out on pans, without knife or fork. When they come for relief they almost always need it.

The towboats provide for their men in a much better way.

Following is a report of hospital and dispensary cases due to exposure to cold on steamers from want of shelter for crew from November 1, 1895, to March 15, 1896:

Name of seaman.	Date of relief.	Disease.	Name of steamer.
William Shepard	Dec. 8	Acute bronchitis	Ruth.
Phil Knapp	Jan. 12	Muscular rheumatism	Do.
Robert Davis	Jan. 13	Pneumonia	Do.
Charles Sexton	Jan. 27	Remittent fever	Vesper.
Simon Johnson	Feb. 23	Influenza	Ruth.
George Mash	Mar. 16	do	Columbia.
Ben Watson	Mar. 12	Intermittent fever	Virginia.
John Morgan	Dec. 17	Acute bronchitis	Ruth.
William McCain	Dec. 27	do	Carrie Brown.
Robert Saunders	Feb. 5	Acute coryza	Columbia.
John Helcher	Feb. 17	Muscular rheumatism	Ruth.
Cain Ramsey	Feb. 22	Influenza	Keystone State.
Peter Knopp	do	do	Ruth.
John Powers	Feb. 23	do	Do.

Respectfully, yours,

LEWIS C. BEAN,
Acting Assistant Surgeon.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

With a view to procuring legislation to insure proper shelter of the deck crews on these vessels I addressed the following letter to the chairman of the Committee on Commerce, United States Senate:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., January 29, 1896.

SIR: I beg leave to invite your attention to the fact that no provision of law exists requiring proper quarters or shelter for the deck hands employed on vessels plying on the Mississippi River and its tributaries. The reports of the Marine-Hospital Service are replete with cases of frozen extremities and diseases, such as rheumatism, pneumonia, and pleurisy, as a direct result of the terrible exposure to which the crews of these vessels are not infrequently subjected.

I inclose herewith a report written by Assistant Surgeon Sprague, of the Marine-Hospital Service, while on duty at Cairo, Ill., which shows the necessity of some legislation upon this subject.

I have conferred with the Commissioner of Navigation, who agrees with me that an amendment to Senate bill 187, introduced December 3, 1895, to amend the laws relating to navigation, might properly be made at this time. * * *

As a result, in the bill now pending before Congress, S. 187, Calendar No. 383, which has been favorably reported in the Senate, the following amendment has been inserted in section 2:

And on and after June thirtieth, eighteen hundred and ninety-seven, every steam vessel of the United States plying upon the Mississippi River or its tributaries shall furnish an appropriate place for the crew, which shall conform to the requirements of this section so far as they shall be applicable thereto, and shall be properly heated. Any failure to comply with this provision shall subject the owner or owners to a penalty of five hundred dollars.

SCURVY AMONG AMERICAN SEAMEN.

The following letters reporting cases of scurvy in hospital from vessels of the American merchant marine were received from the medical officer in command of the Marine-Hospital Service for the port of New York:

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
New York, N. Y., February 19, 1896.

SIR: I have the honor to invite your attention to the fact that several cases of scurvy have been admitted to hospital from American vessels this month, as follows:

Thomas Gavin, permit No. 810, and Michael Nash, permit No. 822, both off ship *Willie Rosenfeld;* Edgar Nelson, permit No. 821, off schooner *Cora S. McKay*, and Johannes Jacobsen, permit No. 851, off ship *El Capitan*.

Seaman Gavin was suffering with a scalp wound of three months' duration and so diagnosed. On further examination it was found he also had scorbutus. Seaman Nash, admitted with ulcers upon his legs, also suffering with scorbutus. Seamen Edgar Nelson and Jacobsen admitted suffering with the disease in an aggravated form, the former with gums grown over his teeth and legs covered with ulcers; the latter with ulcerated mouth, ulcers of cornea, ulcers over legs and arms, and great debility. He will probably lose the sight of both eyes.

All of them complained of inhuman treatment, no fresh or canned meats or vegetables were served to them, and great distress from hardships was endured.

Nearly all the seamen on the *El Capitan* were affected, with two deaths from scurvy during the voyage, one of which occurred at the New York quarantine, upon which a coroner's jury has been impaneled to inquire into the facts.

There would seem to be no excuse for the appearance of this preventable disease on board American vessels, and for that reason I invite your attention to the above cases, in order that you may take such action as may be proper.

Very respectfully,

PRESTON H. BAILHACHE,
Surgeon, Marine-Hospital Service, in Command.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
New York, N. Y., February 25, 1896.

SIR: In compliance with Bureau letter of the 21st instant (B. W. B.), I herewith furnish further information covering the last voyage from foreign ports and outward voyage from United States ports of the vessels (previously reported) whose seamen were found to be suffering with scurvy.

Ship *Willie Rosenfeld* left Port Townsend, Wash., for Valparaiso, Chile, on the 24th day of March, 1895, and arrived in New York from Chile, Iquique, and other South American ports on January 26, 1896.

Schooner *Cora S. McKay* left New York for Les Gonaives, Haiti, November 20, 1895, and returned to New York January 22, 1896, stopping at no other place.

Ship *El Capitan* left New York for Shanghai, China, December 31, 1894; thence to Kobe, Japan; thence June 26, 1895, to New York, arriving February 15, 1896.

Another seaman, Daniel Deeney, permit No. 858, was admitted from the *El Capitan* on the 19th instant suffering with scurvy. He states that the men were not permitted to go ashore but once during the entire round trip from New York and return to New York, and that all had signed for the round trip of nearly fourteen months.

I inclose some newspaper clippings showing what action has been taken in the case of the *El Capitan*, and may add that Dr. C. W. Townsend, coroner, informed me the case had been presented to the United States district attorney, who stated there were no grounds upon which he could prosecute the captain of the vessel.

Very respectfully,

PRESTON H. BAILHACHE,
Surgeon, Marine-Hospital Service, in Command.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

P. S.—Another seaman, David Lambert, has just been admitted to hospital from the *El Capitan*, suffering with scurvy (permit 877).

P. H. B.

These letters were referred to the Commissioner of Navigation for investigation, and by him, through the Secretary of the Treasury, to the collectors of customs at New York and Castine, Me., the former reporting upon the ship *William G. Davis* and the bark *Grace Deering*, and the latter upon the bark *Penobscot*. These reports, together with the inclosures, consisting of statements from the masters and provision dealers and other evidence, all seem to clear the vessels of blame.

In the case of the *El Capitan*, a coroner's jury returned a verdict that seaman Eric Lindsen died of scurvy and dysentery, and censured the captain "for his neglect in not providing proper and sufficient food and preventives for these diseases, and for compelling men to work when they were unable to do so;" but, as stated in the letter of Surgeon Bailhache, the United States district attorney informed the coroner that there were no grounds upon which he could prosecute the captain.

In the case of the ship or bark *Willie Rosenfeld*, the captain was indicted by the Federal grand jury in February for failing to keep a supply of medicine, lime juice, and lemons aboard his ship, as required by law.

According to an account in the daily papers, the captain surrendered himself February 28, and was released on $1,000 bail, and the case was to have been tried at the next term of the court, which began on the Wednesday following. In response to a telegram of inquiry regarding further proceedings, a reply was received from the assistant United States district attorney in Brooklyn, October 28, stating that

"the case against Dumphy could not be reached, and we have tried nothing but jail cases since."

Notwithstanding the negative results thus far of these investigations and the one prosecution, the fact remains that there was one death from scurvy, and six cases of scurvy from these vessels were received in the marine hospital. It is evidently difficult for seamen to establish legally the facts necessary for successful prosecution of captains for neglect in providing the food and the antiscorbutics required by law.

The most practical method of dealing in this matter appears at present to be that embodied in the report of the board of medical officers appointed to determine upon a proper schedule of provisions for seamen, viz, a legal enactment that the daily schedule of provisions shall be displayed in the forecastle and galley of each vessel.

LEGAL SCHEDULE OF PROVISIONS FOR SEAMEN IN THE MERCHANT MARINE OF THE UNITED STATES.

Several bills have been introduced in Congress looking to a revision of the schedule of provisions for seamen of the merchant marine of the United States engaged in deep-sea voyages, required by section 4612 of the Revised Statutes, and a letter was received from the chairman of the Committee on Merchant Marine and Fisheries in the House of Representatives requesting that the several schedules proposed be referred for an opinion to the Surgeon-General of the Marine-Hospital Service. Accordingly, a board of medical officers was convened for the purpose of considering this important matter. Following is the correspondence and report of the board:

COMMITTEE ON THE MERCHANT MARINE AND FISHERIES,
HOUSE OF REPRESENTATIVES UNITED STATES,
Washington, D. C., March 12, 1896.

DEAR SIR: I inclose schedules of provisions for seamen in bills now pending before this committee. Will you kindly refer them to Surgeon-General Wyman, requesting his opinion on them and suggestions for their amendment.

Yours, very truly,

S. E. PAYNE, *Chairman.*

Hon. JOHN G. CARLISLE,
Secretary of the Treasury.

[Indorsement.]

TREASURY DEPARTMENT, *March 14, 1896.*

Respectfully referred to the Supervising Surgeon-General of the Marine-Hospital Service.

S. WIKE, *Acting Secretary.*

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., March 16, 1896.

SIRS: You are hereby detailed as a board for the examination of the schedules of provisions for seamen in bills now pending before Congress, with a view to

making a recommendation as to a proper schedule or scale of provisions to be allowed and served out to the crew of merchant vessels during a voyage.

Inclosed is a request from the chairman of the Committee on the Merchant Marine and Fisheries in the House of Representatives to the honorable Secretary of the Treasury, and by the latter referred to me, with a view to obtaining the opinion of this Bureau concerning this important matter.

You are referred to the Annual Report of this Service for 1888, in which there are several articles on the food of seamen, and it is suggested that the scale of provisions allowed to ordinary seamen in the Navy be also examined.

Inclosed, also, is a copy of the hearings on the bills relating to the rights and duties of seamen, transmitted by the chairman of the Committee on the Merchant Marine and Fisheries.

You will make report as soon as practicable.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

Surg. P. H. BAILHACHE, *Chairman.*
P. A. Surg. C. E. BANKS,
P. A. Surg. J. J. KINYOUN, *Recorder.*

TREASURY DEPARTMENT, *Washington, March 26, 1896.*

SIR: In accordance with the request contained in your letter of March 12, inclosing schedule of provisions for seamen in bills now pending before your committee, and requesting that the same be referred to Surgeon-General Wyman of the Marine-Hospital Service, requesting his opinion on them, and suggestions for their amendment, I transmit herewith copy of a report upon the matter in question, prepared by a board of medical officers of the Marine-Hospital Service under the direction of the Surgeon-General. Accompanying the report is a schedule of rations for seamen, and a table showing the quantity and cost of the several articles to be supplied. The report is approved by the Surgeon-General, and is hereby transmitted for your consideration.

Respectfully, yours,

S. WIKE,
Acting Secretary.

Hon. S. E. PAYNE,
Chairman Committee on the Merchant Marine and Fisheries,
House of Representatives.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, D. C., March 21, 1896.

SIR: The board designated by you to examine and report upon the ration suitable for seamen of the merchant marine engaged in deep-sea voyages, convened on Monday, the 16th instant, at 10 a. m., and has been in daily session since that date examining and reporting upon the questions involved. It has, as suggested, examined the several bills referred to you by the Committee on the Merchant Marine and Fisheries of the House of Representatives, namely, H. R. 1230, H. R. 5551, and the present law governing this subject, section 4612, Revised Statutes. The board has also examined the legal rations with substitutes, provided by the Navy for its seamen, and similar requirements governing the issue of rations to soldiers in the Army.

Having investigated these and other sources of information, the board has prepared the inclosed schedule (which combines articles contained in both of the bills above referred to) in quantities best suited for the proper sustenance of man, and in such variety as will not only be palatable, but at the same time, it is believed, will absolutely prevent, if properly cooked, the occurrence of scurvy. Substitutes are also provided for use in case the articles upon the schedule become exhausted or unfit for issue. The total cost of the ration is less than either of the rations in the two bills referred to.

The board would recommend that the statute which shall be enacted contain some provision recognizing the necessity for increasing the meat allowance during and following periods of long and exhausting work done by the seamen in stormy weather.

The board believes that a careful inspection of the stores taken on board of vessels immediately before sailing is the keynote to the proper execution of the requirements of the law. Otherwise, the quantities required may be taken on, while in fact the quality may be of such an inferior nature that they will be unfit for cooking or eating after a lapse of a few days or weeks. An inspection should also be made by the proper officer at foreign ports before the vessel starts upon her return voyage, to see that the law is complied with. And, for the information of all concerned, the board would further recommend that the official schedule of daily ration be required to be posted in the galley and forecastle.

The cost of the ration submitted, estimated by the board after an examination of current price lists of several large wholesale supply houses, is found to be 20.15 cents, and is based upon the price of classes of goods listed as "good quality." The navy ration, as officially given, costs 30 cents per diem, while the average cost of a ration in the United States marine hospitals throughout the country is about 25 cents per diem. It is believed that the moderate cost of the ration submitted will recommend its favorable consideration to those charged with providing proper fare for seamen. To this cost, 20.15 cents, the board supposes that 10 per cent might be added for profit to those supplying the goods; this additional amount would not bring the cost up to the average of the marine-hospital ration as before stated.

Respectfully yours,

PRESTON H. BAILHACHE,
Surgeon, Marine-Hospital Service, Chairman.
CHAS. E. BANKS,
Passed Assistant Surgeon, Marine-Hospital Service.
J. J. KINYOUN,
Passed Assistant Surgeon, Marine-Hospital Service, Recorder.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Indorsement.]

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., March 25, 1896.

Approved and respectfully forwarded to the Secretary of the Treasury, to be transmitted to the chairman of the Committee on the Merchant Marine and Fisheries, House of Representatives.

WALTER WYMAN,
Supervising Surgeon-General Marine-Hospital Service.

Table of ration for seamen.

Articles.	Sunday.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.	Substitutes.
Water ..... gallons..	1	1	1	1	1	1	1	
Biscuit, pilot, navy "X," pounds.	½	½	½	½	½	½	½	1½ pounds of fresh bread or 1 pound of flour daily.
Fresh bread ..... pounds..	1	1	1	1	1	1	1	
Salt beef ..... do...	.....	1½	.....	1½	.....	.....	1½	1½ pounds of fresh meat in lieu of one ration of salt beef when in port.*
Salt pork ..... do...	.....	.....	1	.....	.....	1	.....	1½ pounds of fresh meat in lieu of one ration of salt pork when in port.*
Preserved meat ..... do...	¾	.....	.....	.....	¾	.....	.....	1½ pounds of fresh meat for each ration of preserved meat when in port.*
Potatoes or yams .... do...	1	1	1	1	1	1	1	2 ounces of desiccated vegetables.
Flour ..... do...	½	.....	.....	.....	½	.....	½	No substitute.
Beans, dry, white ... pints..	.....	.....	½	.....	.....	½	.....	Do.
Peas, dry ..... do...	½	.....	.....	.....	½	.....	.....	Do.
Rice ..... ounces..	6	.....	.....	6	.....	.....	.....	6 ounces of hominy, cracked wheat, or oatmeal, or 2 ounces of tapioca for each 6 ounces.
Tomatoes, canned .. pounds.	½	.....	.....	.....	½	.....	.....	6 ounces of canned vegetables or 8 ounces of green cabbage.†
Fish, salt or fresh .... do...	.....	.....	1	.....	.....	1	.....	No substitute.
Coffee, green berry, ounces.	¾	¾	¾	¾	¾	¾	¾	Tea.
Tea ..... ounces..	½	½	½	½	½	½	½	Coffee.
Sugar ..... do...	3	3	3	3	3	3	3	No substitute.
Molasses ..... pints..	.....	½	.....	½	.....	½	.....	Do.
Dried fruit ..... ounces..	.....	3	.....	3	.....	.....	3	6 ounces of canned fruit or same quantity of fresh fruit.†
Pickles ..... pints..	¼	.....	¼	.....	.....	¼	.....	No substitute.
Vinegar ..... do...	.....	¼	.....	.....	¼	.....	.....	¼ ounce of lime juice daily.
Pepper, black ..... ounces..	½	½	½	½	½	½	½	Cayenne pepper.
Mustard, ground ..... do...	½	½	½	½	½	½	½	No substitute.
Salt ..... do...	¾	¾	¾	¾	¾	¾	¾	Do.
Corn meal ..... pints..	.....	¼	.....	.....	.....	.....	¼	4 ounces of oatmeal or cracked wheat for each ¼ pint.
Onions ..... ounces..	4	.....	.....	.....	4	.....	4	2 ounces of pickled onions for each 4 ounces.
Lard ..... do...	1	1	1	1	1	1	1	No substitute.
Butter, canned ..... do...	1	1	1	1	1	1	1	Same quantity of butterine.

* These substitutes are obligatory.
† Fresh fruits and vegetables to be served while in port.

Table showing quantity of each article and price.

Article.	Quantity.	Quantity per week.	Price.	Price per week.
			Cents.	*Cents.*
Water	1 gallon daily	7 gallons		
Biscuit, pilot, Navy "X"	½ pound daily	3½ pounds	3½	12.3
Salt beef	1½ pounds three times per week	3½ pounds	5½	20.6
Salt pork	1 pound two times per week	2 pounds	4½	9.8
Preserved meat (roast beef)	¾ pound two times per week	1½ pounds	6¼	10
Potatoes or yams	1 pound daily	7 pounds	2	14
Flour	½ pound three times per week	1½ pounds	2	3
Beans, dry, white	½ pint two times per week	1½ pound	2½	1.3
Pease, dry	½ pound two times per week	½ pounds	2½	1.3
Rice	6 ounces two times per week	12 ounces	6	4.5
Tomatoes, canned	½ pound two times per week	1 pound	3	3
Fish, salt or fresh	1 pound two times per week	2 pounds	2	4
Coffee	¾ ounce daily	5¼ ounces	25	8.2
Tea	½ ounce daily	½ ounce	24	1.3
Sugar	3 ounces daily	1 pound 5 ounces.	4	5.2

Table showing quantity of each article and price—Continued.

Article.	Quantity.	Quantity per week.	Price.	Price per week.
			Cents.	*Cents.*
Molasses	¼ pint three times per week	1¼ pints	*20	3.8
Dried fruit	3 ounces three times per week	9 ounces	7½	4.2
Pickles	¼ pint three times per week	⅝ pint	3¾	2.4
Vinegar	do	½ pint	*15	1
Pepper, black	1 ounce per week	1 ounce	12	.8
Fresh bread	1¼ pounds daily	8¾ pounds	2	17½
Mustard, ground	1 ounce per week	1 ounce	32	1.5
Salt	4 ounces per week	4 ounces	1	.3
Corn meal	¼ pint two times per week	½ pint	†2	1
Onions	4 ounces three times per week	12 ounces	†2	1.5
Lard	7 ounces weekly	7 ounces	8	3.5
Butterine	1 ounce daily	do	20	8.8

*Per gallon. †Per pound.

Average of daily ration, 20.15 cents.
NOTE.—The quantity of ration varies from 5 pounds 1 ounce to 5 pounds 9¾ ounces.

The following is the schedule included in bill H. R. 6399, which passed the House of Representatives June 8, 1896:

SEC. 23. That section 4612 of the Revised Statutes is hereby amended by striking out the scale of provisions and substitutes in Table A, and in place thereof inserting the following scale of provisions and substitutes to be allowed and served out to the crew during the voyage:

	Sunday.	Monday.	Tuesday	Wednesday.	Thursday	Friday.	Saturday
Water ..... quarts	6	6	6	6	6	6	6
Biscuit ..... pounds	½	½	½	½	½	½	½
Beef, salt ..... do	.....	.....	1½	.....	1½	.....	1½
Pork, salt ..... pound	.....	1	.....	1	.....	1	.....
Flour ..... do	½	.....	½	.....	½	.....	.....
Canned meat ..... do	1	.....	.....	1	.....	.....	.....
Fresh bread ..... pounds	1¼ pounds daily.						
Fish ..... pound	.....	.....	.....	.....	.....	1	.....
Potatoes or yams ..... do	1	1	1	1	1	1	1
Canned tomatoes ..... do	½	.....	.....	.....	.....	½	.....
Pease ..... pint	.....	.....	½	.....	.....	½	.....
Beans ..... do	.....	½	.....	½	.....	.....	.....
Rice ..... ounces	.....	6	.....	.....	.....	.....	6
Coffee (green berry) ..... ounce	⅜	⅜	⅜	⅜	⅜	⅜	⅜
Tea ..... do	⅛	⅛	⅛	⅛	⅛	⅛	⅛
Sugar ..... ounces	3	3	3	3	3	3	3
Molasses ..... pint	¼	.....	¼	.....	¼	.....	.....
Dried fruit ..... ounces	3	.....	3	.....	3	.....	.....
Pickles ..... pint	.....	¼	.....	¼	.....	¼	.....
Vinegar ..... do	.....	.....	.....	.....	.....	.....	¼
Pepper ..... ounce	¼	¼	¼	¼	¼	¼	¼
Mustard ..... do	¼	¼	¼	¼	¼	¼	¼
Salt ..... do	¼	¼	¼	¼	¼	¼	¼
Corn meal ..... ounces	.....	4	.....	.....	.....	4	.....
Onions ..... do	4	.....	.....	.....	4	.....	4
Lard ..... ounce	1	1	1	1	1	1	1
Butter ..... do	1	1	1	1	1	1	1

Substitutes.—One pound of flour daily may be substituted for the daily ration of biscuit or fresh bread; 2 ounces of desiccated vegetables for 1 pound of potatoes or yams; 6 ounces of hominy, oatmeal, or cracked wheat, or 2 ounces of tapioca for 6 ounces of rice; 6 ounces of canned vegetables for one-half pound of canned tomatoes; one-eighth of an ounce of tea for three-fourths of an ounce of coffee; three-fourths of an ounce of coffee for one-eighth of an ounce of tea; 6

ounces of canned fruit for 3 ounces of dried fruit; one-half ounce of lime juice for the daily ration of vinegar; 4 ounces of oatmeal or cracked wheat for one-half pint of corn meal; 2 ounces of pickled onions for 4 ounces of fresh onions.

When the vessel is in port and it is possible to obtain the same, 1½ pounds of fresh meat shall be substituted for the daily rations of salt and canned meat; one-half pound of green cabbage for one ration of canned tomatoes; one-half pound of fresh fruit for one ration of dried fruit.

"The foregoing scale of provisions shall be inserted in every article of agreement and shall not be reduced by any contract, and a copy of the same shall be posted in a conspicuous place in the galley and in the forecastle of each vessel."

VIVISECTION.

A bill having been introduced in Congress relating to vivisection, the effect of which if passed as presented would impair the efficiency of the laboratory work of this Service, the following letter was addressed to the chairman of the Committee on the District of Columbia, United States Senate:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., May 19, 1896.

SIR: Referring to Senate bill 1552 for the further prevention of cruelty to animals in the District of Columbia, the effect of which if enacted into law will materially retard scientific work in the interest of humanity, I wish by way of protest to invite your attention to the practical results which have been obtained by the use of antitoxin in the treatment of diphtheria, which results would have been unattainable if science had been restricted in the manner proposed in this bill. The Marine-Hospital Service was one of the first agencies in the United States through which the antitoxic serum was prepared and distributed. A school of instruction was opened in its laboratory for the benefit of municipal and State health officers, and by act of Congress the Bureau was directed to cooperate with the health officer of the District of Columbia in the prevention of diphtheria. A collective investigation, in order to show the practical results of the work, has been conducted by the Bureau, and the following statistics have been obtained:

In 109 cities of the United States, with a total population of 11,125,000 (according to the census of 1890), from 1891 to 1894, inclusive, there were 131,620 cases of diphtheria and croup, with 51,820 deaths, a mortality of over 39 per cent. This is a fair estimate of the mortality of the disease without the use of antitoxin. In 1895, 5,125 cases of diphtheria and croup are recorded as having been treated with antitoxin, with a mortality of 552 or 10.7 per cent, and during the same period in the same localities 2,936 cases were treated without the use of antitoxin, with a mortality of 1,110 deaths, a death rate of 40 per cent.

Additional statistics in further illustration of the value of antitoxin might be readily cited here, but will appear in other communications. These are sufficient to demonstrate the value of this remedy, which could not have been prepared under the restraints proposed by this bill.

I have been informed that it has been suggested to amend the bill so that it shall not affect experimental inoculation, but there is no consistency in making such exception, for it is well known that animals suffer as much from the after effects of experimental inoculation as from the minor operations connected with vivisection. The same principle which would prevent the bleeding of a horse for the purpose of obtaining the antitoxin serum should prevent his inoculation for the purpose of producing it, or the inoculation of any animal with any germ of disease which will cause illness. Had this principle prevailed there would have been no discovery of the bacillus of cholera, upon which the suppression of that

hitherto irrepressible disease has become a scientific and practicable possibility. In fact, I may add that the quarantine methods of the present day, through which epidemic diseases are excluded from the United States by scientific disinfection, have their basis in these experiments.

I transmit herewith for your information a copy of letter received upon this same subject from P. A. Surg. J. J. Kinyoun, of the Marine-Hospital Service, who has for several years conducted the hygienic laboratory of this service.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

The CHAIRMAN OF THE COMMITTEE ON THE DISTRICT OF COLUMBIA,
United States Senate.

MARINE HOSPITALS AND RELIEF FURNISHED.

During the fiscal year ended June 30, 1896, the total number of patients treated by the Service was 53,804, of which number 12,954 were treated in hospital, the remainder, 40,850, being dispensary or out-patients. One hundred and forty seamen of the merchant marine were examined before shipment as to their physical fitness, and 3 of the number were rejected.

The following relief stations have been discontinued on account of the small number of sailors treated and the proximity to other and larger stations, viz: Alexandria, Va., July 31, 1895; Michigan City, Ind., April 30, 1896, and Tuckerton, N. J., March 31, 1896. The services of the acting assistant surgeon at Belfast, Me., were discontinued June 30, 1895, and the port placed in the list of third-class stations.

SYSTEMATIC INSPECTION OF MARINE HOSPITALS AND RELIEF STATIONS.

A thorough system of inspection of marine hospitals and of relief stations has been inaugurated during the year, and it is proposed to have each hospital and station inspected not less than once a year and oftener if required, and reports thereon submitted on the blank form prescribed by the Bureau. The following blank forms have been issued:

INSPECTION OF UNITED STATES MARINE HOSPITALS.

Instructions to medical officers of the Marine-Hospital Service detailed to make inspections of United States marine hospitals.

1. Your visit to the station should be unannounced.
2. Upon arrival at the port you will first call upon the commanding officer and arrange with him for an inspection of the hospital, which should be made as soon after arrival as practicable.
3. You will then visit the office where out-relief is furnished.
4. You will make appropriate entries to each question of this inspection blank, and forward to this office upon the completion of your duty.

WALTER WYMAN,
Supervising Surgeon-General, U. S. Marine-Hospital Service.

Name of hospital, ——.
When was station last inspected? ——.
Name of inspector, ——

I. PERSONNEL.

Name of officer in command of Service, ———.
Date of assignment to duty, ———.
Name and rank of assistants, including acting assistant surgeons and internes; also give number of members in each family, ———.
Name of stewards and number of members in each family, ———.
Name and duties of each attendant, ———.

II. HOSPITAL.

Location of building used as hospital, ———.
Describe general construction of the hospital building, ———.
Describe the wards:
(*a*) Dimensions, ———.
(*b*) Number of beds in each ward, ———.
(*c*) How many beds can be added for emergencies? ———.
(*d*) Cubic air space allowed each patient: ———.
(*e*) Heating, lighting, and ventilating: ———.
(*f*) What kind of bedsteads, and what kind of mattresses and bedding? ———.
(*g*) Report upon condition of bedding occupied by the patients: ———.
Are separate rooms or wards provided for the treatment of officers? Give number of beds. ———.
What is the condition of wards as to cleanliness? ———.
Is there an operating room? Is it properly equipped? ———.
Is the force of nurses sufficient, and are those so employed trained to their duties? ———.
Does the character of the diet furnished conform to that prescribed by the regulations? ———.
Are the patients under treatment in hospital correctly recorded in the register, and are all present? ———.
If any patients are not at hospital at time of examination, state why. ———.
What is the practice in regard to allowing patients to leave the hospital? Are they allowed to remain out overnight? ———.
Are the cases under treatment proper ones for hospital relief? ———.
How are the medicines administered to the patients? ———.
Give name and diagnosis of patients who have been under treatment in hospital for a period of one year or more. ———.
State whether, after careful examination, you recommend the discharge of any of these patients. ———.
Is the clinical record system properly kept? ———.
What precautions are taken with tuberculous patients? ———.
What is the average cost of a ration for the past fiscal year? ———.
Is there a complete set of annual reports, Marine-Hospital Service, on file? ———.
Are the records of the station properly kept, and up to current work? ———.
Describe general construction of the outbuildings. ———.
Is there an isolation ward? Give number of beds. ———.
Is there an autopsy room? Is it properly equipped? ———.
Describe officers' quarters and condition of furniture therein. ———.
Describe stewards' and attendants' quarters and condition of furniture therein. ———.
Describe hospital dining room and condition of table furniture and tableware. ———.
State the condition of kitchen and furniture. ———.

State the condition of dispensary. ———.
State the condition of laundry. ———.
State the condition of road approaches to hospital. ———.
State the condition of fences and grounds. ———.
Describe water supply. ———.
Describe drainage and condition of water-closets. ———.
What is the method of disposal of slops? ———.
State whether any animals not authorized by the Department are kept on reservation. ———.

III. STABLE AND GARDEN EQUIPMENT.

State, approximately, the age and condition of each horse, and how long in service at this station. ———.
Give number and character of vehicles. Do they appear properly cared for? ———.
Are harnesses in good condition? ———.
Are the tools and garden implements in good condition? ———.

IV. DISCIPLINE.

Are officers and employees supplied with uniform in accordance with the revised uniform regulations, 1896? ———.
Are uniforms properly worn? ———.
Give method of granting leaves to officers and employees. ———.
Describe facilities for handling a fire, as shown by drill performed in your presence. ———.
Describe the methods of conducting inspection and muster, as performed in your presence. ———.

V. OFFICE OR OUT-RELIEF.

Is the room for the reception of marine-hospital patients suitable for the purpose? ———.
What is the location and distance from hospital? ———.
Is it kept clean and in order? ———.
Is it satisfactorily equipped for dispensary purposes? ———.
Is the supply of medicines sufficient? ———.
What is the condition of the public property (furniture, medicines, implements, instruments, etc.)? ———.
What records are kept? ———.
Are they correctly kept and up to current work? ———.

VI. GENERAL ADMINISTRATION.

Give number of marine-hospital patients treated during the last fiscal year; and the number treated during the present fiscal year to date of report. ———.
Give average duration of treatment in hospital of patients under treatment at date of inspection. ———.
Give the number of out-patients during the last fiscal year and the number of out-patients during the present fiscal year to date of report. ———.
Give the ratio of hospital to out-patients during the last fiscal year and during the present fiscal year to date of report. ———.
Give annual amount expended at station for the past three years. (See Annual Reports.) ———.
What method is used in disposing of the effects and moneys of seamen.? ———.
Give the immediate needs of the station as stated by the commanding officer. ———.

VII. REMARKS AND RECOMMENDATIONS.

I certify that the foregoing is a careful and correct statement of the condition of the Service at the port of ———, inspected by me this —— day of ———, 189—.

———— ————,

Surgeon, U. S. M. H. S., Inspector.

INSPECTION OF CONTRACT STATIONS IN COMMAND OF COMMISSIONED OFFICERS.

Instructions to medical officers of the Marine-Hospital Service detailed to make inspections of contract stations in command of commissioned officers.

1. Your visit to the station should be unannounced.
2. Upon arrival at the port you will first call upon the medical officer in command and arrange with him for an inspection of the hospital, which should be made as soon after arrival as practicable.
3. You will then visit the office where out-relief is furnished.
4. You will make appropriate entries to each question of this inspection blank and forward to this office upon the completion of your duty.

WALTER WYMAN.

Supervising Surgeon-General, U. S. Marine-Hospital Service.

I. PERSONNEL.

1. Name of relief station. ———.
2. Name of officer in charge of Service. ———.
3. Date of assignment. ———.
4. Name of contractor furnishing quarters, etc. ———.
5. How long has contract been held by present party? ———.
6. Is there competition for it annually? ———.
7. What is the charge per diem? ———.
8. When was the station last inspected? ———.
9. Name of inspecting officer. ———.

II. HOSPITAL.

1. Location of building used as hospital. ———.
2. Is it used entirely for hospital purposes, and if not, for what other purpose is it used? ———.
3. Describe general construction. ———.
4. Are the marine-hospital patients treated in separate wards? (This should be insisted upon when practicable.) ———.
5. Describe the wards occupied by marine-hospital patients:
   (*a*) Dimensions. ———.
   (*b*) Number of beds in each ward. ———.
   (*c*) Cubic air space allowed each patient. ———.
   (*d*) Heating, lighting, and ventilating. ———.
6. Hospital furniture:
   (*a*) What kind of bedsteads, and what kind of mattresses and bedding? ———.
   (*b*) Report upon the condition of bedding occupied by marine-hospital patients. ———.
   (*c*) Are the beds clean and free from vermin? ———.
7. What is the condition of wards as to general cleanliness? ———.
8. Is the nursing sufficient, and is the nurse employed trained to the duties? ———.

9. Is the character of the diet furnished the same or equal to that prescribed in the diet table for marine hospitals? ———.

10. If not, what is the ordinary diet furnished? ———.

11. Is extra diet furnished for special cases? ———.

12. Are the patients under treatment in hospital correctly recorded in the register, and are all present? ———.

13. If any marine-hospital patients are not at hospital at time of examination, state why. ———.

14. What is the practice in regard to allowing marine-hospital patients to leave the hospital? Are they allowed to remain out over night? ———.

15. Are the cases under treatment proper ones for hospital relief? ———.

16. How are the medicines administered to the patients? ———.

III. OFFICE OR OUT-RELIEF.

1. Is the room for the reception of marine-hospital patients suitable for the purpose? ———. Location and distance from hospital. ———.

2. Is it kept clean and in order? ———.

3. Is it satisfactorily equipped for dispensary purposes? ———.

4. Is the supply of medicines sufficient? ———.

5. What is the condition of the public property (furniture, medicines, implements, instruments, etc.)? ———.

6. What records are kept? ———.

7. Are they correctly kept and up to current work? ———.

8. Are copies of reports kept on file? ———.

IV. GENERAL ADMINISTRATION.

Give number of marine-hospital patients treated during the last fiscal year and the number treated during the present fiscal year to date of report. ———.

Number of days' relief furnished marine-hospital patients during the last fiscal year, and the average duration of treatment in hospital. ———.

Give the number of out-patients during the last fiscal year; and the number of out-patients during the present fiscal year to date of report. ———.

In your opinion, are marine-hospital patients sent to the hospital who might be treated at the office? ———.

Give the ratio of hospital to out patients during the last fiscal year and during the present fiscal year to date of report. ———.

V. REMARKS AND RECOMMENDATIONS.

I certify that the foregoing is a careful and correct statement of the condition of the Service at the port of ———, inspected by me this —— day of ———, 189—.

——— ———,

Surgeon, U. S. M. H. S., Inspector.

Inspection of Second and Third Class Stations.

Instructions to medical officers of the Marine-Hospital Service detailed to make inspections of relief stations of the second class.

1. Your visit to the station should be unannounced.

2. Upon arrival at the port you will first call upon the acting assistant surgeon and arrange with him for an inspection of the hospital, which should be made as soon after arrival as practicable.

3. You will then visit the office where out-relief is furnished.

4. You will then call upon the collector of customs, if that officer issues relief certificates, and examine the records of the same.

5. You will make appropriate entries to each question of this inspection blank and forward to this office upon the completion of your duty.

WALTER WYMAN,
Supervising Surgeon-General U. S. Marine-Hospital Service.

I. PERSONNEL.

1. Name of relief station. ———.
2. Name of officer in charge of Service. ———.
3. Date of appointment. ———.
4. Name of contractor furnishing quarters, etc. ———.
5. How long has contract been held by present party? ———.
6. Is there competition for it annually? ———.
7. What is the charge per diem? ———.
8. When was the station last inspected? ———.
9. Name of inspecting officer. ———.

II. HOSPITAL.

1. Location of building used as hospital. ———.
2. Is it used entirely for hospital purposes; and if not, for what other purpose is it used? ———.
3. Describe general construction. ———.
4. Are the marine-hospital patients treated in separate wards? (This should be insisted upon when practicable.) ———.
5. Describe the wards occupied by marine-hospital patients. ———.
   (*a*) Dimensions. ———.
   (*b*) Number of beds in each ward. ———.
   (*c*) Cubic air space allowed each patient. ———.
   (*d*) Heating, lighting, and ventilating. ———.
6. Hospital furniture. ———.
   (*a*) What kind of bedsteads, and what kind of mattresses and bedding? ———.
   (*b*) Report upon the condition of bedding occupied by marine-hospital patients. ———.
   (*c*) Are the beds clean and free from vermin? ———.
7. What is the condition of wards as to general cleanliness? ———.
8. Is the nursing sufficient, and is the nurse employed trained to the duties? ———.
9. Is the character of the diet furnished the same or equal to that prescribed in the diet table for marine hospitals? ———.
10. If not, what is the ordinary diet furnished? ———.
11. Is extra diet furnished for special cases? ———.
12. Are the patients under treatment in hospital correctly recorded in the register, and are all present? ———.
13. If any marine-hospital patients are not at hospital at time of examination, state why. ———.
14. What is the practice in regard to allowing marine-hospital patients to leave the hospital? Are they allowed to remain out over night? ———.
15. Are the cases under treatment proper ones for hospital relief? ———.
16. How are the medicines administered to the patients? ———.

III. OFFICE OR OUT RELIEF.

1. Is the room for the reception of marine-hospital patients suitable for the purpose? ———. Location and distance from hospital. ———.

2. Is it kept clean and in order? ———.
3. Is it satisfactorily equipped for dispensary purposes? ———.
4. Is the supply of medicines sufficient? ———.
5. What is the condition of the public property (furniture, medicines, implements, instruments, etc.)? ———.
6. What records are kept? ———.
7. Are they correctly kept, and up to current work? ———.
8. Are copies of reports kept on file? ———.

IV. GENERAL ADMINISTRATION.

Give number of marine-hospital patients treated during the last fiscal year and the number treated during the present fiscal year to date of report. ———.

Number of days' relief furnished marine-hospital patients during the last fiscal year, average duration of treatment in hospital. ———.

Give the number of out-patients during the last fiscal year, and the number of out-patients during the present fiscal year to date of report. ———.

In your opinion, are marine-hospital patients sent to the hospital who might be treated at the office? ———.

Give the ratio of hospital to out patients during the last fiscal year, and during the present fiscal year to date of report. ———.

V. REMARKS AND RECOMMENDATIONS.

I certify that the foregoing is a careful and correct statement of the condition of the service at the port of ———, inspected by me this —— day of ———, 189—.

———— ————,

Surgeon, U. S. M. H. S., Inspector.

MARINE HOSPITALS—STATEMENT BY STATIONS OF REPAIRS MADE AND NEEDED.

The following is a statement of repairs and alterations made during the fiscal year, and of repairs and alterations still needed at the several marine hospitals:

Hospital at Baltimore, Md. (erected 1887).—Surg. George W. Stoner makes the following report of repairs and improvements at this hospital station:

Repairs to plumbing, consisting of new baths and water-closets in executive building, surgeon's quarters, and employees' building, have been made at a cost of $315.08.

General repairs to the floors and the baseboards of the several buildings, to verandas, steps, and fences, have been completed at a cost of $262.24. Various minor repairs have cost $161.48.

A marked improvement has been made in the terraces along the roads and footpaths of the hospital grounds by grading and sodding.

Under the head of improvements or unusual repairs for the ensuing fiscal year, for which a special appropriation must be made, the medical officer in command reports the following needed improvements: An addition to the boiler house and engine room for the storage of fuel and for housing a disinfecting apparatus, the structure to be of brick with slate roof, to correspond with surrounding buildings—estimated cost, $2,000; a separate ward building for patients suffering

from tuberculosis, with accommodations for a bacteriologic laboratory—estimated cost, $3,000; additional story on rear wing of surgeon's house—estimated cost, $1,000.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: New inside doors for all buildings, $350; repairs to plumbing, three wards, $500; new concrete floor for boiler house, $35; new concrete floor for laundry, $45; new concrete or brick pavement for central entrance to hospital grounds, $35; repairs to walks, driveways, and gutters, $650. Division fence, south side, $100. Medical officer in command reports that the outside of the wooden buildings is now in bad condition, especially about the corners and along the sills and water tables and a considerable portion of the new veranda.

Hospital at Boston, Mass. (erected 1860).—Surg. H. W. Austin makes the following report of repairs and improvements at this hospital station:

The plumbing in the surgeon's quarters, the passed assistant surgeon's quarters, and the assistant surgeon's quarters has been renewed and repaired, at a total cost of $947.

The heating apparatus of the hospital has been repaired, at a cost of $387.78.

Miscellaneous repairs—the principal one of which was a new iron water-supply tank and connections for same, costing $1,451.14—have been made to different portions of the hospital, and the usual minor repairs, such as painting, etc., have been made by attendants at the cost of material only, in amount $131.23.

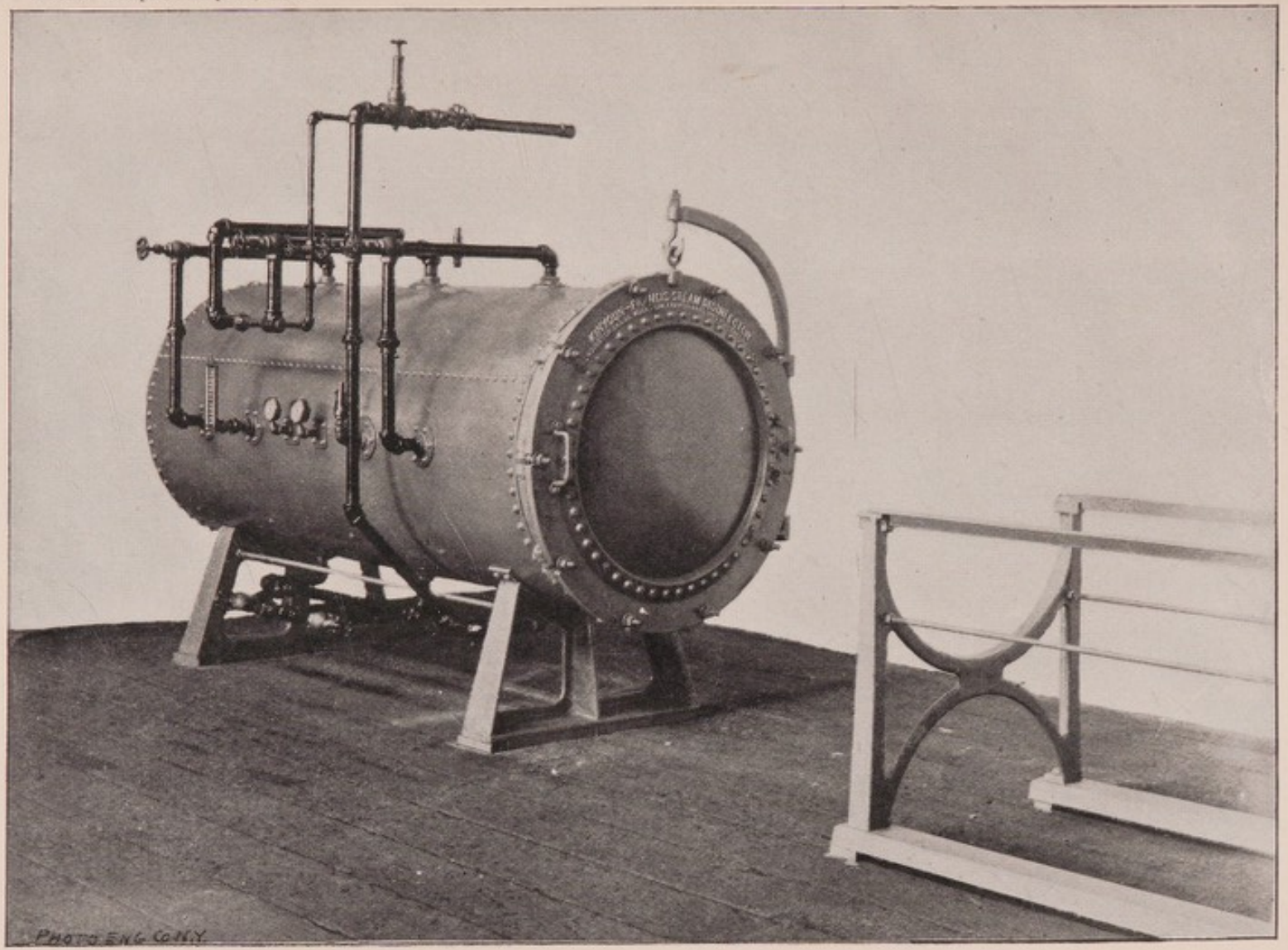
Under the head of improvements or unusual repairs for the ensuing fiscal year, for which a special appropriation should be made, the medical officer in command reports the following needed improvements: Residence for the surgeon in command, $9,500; constructing new entrance roadway, $3,500; tile flooring for entrance hall and for surgical operation room, $900; new ward floors, $500.

Under the head of ordinary repairs required during the ensuing fiscal year, which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: Repairs to dumb-waiter, $50; new floor in kitchen, $40; repairs to plumbing, surgeon's quarters, $50; new outside window sashes, fourth floor of hospital, $160; repairs to roof, $90; relaying slate titles on verandas, $1,200; grading hospital yard, $150; miscellaneous minor repairs, $200.

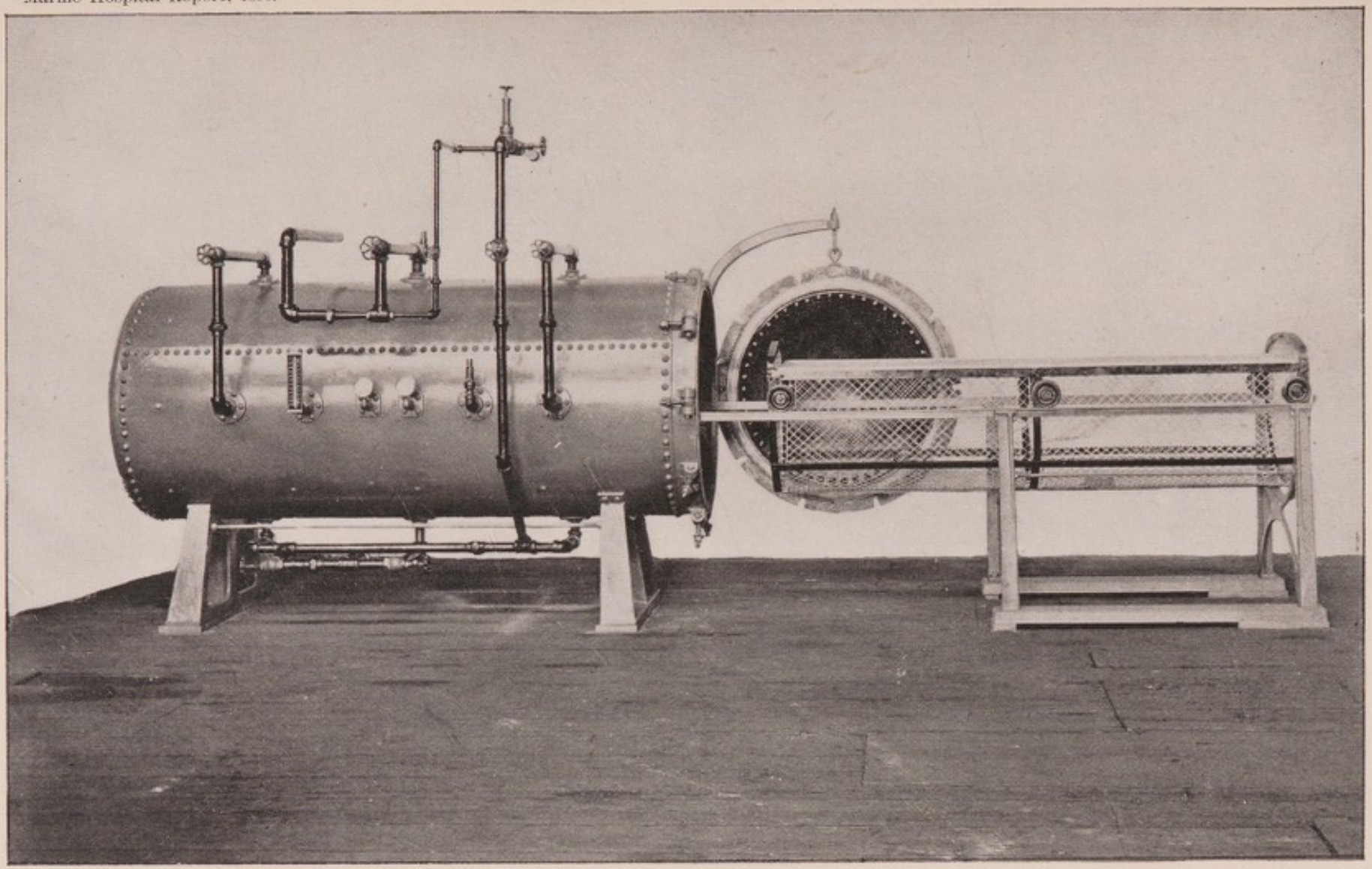
Hospital at Cairo, Ill. (erected 1885).—Surg. J. M. Gassaway makes the following report of repairs and improvements at this hospital station:

A portion of the main dining room, hospital kitchen building, was set off by a substantial partition wall with door, thus affording long-needed storage room.

The rooms in each of the two stories originally intended for a dining room, but



STEAM DISINFECTOR, PROVIDED FOR THE U. S. MARINE HOSPITAL FOR THE PORT OF BOSTON, MASS.
(Kinyoun-Francis pattern.)



STEAM DISINFECTOR, PROVIDED FOR THE U. S MARINE HOSPITAL FOR THE PORT OF BOSTON, MASS.
(Kinyoun-Francis pattern.)

heretofore used for sleeping and storage rooms, were restored to their appointed use, and fitted with hot and cold water and sewer connections, at an expense of $234.

A new kitchen sink, with hot and cold water supply and new sewer connections, was placed in the hospital kitchen, at an expense of $74.50.

A large number of minor repairs to gas, water, and steam piping were made by attendants, at a cost of material only, aggregating $25.34.

During the year the hospital attendants have been employed in thoroughly clearing the reservation of weeds and undergrowth, and repairing the roadways and pavements, and a large number of minor repairs have been done by them to all departments of the hospital without cost to the Government, from materials already on hand.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: Labor and material for painting hospital buildings, $370; miscellaneous minor repairs, $117.

Hospital at Chicago, Ill. (*erected 1873*).—Surg. J. B. Hamilton makes the following report of repairs and improvements at this hospital station:

Repairs to plumbing in the water-closets of three wards have been made, replacing the old closets and wash basins with new, and tiling the floor of each lavatory, and replacing the wood wainscoting with marble, have been made, at a cost of $1,634.

Minor repairs to the steam-heating apparatus have been made, at a cost of $221.

Under the head of improvements or unusual repairs for the ensuing fiscal year, for which a special appropriation must be made, the medical officer in command reports the following as desirable: A surgeon's cottage, at an estimated cost of $10,000, and a new barn and ambulance house, at a cost of $10,000. He recommends the following as necessary: An iron fence, 535 feet in length, in front of hospital, with gates, estimated cost, $1,300, and trees and shrubbery to improve the grounds, $500; repairs to plumbing, $2,600; new engine for laundry and steam pump, $850.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: New bake oven for hospital kitchen, $250; repairs to stable, $100.

Hospital at Cincinnati, Ohio (*erected 1884*).—P. A. Surg. J. O. Cobb makes the following report of repairs and improvements at this hospital station:

A complete steam-laundry plant has been installed, including 1 metallic washer, 1 sterilizing washing machine, 1 steam mangle, 1 centrifugal extractor, a drying room with steam coils, 1 combined ironer, 1 vertical 6 by 6 engine, and 15-horse-power steam boiler, gas stoves, boiler, wash truck, starch cooker, soap tank, and a 30,000-gallon "Bowden" water filter, which filters all the water supply to the

hospital. This plant, together with alterations in the laundry room, was paid for from a special appropriation of $2,700. Repairs to the heating apparatus, including a new safety valve to the boiler, have been made, at a total cost of $393.54. Repairs to plumbing and material for same, including a stationary washstand, were completed, at a cost of $146.80.

The system of heating acting assistant surgeon's quarters was changed from open fireplaces to steam heating, which cost, including an overhauling of the heating apparatus, $195.

All of the exposed steam pipes throughout the building were covered with magnesia covering, at a cost of $178.40, which is expected to result in a great saving of fuel.

Various minor repairs to windows, stable floors, etc., were made, partly by the labor of hospital attendants, at the cost of material only, at an expense of $224.

Under the head of improvements or unusual repairs for the ensuing fiscal year, for which a special appropriation must be made, the medical officer in command reports the following needed improvements: Additional story, surgeon's residence, $1,100; addition to office building for attendants' quarters, $2,625.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: Painting exterior of executive building, surgeon's residence, office, and barn, $325; renewing floors, lower east ward, $125; renewing floors, dining rooms and hall way, $125; miscellaneous minor repairs, $85.

Hospital at Cleveland, Ohio (*erected 1852*).—This hospital, which for the twenty years ending April 1, 1896, had been under lease to the Lakeside Hospital Association, was, under its terms and an added six months agreed upon by a special arrangement with the Supervising Architect, turned over to the Department and reopened as one of the hospitals of the Service. The building was found to be in a very bad state of repair in all its departments, and an inspector from the Supervising Architect's Office was detailed to make an examination of its condition and report upon the improvements immediately necessary to place it in a condition for occupancy, and his report embraced an estimated expenditure of $8,000. As the hospital was not constructed interiorly with a view to affording quarters for the medical officer in command, the inspector also recommended the erection of a surgeon's residence, at a cost of $10,0000. The state of the fund for repairs and preservation of marine hospitals would not admit such a large expenditure for repairs to be allotted to this station at that time, and a special bill was introduced into the House of Representatives by the Member of Congress from the Cleveland district, providing for an appropriation of $18,000 to cover these two items, but this bill was not acted upon at the last session, although it may receive attention at the ensuing one. The hospital was equipped with the necessary supplies for the wards, dining room, kitchen, and quarters for the employees from the marine hospital and other funds available for

such purposes, and the building was opened for the reception of patients on April 1, 1896.

During the ensuing fiscal year the completion of the equipment will receive the attention of the Bureau, and with the needed repairs made it is anticipated that this hospital will again be a credit to the Service.

Under the head of improvement or unusual repairs for the ensuing fiscal year, for which a special appropriation must be made, the medical officer reports the following needed improvements in addition to the surgeon's residence heretofore alluded to: New roof on main building, mansard, with dormer windows, to provide quarters for attendants, $7,500; repairing driveway (600 square yards), $1,500.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: Cement sidewalks (150 square yards), $350; connecting down spouts with sewer (700 feet of 4 and 6 inch tile laid in cement), $875; sodding and filling terrace (724 square yards), $400.

Hospital at Delaware Breakwater, Delaware (established 1894).—P. A. Surg. C. P. Wertenbaker reports as follows concerning this hospital:

On November 1, 1894, the relief station at Lewes, Del., was discontinued, and the United States Marine Hospital, Delaware Breakwater, Delaware, was established. One of the buildings belonging to the quarantine station, which had never had contagion in it, was cut off from the quarantine inclosure by a high picket fence and converted into a marine hospital, the medical officer in command of the quarantine station acting in the same capacity for the marine hospital. The advantages of the change from Lewes to its present location have been very apparent. The situation is much more convenient to the shipping in the harbor, enabling the sick to be landed more rapidly and conveniently. It also allows the quarantine officer to exercise a more complete supervision over the vessels coming into the harbor, and the dangers of quarantinable disease on vessels from domestic ports escaping notice is materially lessened. The cost of maintenance of patients has also been greatly decreased.

During the fiscal year just ended the following repairs have been made to the hospital building: The roof has had leaks stopped, chimneys pointed, new gutters and down pipes put in, windows and frames repaired, a new floor laid in hospital kitchen and connecting corridor, new floor and steps for front porch, new railing around porch, a new sink put in hospital dispensary, and water and sewer connections made, at a total cost of $285.

Additions needed.—There should be erected near the present hospital building a two-story frame building of approximately the following dimensions: Length, 30 feet; width, 20 feet; height, 30 feet. The lower floor to be used as a dining room for patients and attendants, the upper floor to be used as a barrack for attendants. There is at present no dining room for attendants or patients. The former are eating in a room belonging to the steward's quarters, while the patients have to eat in the ward. The quarters for the attendants are insufficient, being in an attic room over the hospital ward. They are extremely warm in summer and as correspondingly cold in winter. The erection of the above-mentioned building would cost about $1,000.

There are no bath accommodations in connection with the present hospital, and closet accommodations consist of latrines, some distance from the buildings, and hospital chair seats. There should be built a bathroom and water-closet adjoining the ward, 12 feet square, capable of containing two tubs and two closets. The connections can be made to the present water supply; total cost, $250.

Hospital at Detroit, Mich. (*erected 1857*).—Surg. W. H. H. Hutton makes the following report of repairs and improvements at this hospital station:

The repairs and improvements at this station during the past fiscal year have been of a minor character only, and have been completed at a total cost of $222.29.

The various rooms throughout the hospital building have been painted, at a cost of material only, by the hospital attendants. Three new doors and two bulkheads have been placed in the basement of the surgeon's residence at a cost of $48, and repairs to the roadways and walks on the reservation have been made at a cost of $75, both amounts being chargeable to the special appropriation for the surgeon's residence and isolation ward.

Under the head of improvements or unusual repairs for the ensuing fiscal year, for which a special appropriation must be made, the medical officer in command reports the following needed improvements: Brick annex, about 15 or 16 feet square, to be substituted for the present space now occupied by the bathrooms and water-closets, to be constructed of the material and the architecture corresponding to the present exterior of the hospital, embracing in all four floors; estimated cost, $5,000. Artificial ventilating apparatus, $2,000. Painting of exterior and interior of the hospital building, $1,500.

The medical officer further reports that the hospital has an independent sewer, extending a distance of about 1,000 feet from the building to the Detroit River, emptying between docks now controlled by the Light-House Department. There is no current in the slips between the docks, and all the débris from the hospital settles to the bottom and seriously contaminates the water. Cases of enteric fever from vessels lying in these slips have been admitted to the hospital, and the source of infection seems to be evidently the drinking of water taken from that point. The medical officer in command recommends that the sewer be intercepted at a point 20 feet back of the bulkhead of the docks, and extending same at right angles a distance of 225 feet to the deep water of the channel, where the current will carry off the hospital sewage. The estimated cost of this work is $937.50.

Hospital at Evansville, Ind. (*erected 1891*).—P. A. Surg. P. M. Carrington gives the following report of repairs and improvements at this hospital station:

Repairs and alterations to the heating apparatus have been made under contract at a cost of $460, and include an extension of the smokestack 20 feet, resetting of the boilers, and reconstruction of the furnaces.

The verandas have been painted at a cost of $127.43 (for material), the labor of which was performed by the hospital attendants.

Miscellaneous repairs to plumbing, ranges, etc., at an aggregate cost of $130.83, and to fire hose, tools, pipe covering, and miscellaneous materials for the repair of the heating apparatus have been made at a total cost of $326.92.

Under the head of improvements or unusual repairs for the ensuing fiscal year, for which a special appropriation must be made, the medical officer in command reports the following needed improvements: Painting of the buildings, internally and externally, $2,000; reshingling buildings, providing surface gutters, alterations to surgeon's residence, balcony to executive building, and a new flagstaff are needed, at an estimated cost of $1,842.40.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: Repairs to plumbing, $150; miscellaneous repairs, $250.

Hospital at Key West, Fla. (*erected 1840*).—P. A. Surg. G. M. Guiteras makes the following report of repairs and improvements at this hospital station:

Only minor repairs have been made at this station during the past fiscal year. The labor was performed by the hospital attendants and the material was on hand.

Hospital at Louisville, Ky. (*erected 1852*).—P. A. Surg. W. P. McIntosh makes the following report of repairs and improvements at this hospital station:

Minor repairs only have been made during the past year, principally to plumbing and heating apparatus, at a cost of $163.37. Six hundred feet of board walks have been laid on the grounds from material left over after tearing down an old stable. A new paling fence has been placed on the east-side front yard, which now makes a continuous fence 300 feet in length, adding much to the appearance of the lawns. The basement of the hospital building has been thoroughly cleaned, cleared of refuse, scraped, and whitewashed.

One room in the basement has received a temporary floor, set of steps placed in area way leading to this room, and porcelain-lined sink and cold-water attachments placed therein for use as a kitchen and laundry for medical officer in command.

The surgeon's office has been moved across the hall, and stationary washstand with hot and cold water placed therein. The steward's office, which was formerly a dispensary, has been placed in room vacated by the surgeon, and authority has been obtained to cut a door to these rooms, which will add much to the convenience of passing to and from the dispensary.

The sterile spaces of ground in lawns, amounting to several acres, have been fertilized, and several bushels of grass seed sown, giving the lawns a uniform and elegant appearance.

Under the head of improvements or unusual repairs for the ensuing year, for which a special appropriation must be made, the medical officer in command reports the following needed improvements: Steam heating apparatus, with steam laundry, estimated cost, $4,000; residence for the surgeon in command, $6,000; iron fence to surround the reservation, with stone or brick foundation, $2,500.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: Repairing floors and windows of fourth story, $200; new floors on two porches, first story, two on second, and two on third, $350; flooring four bathrooms with marble or encaustic tiling, $300; new blinds to windows of first and second floors, $300; miscellaneous minor repairs, $100.

Hospital at Memphis, Tenn. (*erected 1885*).—P. A. Surg. G. B. Young makes the following report of repairs and improvements at this hospital station:

Repairing broken sewer, $100; miscellaneous minor repairs, at cost of materials only, the labor for same being performed by hospital attendants, $39. Repairs to plumbing in hospital and quarters were completed at a cost of $75.20.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: New concrete floor in coal cellar, $51; new cement floor, tool room, $37.80; resetting mantels, $37.50; two new sinks for wards, $30; miscellaneous minor repairs, part of which is for material, $163.55.

Hospital at Mobile, Ala. (*erected 1843*).—Surg. R. D. Murray makes the following report of repairs and improvements at this hospital station:

The repairs and improvements have been of a minor character, involving many small details, part of the labor for which was performed by the hospital attendants and at the cost of material. The entire expense for these various items has been $143.30. Certain other work, involving a probable expenditure of about $2,000, is now under consideration by the Department, and will soon be under way.

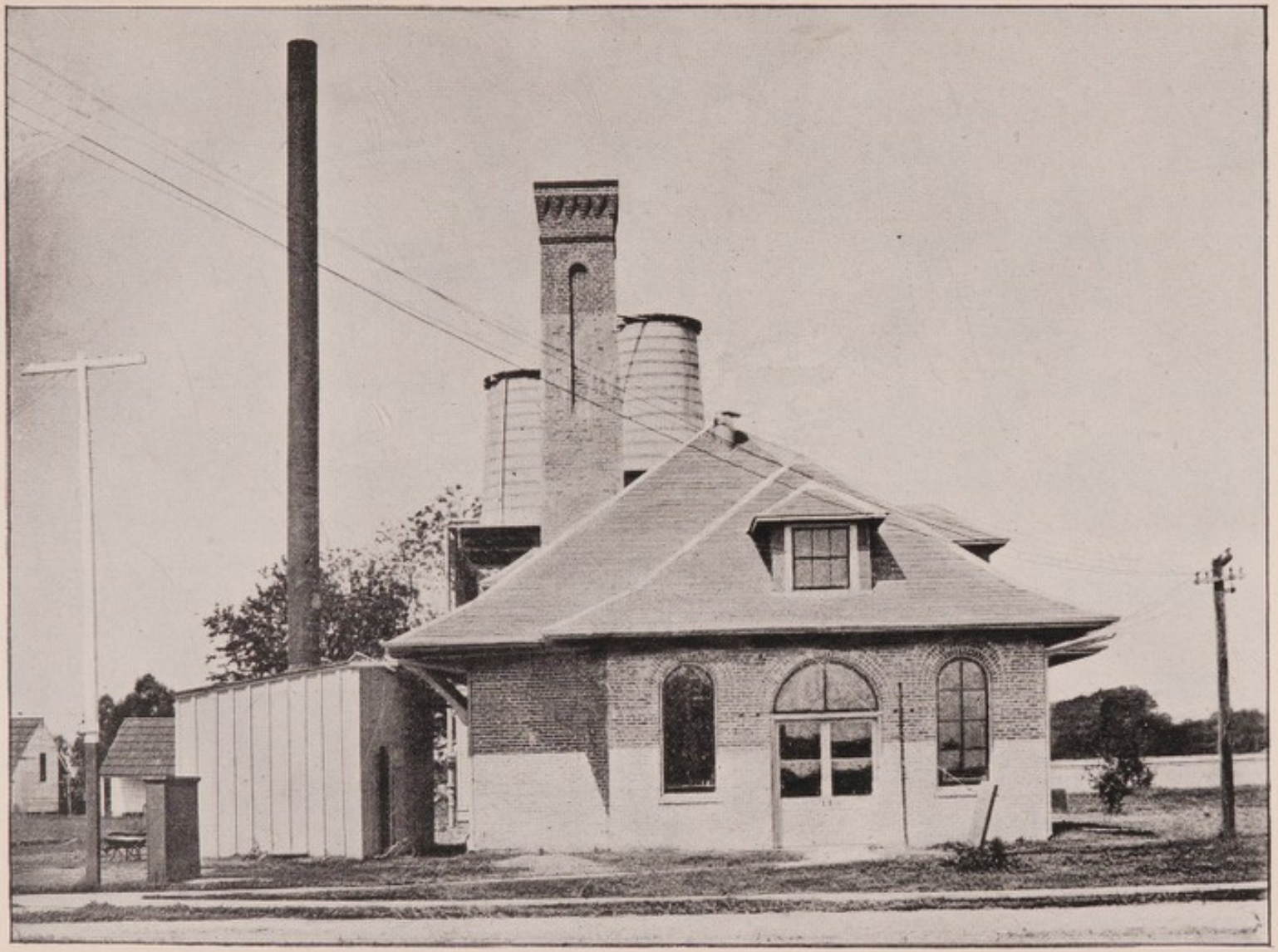
Hospital at New Orleans, La. (*erected 1885*).—Surg. H. W. Sawtelle gives the following report of repairs and improvements at this hospital station:

The work performed under contract has been as follows: Interior executive building, surgeon's, and senior assistant surgeon's quarters have been repainted at a cost of $285.

The resetting of the tubular steam boiler, at a cost of $620, has been finished, the new slate roof for executive building, at a cost of $274, has been laid, and other work under contract, repairs to stoves and mantels, costing $220.93; new galvanized-iron hot-water boiler, costing $54; new water cistern for surgeon's quarters, costing $65, have also been completed during the past fiscal year.

Various minor repairs have been made by hospital attendants to the several departments of the hospital, at a cost of material only, at a total expense of $91.81. The willow bushes on the batture of the reservation, which not only obstructed the view of the river, but also were the source of myriads of mosquitoes, have been repeatedly cut down.

The greater part of the grounds, particularly around the executive building, the



NEW LAUNDRY AND ELECTRIC LIGHT BUILDING, NEW ORLEANS, LA.

wards, and the officers' quarters, have been leveled off and graded, thus greatly improving their appearance.

About 4,000 loads of sand were hauled from the batture for this purpose. Several flower beds have been laid out on the lawns in front of the executive building, and many china and cottonwood trees planted.

Under the head of improvements and unusual repairs for the ensuing fiscal year, for which a special appropriation must be made, the medical officer reports the following needed improvements: A new entrance and driveway to the hospital from Henry Clay avenue, including a Schillinger sidewalk—estimated cost, $1,300; relaying brick pavement about the reservation, 1,540 square yards—estimated cost, $900; painting of the exterior of all the buildings on the reservation—estimated cost, $2,400; planting new piles and providing iron supports for the protection of the pipe conveying the water supply to the hospital, and wing dam to protect the piling, extending the sewer pipe—estimated cost, $1,500; raising executive building to provide basement storerooms—estimated cost, $1,500.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: Flooring, hospital kitchen and dining room (1,300 square feet), $175; raising stable and renewing floor, $275; Schillinger walk (112 square yards) in front of executive building, $175; Schillinger pavement to connect kitchen with main roadway (203 feet), $140; resetting tubular steam boiler, $950; automatic water cut-offs for cisterns, $48; repairing tin roofs and downspouts, $350; repairs to plumbing in officers' quarters and hospital, $123.75; cementing brick wall around the reservation at cost of material, $30.

Hospital at Port Townsend, Wash. (erected 1895).—P. A. Surg. W. G. Stimpson, in temporary charge during the absence of the medical officer in command, makes the following report of repairs and improvements at this hospital station:

The new hospital has been completed at a cost of $29,955.86. It was turned over to the Service and occupied January 29, 1896. The appropriation for this hospital was $30,000, so that all the appropriation has been spent except $44.14.

This hospital is a wooden building, and consists of a basement in which are the boiler room, laundry, kitchen, dining room, necropsy room, and storerooms; four wards, 67 by 25 feet; a central octagonal space, 58 feet in diameter, reaching from the basement to the roof, around which are arranged the attendants' rooms and the patients' smoking room; a front wing of three stories, in which are the quarters of the medical officer and hospital steward.

A sewer has been built, at a cost of $578.40, leading from the hospital to the bay.

The hospital is at present heated by stoves, but $5,000 was recently appropriated by Congress for a steam heating apparatus, and when this is installed all parts of the building will be heated to an equable temperature.

A new picket fence and a new board sidewalk were built around the lot on

which the surgeon's residence is placed, and new bulkheads were constructed at the foot of the lot to prevent the hill from crumbling away. The cost of the fence, sidewalk, and bulkheads was $599.

Three hundred and forty-eight trees and shrubs were planted around the reservation at a cost of $38.05, the work of laying down being done by the attendants. Minor repairs and improvements have been made at a cost of $102.85.

Under the head of improvements or unusual repairs for the ensuing fiscal year, for which a special appropriation must be made, the medical officer in command reports the following needed improvements: Combination gas and electric light fixtures, wiring building, electric bell system, etc., $1,950; verandas for wards, $900; painting of walls and floors of buildings, $2,000.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: Painting outside of hospital building (6,314 square yards), $500; repairs to plastering, $150; repairs to masonry in basement, $200; hospital range for kitchen, $550. The medical officer reports that the buildings, being new, a great deal of the paint on the outside has either soaked into the boards or been washed off by the rains. The plastering is cracked in many places. The cracks should be cut out, loose plastering torn away, and the opening thoroughly filled in. The brick work in the portion of the basement reserved for the steam heating apparatus is defective. The water soaks into the basement, and has to be siphoned off. The brick floor should be torn up and a concrete floor laid down beneath the brick, and the side walls should also be covered with a thick layer of cement. A small cooking stove provided by the contractor who built the hospital is nearly burned out, and a larger one is required, which should be set in the center of the kitchen.

Hospital at Portland, Me. (erected 1859).—Surg. F. W. Mead makes the following report of repairs and improvements at this hospital station:

Painting of the interior of the hospital has been finished, at a cost of $189.50.

A coal shed for the electric-light power house has been completed, at a cost of $75.68 (for material), the labor being performed by hospital attendants. Other minor repairs have been made, at a cost of $88.42.

Under the head of improvements or unusual repairs for the ensuing fiscal year, for which a special appropriation must be made, the medical officer in command reports that none are needed.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: Painting outside iron and brick work, $500; new floor in carriage room of stable, $125; miscellaneous minor repairs, $100.

Hospital at St. Louis, Mo. (*erected 1885*).—P. A. Surg. S. D. Brooks makes the following report of repairs and improvements at this hospital station:

Repairs to the roof of executive building, laundry, and wards, $99; repairs to water-closets, $67.10; painting, the labor being performed by hospital attendants, at a cost of material only, $51.95. Miscellaneous repairs to the various departments of the station have been completed, at a cost of $143.10. A new arrangement for disinfecting infected clothing of patients was constructed by the conversion of an old soap kettle in the laundry by connecting same with the steam supply of the station, at a cost of $44.50. The cellar of the old hospital in executive buildings and fence on three sides of the reservation, a total of 2,200 feet, have been whitewashed. The cyclone of May 27, 1896, caused much damage to the buildings, fences, and trees on the reservation, especially to the roofs of the executive and old hospital buildings and to the smokestack of the boiler house.

The following account of this severe cyclone and its effect upon the station is furnished by Passed Assistant Surgeon Brooks:

MAY 29, 1896.

In confirmation of my telegram of yesterday, I have the honor to describe more in detail the effects of the tornado of the 27th at this station.

A storm was threatening all the afternoon, and there were continuous thunder and lightning from 4 p. m. Shortly after 5 the wind and rain burst upon us with most extreme severity, and trees were snapped off before our eyes.

The roofs of executive and old building soon began to leak badly, and some of the tents stored here were at once used to limit the interior damage. Heavy rain continued several hours. After the cessation of the gale the grounds were almost impassable from fallen trees.

In the morning the damage was found to be as follows:

The greatest injury was done to the executive building. Two chimneys were blown over, and in falling broke the roof. There are now two openings, each some 15 feet across, where timbers, slates, etc., will have to be replaced.

The gutters were also injured, but cupola was apparently unharmed, and no plastering was broken, although part of second floor was flooded.

The roof of covered way between executive building and wards sprung. The flagstaff is unharmed. With the exception of damage to chimneys, down spouts, one shutter, the three wards and their piazzas suffered no injury. The covered way from south ward to old building was flooded and covered with mud and its foundations wrenched so that it leans perceptibly toward the east, but it still seems secure.

In old building patches of slate were torn from roof, especially at northwest and southwest corners. Gutters were damaged. The cap of a ventilator, a number of panes of glass, and one lightning rod were destroyed, and two awnings were torn, and plastering of two rooms fell as a result of leaks in the roof.

One post for guy rope to iron smokestack a foot square and 4 feet in the ground was torn from its place and flung some distance. The iron stack was blown down and broken in pieces. Six panes of glass in laundry and boiler house were broken. The morgue was uninjured.

By some freak of the storm the ambulance house and stable, either of which can be shaken almost by the hand, suffered no damage except the breakage of a few panes of glass.

In several places (one on the front) the fence inclosing reservation was blown down and rendered useless (382 feet in all).

A number of tents have been fastened as securely as possible over the rents in

roofs of executive and old buildings as a precaution, but work must be begun on these roofs speedily or more damage will result.

The estimate ($600) made by a contractor early on the morning of the 28th is likely to be a reasonable one, as the amount of work required to be done at once in the city is immense, and already workmen of every description are in demand and command increased wages.

The appearance of the grounds is sadly marred by the loss of trees. I counted more than thirty trees within the reservation either torn up by the roots or wholly or in large part dismantled, but I am profoundly thankful to be able te report all hands safe.

The loss of life and property in a district 1 to 2 miles north of here is untold and past description.

The building in which the dispensary in the city is located suffered no serious damage. Although the damage to the shipping is heavy, yet immediate investigation fails to disclose many seamen injured.

Respectfully, yours, S. D. BROOKS,
Passed Assistant Surgeon, Marine-Hospital Service.

The damages made by this cyclone are now being repaired under the direction of the Supervising Architect's Office.

Under the head of improvements or unusual repairs for the ensuing fiscal year, for which a special appropriation must be made, the medical officer in command reports the following needed improvements: Filter machine, $625; brick sidewalk, $975.

Hospital at San Francisco, Cal. (erected 1875).—Surg. John Godfrey makes the following report of repairs and improvements at this hospital station:

The principal item of improvement at this station was the building of a new water tank, which was placed in position on brick piers, at a cost of $645.

Repairs to kitchen range, chimney tops, stoves, grates, and stovepipes were made, at a cost of $222 for material.

Various minor repairs to several departments of the hospital were completed, at a total cost of $286.97, principally for material, the work being done by hospital attendants.

Trees have been planted about the grounds.

Under the head of improvements or unusual repairs for the ensuing fiscal year, for which a special appropriation should be made, the medical officer in command reports the following needed improvements: Tin roofs for 3 wards (22,500 square feet) and 6 chimneys, $2,010; repainting exterior of all buildings and interior of 3 wards (17,118 square yards), $2,462. The buildings are badly in need of paint for their preservation. For constructing roadway (250 feet) for fire engine, $345. This addition is necessary in order to enable a fire engine to make use of the water of Mountain Lake in case of fire.

Under the head of ordinary repairs required during the ensuing fiscal year, which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: New plumbing, surgeon's quarters, $80; repairing and resetting chimneys, $80; material for

renewing porch in front of wards, $122; general repairs to buildings, lumber, paints, hardware, $245.10; renewing ward floors, $300; material for a new necropsy room, $100.

Hospital at Vineyard Haven, Mass. (*erected 1895*).—P. A. Surg. D. A. Carmichael makes the following report of repairs and improvements at this hospital station:

A 6-inch water main has been laid from the village of Vineyard Haven to the hospital and a hydrant for fire protection placed in the grounds by the Vineyard Haven Water Company.

The new hospital reported in the course of construction in the last annual report has been opened. An equipment for the building has been furnished, at a cost of $1,112.87. During a severe gale one chimney on the new building was blown down and rebuilt, at a cost of $60, and the four chimneys on the buildings secured against similar accident by the placing of iron braces, at a cost of $44. One room in the basement has been furnished with a concrete floor, at a cost of $45. The face of the bluff has been partly terraced and sodded, the work being done by the hospital attendants without cost to the Government.

This hospital was opened for the reception of patients on December 30, 1895.

Under the head of improvements or unusual repairs for the ensuing fiscal year, for which a special appropriation must be made, the medical officer in command reports the following needed improvements:

For purchase and repair of a suitable roadway leading from the hospital reservation to the public road, $1,600.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: New ceilings in basement, $75; cement flooring, basement, $60; constructing stairway to attic, $50; painting the exterior and interior of the hospital, $700, the labor to be performed by hospital attendants; relaying gutters of roadway with cobblestones, $100.

The medical officer in command states that the paint on the exterior of the building rapidly defaces in the damp saline atmosphere, and the interior walls require painting to preserve and place them in good sanitary condition. If the interior were painted with porcelain enamel paint, it would remain in excellent order for many years and would make an ideal sanitary finish.

Hospital at Wilmington, N. C. (*erected 1859*).—Surg. John Vansant makes the following report of repairs and improvements at this hospital station:

The general appearance of the hospital and grounds has been greatly improved by cultivation of vines and shrubbery, so far as the soil and locality permit.

The repairs made at this station during the year have been of a minor character, at a cost of $27 for materials, the labor being performed by the hospital attendants.

Under the head of improvements or unusual repairs for the ensuing fiscal year, for which a special appropriation should be made, the medical officer in command reports that no special improvements are contemplated which would require such appropriation.

Under the head of ordinary repairs required during the ensuing fiscal year which may be chargeable to the appropriation "Repairs and preservation of marine hospitals, 1898," the medical officer in command recommends the following as necessary: Repairing and repainting stable and carriage house, $75; repairing drains, $50; a new picket fence in front of the inclosed grounds, $200; repainting iron cornices and galleries, $150; miscellaneous minor repairs, $50.

NECESSITY OF A MARINE HOSPITAL AT THE PORT OF NEW YORK.

The necessity for the establishment of a permanent hospital for the sick and disabled seamen of the merchant marine who enter the port of New York, which has been mentioned in a number of previous annual reports of the Service, becomes more urgent at the present time because of the difficulties which within another year will be met in making proper provision for these seamen. At present the Marine-Hospital Service occupies a rented building, situated at Stapleton, Staten Island, the lease for which expires next year, and after said expiration it is a matter of doubt whether the lease can be renewed, the property being available for other purposes. Formerly sick and injured sailors were farmed out to the various hospitals in New York and Brooklyn, and this system was so expensive and so unsatisfactory in every other particular that in 1879 the Service obtained from the War Department the use of Bedloes Island and the buildings thereon. The hospital was managed there as a marine hospital for three years, at the expiration of which time it became necessary to vacate because of the erection on the island of the Statue of Liberty. Since that time the hospital has been maintained in the present building on Staten Island, at present rented under the terms of a two years' lease.

It is difficult to understand why Greater New York should not have a marine hospital commensurate with its importance, particularly when nearly all the large cities of the United States are thus provided. Copies of resolutions urging Congress to appropriate funds for this purpose are on file in this Bureau from the New York Chamber of Commerce, the New York Produce Exchange, the Maritime Association at the port of New York, the New York Cotton Exchange, the New York Board of Trade and Transportation, the New York Mining Stock and Petroleum Exchange, and the executive committee of New York and Sandy Hook pilots.

The time has come when this matter can be no longer deferred, and it is hoped that Congress at its present session will pass a bill granting this much-needed hospital for the treatment of the sick and injured of the merchant marine of American vessels entering the greatest seaport of the nation.

CARE OF SEAMEN.

The provisions made for the care of seamen for the fiscal year ending June 30, 1897, at all ports where relief is furnished, are set forth in the following circular:

CONTRACTS FOR THE CARE OF SEAMEN, ETC.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, U. S. M. H. S.,
Washington, D. C., June 18, 1896.

The following contracts for the care of seamen entitled to relief from this Service, for the fiscal year ending June 30, 1897, are published for the information of accounting officers of the Treasury Department, disbursing agents, medical officers of the Marine-Hospital Service, acting assistant surgeons, and customs officers. This circular is to be regarded as official notification of the acceptance of the proposals made by the parties designated, and must be cited, giving its number and date, on all bills for the treatment and maintenance of seamen, and for the burial of deceased patients, as the authority for any expenditure incurred under its provisions. Charges will be allowed for the day of admission of a hospital patient, but not for the day of discharge or death. The right is reserved by the Secretary of the Treasury to terminate any contract whenever the interests of the Service require it. All relief must be furnished in accordance with the revised regulations of the Marine-Hospital Service; and in consequence of the largely increased expenditures for relief, and of the limited sources of income, it has become necessary to give notice that, as provided in the regulations, no allowance will be made for expenditures incurred at any other station than those named in this circular.

Upon admission to a contract hospital of a patient with disease or injury which, in the opinion of the medical officer, the acting assistant surgeon, or physician in charge of the case, will require more than twenty days' treatment in hospital the collector of customs or other officer issuing the permit will at once request authority from the Marine-Hospital Bureau to transfer such patient to the nearest marine hospital, provided the patient's condition, in the opinion of the medical officer, the acting assistant surgeon, or physician in charge of the case, is such as to admit of transportation.

The attention of collectors of customs, medical officers, acting assistant surgeons, or other physicians in charge of patients of the Marine-Hospital Service at contract stations is hereby called to the necessity of discharging patients promptly upon the termination of the necessary hospital treatment, and without awaiting the expiration of the period authorized in the permit.

The term "contagious diseases" wherever occurring in this circular, specific contracts excepted, includes only those diseases which under usual municipal regulations are required to be treated in a special hospital for contagious diseases.

WALTER WYMAN,
Supervising Surgeon-General, U. S. Marine-Hospital Service.

Approved.
W. E. CURTIS, *Acting Secretary of the Treasury.*

Albany, N. Y.—The medical attendance to be furnished by an acting assistant surgeon; Albany Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day.

Apalachicola, Fla.—Dr. J. D. Rush to furnish medical attendance and medicines at $30 a month; Martha Campbell to furnish quarters, subsistence, and nursing at $1 a day, and to provide for the burial of deceased patients at $12.50 each.

Ashland, Wis.—St. Joseph's Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines at $1 a day, and to provide for the burial of deceased patients at $10 each.

Ashtabula, Ohio.—The medical attendance to be furnished by an acting assistant surgeon; Mrs. Henry Whelpley to furnish quarters, subsistence, and nursing at $1 a day; contagious diseases $1.50 a day; John Ducro & Sons to provide for the burial of deceased patients at $14 each.

Astoria, Oreg.—The medical attendance to be furnished by an acting assistant surgeon; St. Mary's Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day.

Baltimore, Md.—Hospital patients to be cared for in the United States Marine Hospital; F. M. Denny to provide for the burial of deceased patients at $16.50 each.

Bangor, Me.—The medical attendance to be furnished by an acting assistant surgeon; Helen M. Stratton to furnish quarters, subsistence, and nursing at $1 a day; Abel Hunt to provide for the burial of deceased patients at $10 each.

Bath, Me.—The medical attendance to be furnished by an acting assistant surgeon. Hospital care and treatment will be furnished only to patients who are unable to bear transportation to the United States Marine Hospital at Portland, Me.

Beaufort, N. C.—The medical attendance to be furnished by an acting assistant surgeon.

Bismarck, N. Dak.—The medical attendance to be furnished by an acting assistant surgeon; Lamborn Hospital to furnish quarters, subsistence, and nursing at 90 cents a day.

Boston, Mass.—Hospital patients to be cared for in the United States Marine Hospital at Chelsea, Mass.; burial of deceased patients at the hospital cemetery; burial of foreign patients at $10 each.

Bridgeport, Conn.—Bridgeport Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines at $1 a day; Hawley, Wilmot & Reynolds to provide for the burial of deceased patients at $16 each.

Brownsville, Tex.—The medical attendance to be furnished by an acting assistant surgeon.

Brunswick, Ga.—The medical attendance to be furnished by an acting assistant surgeon; Johanna Foley to furnish quarters, subsistence, and nursing at 90 cents a day; Charles G. Moore to provide for the burial of deceased patients at $15 each.

Buffalo, N. Y.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; Buffalo Hospital (Sisters of Charity) to furnish quarters, subsistence, nursing, and medicines at 80 cents a day; contagious diseases at $2 a day; and to provide for the burial of deceased patients at $10 each.

Burlington, Iowa.—Mercy Hospital to furnish quarters, subsistence, medical attendance, nursing, and medicines at 90 cents a day.

Cairo, Ill.—Hospital patients to be cared for in the United States Marine Hospital; William E. Feith to provide for the burial of deceased patients at $8.70 each.

Cambridge, Md.—The medical attendance to be furnished by an acting assistant surgeon; Charles J. Webb to furnish quarters, subsistence, and nursing at 50 cents a day.

Charleston, S. C.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; St. Francis Xavier's Infirmary to furnish quarters, subsistence, nursing, and medicines, at 80 cents a day, and to provide for the burial of deceased patients at $12 each.

Chattanooga, Tenn.—The medical attendance to be furnished by an acting assistant surgeon; Hamilton County Hospital to furnish quarters, subsistence, nursing, and medicines at 60 cents a day.

Chicago, Ill.—Hospital patients to be cared for in the United States Marine Hospital; Bartlett & Co. to provide for the burial of deceased patients at $18 each.

Cincinnati, Ohio.—Hospital patients to be cared for in the United States Marine Hospital; dispensary at the hospital, southeast corner of Third and Kilgour streets; F. & W. Seifke to provide for the burial of deceased patients at $16 each.

Cleveland, Ohio.—Hospital patients to be cared for in the United States Marine Hospital; Hogan & Sharer to furnish ambulance service at $2 for each patient, and to provide for the burial of deceased patients at $16 each.

Corpus Christi, Tex.—The medical attendance to be furnished by an acting assistant surgeon; James E. Ellis to furnish quarters, subsistence, and nursing at $1 a day.

Darien, Ga.—The medical attendance to be furnished by an acting assistant surgeon; patients requiring hospital treatment will be furnished transportation to Brunswick, Ga.

Delaware Breakwater, Delaware.—Hospital patients to be cared for in the United States Marine Hospital; William T. Atkins to furnish coffins at $10 each.

Detroit, Mich.—Hospital patients to be cared for in the United States Marine Hospital; out-patients to be treated at the dispensary, No. 90 Griswold street; Ed. H. Patterson to provide for the burial of deceased patients at $10 each.

Dubuque, Iowa.—The medical attendance to be furnished by an acting assistant surgeon; St. Joseph's Mercy Hospital to furnish ambulance service, quarters, subsistence, nursing, and medicines at $1 a day; M. M. Hoffman to provide for the burial of deceased patients at $13.50 each.

Duluth, Minn.—The medical attendance to be furnished by an acting assistant surgeon; St. Luke's Hospital to furnish quarters, subsistence, nursing, and medicines at 75 cents a day; John W. Stewart to provide for the burial of deceased patients at $15 each.

Edenton, N. C.—R. Dillard, M. D., to furnish quarters, subsistence, nursing, medical attendance, and medicines at $2 a day. For out-patients $1 will be allowed for each medical examination, and 25 cents additional for each time medicine is furnished.

Elizabeth City, N. C.—The medical attendance to be furnished by an acting assistant surgeon.

Ellsworth, Me.—The medical attendance to be furnished by an acting assistant surgeon; hospital care and treatment will be furnished only to patients who are unable to bear transportation to the United States Marine Hospital at Portland, Me.

Erie, Pa.—The medical attendance to be furnished by an acting assistant surgeon; Hamot Hospital Association to furnish quarters, subsistence, nursing, and medicines at 71 cents a day. Care and treatment of cases of contagious diseases to be furnished by the health department of the city of Erie at $2.85 a day.

Escanaba, Mich.—The medical attendance to be furnished by an acting assistant surgeon; Delta County Hospital to furnish quarters, subsistence, and nursing at $1 a day.

Eureka, Cal.—The medical attendance to be furnished by an acting assistant surgeon; Maria Anderson to furnish quarters, subsistence, nursing, and medicines at 98 cents a day.

Evansville, Ind.—Hospital patients to be cared for in the United States Marine Hospital; Henry Klee & Son to provide for the burial of deceased patients at $11.50 each.

Fernandina, Fla.—The medical attendance to be furnished by an acting assistant surgeon; A. G. Webster to furnish quarters, subsistence, and nursing at $1 a day.

Fredericksburg, Va.—The medical attendance to be furnished by an acting assistant surgeon; Amelia Parrott to furnish quarters, subsistence, and nursing at 90 cents a day; contagious diseases at $2 a day; George Nossett to provide for the burial of deceased patients at $12.50 each.

Gallipolis, Ohio.—The medical attendance to be furnished by an acting assistant surgeon; Harriet J. Kinder to furnish quarters, subsistence, and nursing at 60 cents a day, and to provide office quarters for the acting assistant surgeon at $10 a month; Hayward & Son to provide for the burial of deceased patients at $15 each.

Galveston, Tex.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; St. Mary's Infirmary to furnish ambulance service, quarters, subsistence, nursing, and medicines at $1 a day; contagious diseases at $2 a day, and to provide for the burial of deceased patients at $10 each.

Georgetown, S. C.—The medical attendance to be furnished by an acting assistant surgeon; hospital care and treatment will be furnished only to patients who are unable to bear transportation to Charleston, S. C.

Gloucester, Mass.—The medical attendance to be furnished by an acting assistant surgeon.

The Government Hospital for the Insane, District of Columbia.—Under act of Congress, March 3, 1875, to furnish quarters, subsistence, nursing, medical attendance, and medicines at $4.50 a week, for each insane patient admitted upon the order of the Secretary of the Treasury.

Grand Haven, Mich.—The medical attendance to be furnished by an acting assistant surgeon; Anna Farnham to furnish quarters, subsistence, and nursing at $1 a day.

Green Bay, Wis.—The medical attendance to be furnished by an acting assistant surgeon; St. Vincent's Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day; Lefebvre & Schumacher to provide for the burial of deceased patients at $16 each.

Hartford, Conn.—The Hartford Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines at $1 a day.

Jacksonville, Fla.—The medical attendance to be furnished by an acting assistant surgeon; William H. Jones to furnish quarters, subsistence, and nursing at $1 a day; Edward J. Gordon to provide for the burial of deceased patients at $12.50 each.

Key West, Fla.—Hospital patients to be cared for in the United States Marine Hospital; Otto & Boza to provide for the burial of deceased patients at $13.50 each.

La Crosse, Wis.—The medical attendance to be furnished by an acting assistant surgeon; St. Francis's Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day; Frank Tillman & Co. to provide for the burial of deceased patients at $19 each.

Little Rock, Ark.—The medical attendance to be furnished by an acting assistant surgeon; Little Rock Infirmary to furnish quarters, subsistence, nursing, and medicines at $1 a day; F. Baer to provide for the burial of deceased patients at $12 each.

Louisville, Ky.—Hospital patients to be cared for in the United States Marine Hospital; Schoppenhorst Bros. to provide for the burial of deceased patients at $15 each.

Ludington, Mich.—The medical attendance to be furnished by an acting assistant surgeon; Hanibal D. Linsley to furnish quarters, subsistence, and nursing at 80 cents a day.

Machias, Me.—The medical attendance to be furnished by an acting assistant surgeon; Abiel E. Preble to furnish quarters, subsistence, and nursing at 90 cents a day; L. H. Hanscom to provide for the burial of deceased patients at $10 each.

Manistee, Mich.—The medical attendance to be furnished by an acting assistant surgeon; Mercy Hospital to furnish quarters, subsistence, nursing, and medicines at 90 cents a day.

Marquette, Mich.—The medical attendance to be furnished by an acting assist-

ant surgeon; St. Mary's Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day, and to provide for burial of deceased patients at $15 each.

Marshfield, Oreg.—The medical attendance to be furnished by an acting assistant surgeon; John Snyder to furnish quarters, subsistence, nursing, and medicines at $1.20 a day.

Memphis, Tenn.—Hospital patients to be cared for in the United States Marine Hospital; John Walsh to provide for the burial of deceased patients at $10 each.

Milwaukee, Wis.—The medical attendance to be furnished by an acting assistant surgeon; St. Mary's Hospital to furnish quarters, subsistence, nursing, and medicines at 80 cents a day; George L. Thomas to provide for the burial of deceased patients at $14 each.

Mobile, Ala.—Hospital patients to be cared for in the United States Marine Hospital; William V. Béroujon to provide for the burial of deceased patients at $13 each.

Nashville, Tenn.—The medical attendance to be furnished by an acting assistant surgeon; Nashville City Hospital to furnish quarters, subsistence, nursing, and medicines at 90 cents a day.

New Bedford, Mass.—The medical attendance to be furnished by an acting assistant surgeon; patients requiring hospital care and treatment, if able to bear transportation, will be sent to the United States Marine Hospital at Vineyard Haven, Mass.

Newbern, N. C.—The medical attendance to be furnished by an acting assistant surgeon; Susan A. Collins to furnish quarters, subsistence, and nursing at 85 cents a day; H. W. Simpson to provide for the burial of deceased patients at $15 each.

New Haven, Conn.—The medical attendance to be furnished by an acting assistant surgeon; New Haven General Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day, and to provide for the burial of deceased patients at $15 each; New Haven board of health to furnish all necessary care and treatment in cases of any contagious disease at $3 a day.

New London, Conn.—The medical attendance to be furnished by an acting assistant surgeon; Memorial Hospital Association to furnish quarters, subsistence, nursing, and medicines at $1.50 a day; hospital care and treatment will be furnished only to patients who are unable to bear transportation to the United States Marine Hospital at Stapleton, N. Y.; Foran Furniture Co. to provide for the burial of deceased patients at $12 each.

New Orleans, La.—Hospital patients to be cared for in the United States Marine Hospital; T. J. McMahon & Sons Co. to provide for the burial of deceased patients at $8.50 each.

Newport, Ark.—The medical attendance to be furnished by an acting assistant surgeon.

Newport, R. I.—The medical attendance to be furnished by an acting assistant surgeon; Newport Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day; Robert C. Cotterell to provide for the burial of deceased patients at $11.50 each.

Newport News, Va.—The medical attendance to be furnished by an acting assistant surgeon.

New York, N. Y.—Hospital patients to be cared for in the Marine Hospital, Stapleton, Staten Island, N. Y.; out-patients to be treated at the dispensary, near the new barge office, Battery; John T. Oates to provide for the burial of deceased patients at $10 each.

Norfolk, Va.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; St. Vincent's Hospital to furnish quarters, subsistence, nursing, ambulance service, and medicines at 83 cents a day; J. E. Edwards to provide for the burial of deceased patients at $10 each.

Ogdensburg, N. Y.—The medical attendance to be furnished by an acting assistant surgeon; City Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day; the city of Ogdensburg to care for contagious cases at $3 a day; H. S. Nutall to provide for the burial of deceased patients at $9.45 each.

Oswego, N. Y.—The medical attendance to be furnished by an acting assistant surgeon; Oswego Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day.

Pensacola, Fla.—The medical attendance to be furnished by an acting assistant surgeon; Anderson & Renshaw to furnish quarters, subsistence, nursing, and medicines at $1 a day; Northup & Wood to provide for the burial of deceased patients at $14.50 each.

Philadelphia, Pa.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; German Hospital to furnish ambulance service, quarters, subsistence, nursing, medicines, and one interne, at $1 a day; and to provide for the burial of deceased patients at $15 each.

Pittsburg, Pa.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; Mercy Hospital to furnish quarters, subsistence, nursing, medicines, and a resident physician at 94 cents a day, and $2 a day for contagious cases; Burns & Giltinan to provide for the burial of deceased patients at $13 each.

Port Huron, Mich.—The medical attendance to be furnished by an acting assistant surgeon, "Hospital and Home" to furnish quarters, subsistence, nursing, and medicines at $1 a day. George Thompson to provide for the burial of deceased patients at $10 each.

Portland, Me.—Hospital patients to be cared for in the United States Marine Hospital; Ilsley Bros. to provide for burial of deceased patients at $10 each.

Portland, Oreg.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; out-patients to be treated at the dispensary, Marquam Building; St. Vincent's Hospital to furnish quarters, subsistence, nursing, and medicines at 70 cents a day; contagious diseases at $2 a day; Dunning & Campion to provide for the burial of deceased patients at $9.75 each.

Portsmouth N. H.—The medical attendance to be furnished by an acting assistant surgeon; Cottage Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day.

Port Tampa, Fla.—The medical attendance to be furnished by an acting assistant surgeon.

Port Townsend, Wash.—Hospital patients to be cared for in the United States Marine Hospital; W. T. Lake to provide for the burial of deceased patients at $5.75 each.

Providence, R. I.—The Rhode Island Hospital to furnish quarters, subsistence, nursing, medical attendance, and medicines at $1 a day, and to provide for the burial of deceased patients at $12 each.

Richmond, Va.—The medical attendance to be furnished by an acting assistant surgeon; out-patients to be treated at the marine-hospital office, custom-house building; "Retreat for the Sick" Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day.

Rockland, Me.—The medical attendance to be furnished by an acting assistant surgeon. Hospital care and treatment will be furnished only to patients who are unable to bear transportation to the United States Marine Hospital at Portland, Me.

Rome, Ga.—The medical attendance to be furnished by an acting assistant surgeon; Martha Battey Hospital to furnish quarters, subsistence, and nursing at $1 a day.

Saginaw, Mich.—The medical attendance to be furnished by an acting assistant surgeon; St. Mary's Hospital to furnish quarters, subsistence, nursing, and medicines at 64 cents a day.

St. Louis, Mo.—Hospital patients to be cared for in the United States Marine Hospital; John Hahn to provide for the burial of deceased patients at $12.50 each.

St. Paul, Minn.—The medical attendance to be furnished by an acting assistant surgeon; St. Joseph's Hospital to furnish quarters, subsistence, nursing, and medicines, at $1 a day, and to provide for the burial of deceased patients at $7 each.

San Diego, Cal.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; St. Joseph's Hospital to furnish quarters, subsistence, nursing, and ambulance service at 59 cents a day; Johnson & Co. to provide for the burial of deceased patients at $11 each.

Sandusky, Ohio.—The medical attendance to be furnished by an acting assistant surgeon; Good Samaritan Hospital to furnish quarters, subsistence, and nursing at $1 a day.

San Francisco, Cal.—Hospital patients to be cared for in the United States Marine Hospital; out-patients to be treated at the marine-hospital office, rooms 1-3, appraiser's building; burial of deceased patients at the hospital cemetery; burial of foreign seamen at $10 each.

San Pedro, Cal.—Randolph W. Hill, M. D., to furnish quarters, subsistence, nursing, medical attendance, and medicines at 90 cents a day; contagious diseases at $1.50 a day, and to provide for the burial of deceased patients at $7 each.

Sault Ste. Marie, Mich.—The medical attendance to be furnished by an acting assistant surgeon; Annie McNeeley to furnish quarters, subsistence, and nursing at 70 cents a day; J. Vanderhook to provide for the burial of deceased patients at $15 each.

Savannah, Ga.—The medical attendance to be furnished by a medical officer of the Marine-Hospital Service; St. Joseph's Infirmary to furnish quarters, subsistence, nursing, and medicines at $1 a day; Joseph Goette to provide for the burial of deceased patients at $7 each.

Seattle, Wash.—The medical attendance to be furnished by an acting assistant surgeon; Providence Hospital to furnish quarters, subsistence, nursing, and medicines at 60 cents a day; E. R. Butterworth & Sons to provide for the burial of deceased patients at $5.70 each.

Shreveport, La.—The medical attendance to be furnished by an acting assistant surgeon; out-patients to be treated at the marine hospital office; Shreveport Charity Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day; W. W. Waring to provide for the burial of deceased patients at $16 each.

Solomons, Md.—The medical attendance to be furnished by an acting assistant surgeon; M. F. Morrison to furnish subsistence, nursing, fuel, and lights at 95 cents a day; T. M. White to provide for the burial of deceased patients at $7.50 each.

Superior, Wis.—The medical attendance to be furnished by an acting assistant surgeon; St. Mary's Hospital to furnish quarters, subsistence, nursing, and medicines at 90 cents a day; Patrick O'Reilly to provide for the burial of deceased patients at $15 each.

Tacoma, Wash.—The medical attendance to be furnished by an acting assistant surgeon; Fannie C. Paddock Hospital to furnish quarters, subsistence, nursing, and medicines at 55 cents a day.

Tappahannock, Va.—W. G. Jeffries, M. D., to furnish quarters, subsistence, nursing, medical attendance, and medicines, at Tappahannock; Dr. W. J. Newbill at Carters Creek, and Dr. W. S. Christian at Urbana, each at $1.50 a day.

Toledo, Ohio.—The medical attendance to be furnished by an acting assistant surgeon; Toledo Hospital Association to furnish quarters, subsistence, nursing, and medicines at 80 cents a day; contagious diseases at $2 a day, and to provide for the burial of deceased patients at $15 each.

Vicksburg, Miss.—The medical attendance to be furnished by an acting assistant

surgeon; Vicksburg City Hospital to furnish quarters, subsistence, nursing, and medicines at $1 a day.

Vineyard Haven, Mass.—Hospital patients to be cared for in the United States Marine Hospital; M. C. Vincent to provide for the burial of deceased patients at $16 each.

Washington, D. C.—The medical attendance to be furnished by a medical officer of the Marine Hospital-Service; out-patients to be treated at the dispensary, No. 3 B. street SE.; Providence Hospital to furnish quarters, subsistence, nursing, interne attendance, and medicines at 75 cents a day.

Wheeling, W. Va.—The medical attendance to be furnished by an acting assistant surgeon; Wheeling Hospital to furnish quarters, subsistence, nursing, and medicines at 75 cents a day.

Wilmington, N. C.—Hospital patients to be cared for in the United States Marine Hospital; Walter E. Yopp to provide for the burial of deceased patients at $11.50 each.

At the following-named ports, hospital or other relief will be furnished only under the provisions of the regulations for the Marine-Hospital Service as to third-class stations:

Barnstable, Mass.; Beaufort, S. C.; Belfast, Me., Burlington, Vt.; Castine, Me.; Cedar Keys, Fla.; Chatham, Mass.; Dennis, Mass.; Eastport, Me.; Edgartown, Mass.; Hyannis, Mass.; Perth Amboy, N. J.; Provincetown, Mass.; Sag Harbor, N. Y., Salem, Mass.; Sitka, Alaska; Somers Point, N. J.; Waldoboro, Me.; Wilmington, Del.; Wiscasset, Me.

The rate at ports not specifically provided for by this circular will, in each special case, be fixed by the Department, upon the recommendation of the proper officer, in accordance with the regulations.

The rate of charge for seamen from vessels of the Navy and Coast Survey, admitted to hospital under the provisions of the regulations, and of foreign seamen admitted under the act of March 3, 1875, is hereby fixed at the uniform rate of $1 a day.

At all ports not otherwise specified the dispensary is located at the custom-house or marine hospital.

CIRCULAR LETTERS RELATING TO ADMINISTRATIVE DETAILS.

Following are circular letters issued during the year to medical officers, acting assistant surgeons of the Marine-Hospital Service, and others, relative to administrative details:

NAMES OF PERSONS EMPLOYED TO BE IMMEDIATELY REPORTED.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., December 13, 1895.

SIR: You are informed that it is necessary to report immediately the employment of any and all persons by you in any capacity whatever, in order that such employment may be approved by the Department. Appointments or employments in the Service are strictly prohibited without authority, except in cases of emergency, when immediate notification of such employment or appointment shall be forwarded to this office for approval.

You are requested to acknowledge the receipt of this letter.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

MONTHLY AND ANNUAL REPORTS OF INSPECTION OF IMMIGRANTS.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., January 25, 1896.

Medical Officers, U. S. Marine-Hospital Service, detailed to inspect immigrants:

You are hereby directed to keep a record of the number of immigrants inspected by you, and of the number rejected on account of contagious or loathsome diseases.

With regard to immigrants rejected, a record shall be kept of the name of the vessel upon which the immigrant arrived, the date of arrival, the name, age, nativity of the immigrant, and the disease for which he was rejected.

This report will be made monthly to the Bureau.

At the end of each fiscal year a summarized report, embracing the transactions of the above nature for the complete fiscal year, will be transmitted to the Bureau.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

TRANSFER OF PATIENTS FROM CONTRACT STATIONS TO MARINE HOSPITALS.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., March 5, 1896.

To Medical Officers and Acting Assistant Surgeons at Contract Stations:

Hereafter, upon admission to hospital of a patient with disease or injury which in your opinion will require more than twenty days' treatment in hospital, you are directed to at once request authority from the Bureau to transfer such patient to the nearest marine hospital, provided the patient's condition is such as to admit of transportation. You are requested to acknowledge the receipt of this order.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

TRANSFER OF PATIENTS FROM STATIONS OF THE THIRD CLASS TO MARINE HOSPITALS.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., April 11, 1896.

SIR: Hereafter, upon admission to hospital of a patient with disease or injury which in the opinion of the acting assistant surgeon or physician in charge of the case will require more than twenty days' treatment in hospital, you are directed to at once request authority from the Bureau to transfer such patient to the nearest marine hospital, provided the patient's condition, in the opinion of the acting assistant surgeon or physician in charge of the case, is such as to admit of transportation. You are requested to acknowledge the receipt of this order.

By direction of the Secretary of the Treasury.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General. Marine-Hospital Service.

COLLECTOR OF CUSTOMS.

CONCERNING PROPERTY RETURNS.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., April 13, 1896.

Medical Officers in Command, United States Marine Hospitals and United States Quarantine Stations:

It has been observed that, when a transfer invoice of public property is rendered, articles lost at various times are sometimes specified thereon as "exceptions," the facts concerning the loss or destruction of which should have been reported as soon as known, accompanied by affidavit of the medical officer in command, as required by paragraph 103, Regulations, United States Marine-Hospital Service.

A supervision of the work of the hospital steward is enjoined, and in preparing the semi-annual property returns the steward must make an examination and count of the actual articles on hand and not render a return which is merely a transcription of records.

The medical officer is held responsible by the provision of paragraph 98, Regulations, United States Marine-Hospital Service, for all the public property in his charge, and it is expected that he will not allow this responsibility to become a mere routine consideration in the discharge of his duties.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

NECROPSY REPORTS.

TREASURY DEPARTMENT.
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., June 30, 1896.

To Medical Officers and Acting Assistant Surgeons, United States Marine-Hospital Service:

The following instructions are hereby issued with regard to necropsies:

1. A post-mortem examination and report is required in all cases possible.

2. The necropsy shall be made and the report signed by a medical officer or acting assistant surgeon. The commanding officer will affix his initials and forward the report to the Bureau as soon as completed.

3. A separate report will be made of each necropsy, to be written on legal-cap paper, on every other line and one side only of the sheet, and otherwise prepared with care for publication.

4. Each report shall include the initials, age, nationality, date of admission (with name of station), and date of death of the seaman.

5. Each report will be accompanied by a complete clinical history.

6. Examinations shall be made in accordance with methods prescribed in Virchow's Post-Mortem Examinations, and shall include the following:

(*a*) The calvarium is to be removed, and the condition of the skull cap, the brain case, the sinuses and vessels, and the brain and its membranes noted.

(*b*) In the thorax the examination will include the anterior mediastinum and thymus gland, the heart and pericardium, the lungs and pleuræ, the great vessels and nerve trunks and diaphragm.

(*c*) In the abdomen the examination will include the omentum, spleen, kidneys, and supra-renal capsules, urinary bladder, organs of generation (prostate, seminal vesicles, testicles, penis, and urethra), rectum, duodenum, stomach, gall ducts,

liver, pancreas, solar plexus, mesentery, small intestines, large intestines, and the great vessels.

(*d*) In cases involving disease of or injury to the spinal cord the examination will include the cord and its membranes.

7. Microscopical examinations shall be made of pathological processes and suspected organs. When it is not practicable to make these examinations at the station, specimens should be sent to the Bureau. For this purpose nervous tissue should be placed in Miller's fluid, lung tissue in a solution of 5 per cent formaldehyde, and other organs in alcohol, 50 per cent. The specimens should be from 1 to 2 cm., square, and carefully labeled.

Attention is directed to the necessity of care in making these examinations and reports that they may be of permanent scientific value.

You are directed to acknowledge the receipt of this circular.

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

NOMENCLATURE OF DISEASES—REVISED EDITION.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 20, 1896.

To Medical Officers of the Marine-Hospital Service and others concerned:

Referring to circular dated July, 1874, adopting the Provisional Nomenclature of Diseases of the Royal College of Surgeons of London as the official nomenclature of diseases of this Service, and to paragraph 313 of the revised regulations of 1889, you are hereby informed that the revised edition of 1896 of said Nomenclature will be used on and after this date, instead of former editions.

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

LIST OF HOSPITAL ATTENDANTS AND DUTIES.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 15, 1896.

SIR: You are directed to forward without delay a list of the hospital attendants employed at your station, stating the compensation and giving in detail the duties required of each attendant.

Respectfully, yours, WALTER WYMAN,
Supervising Surgeon-General Marine-Hospital Service.

MEDICAL OFFICER IN COMMAND, UNITED STATES MARINE-HOSPITAL SERVICE.

EMERGENCY PURCHASES.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 2, 1896.

To Medical Officers and Acting Assistant Surgeons, United States Marine-Hospital Service:

Your attention is called to the provisions of paragraph 255 of the revised regulations respecting "emergency purchases," the permissive features of which have

hitherto been utilized by officers for the immediate purchase of articles which can not be properly classed as emergencies. The necessity for economy in the expenditure of the fund for the support of the Service, and the appropriations for fuel, lights, water, and miscellaneous items, and furniture and repairs of furniture (the two latter being limited allotments for the use of this Service), must be observed, in view of the increased number of stations now being operated by the Service, without a corresponding increase in its receipts. It is not possible to define absolutely an emergency purchase, but in general it may be stated that it covers only such items as medicines and surgical supplies (listed on the supply table) which have become unexpectedly exhausted; the breakage of articles in daily use and absolutely necessary for the proper administration of the hospital, such as surgical instruments, wagons, harnesses, horseshoeing, cooking stoves, and important utensils used in the hospital kitchen, and which must be replaced or repaired immediately; and these will be held to be examples of an emergency recognized by the Bureau in its approval of bills forwarded under this clause. Officers should not contract bills under this exigency clause for articles or services other than those already defined, unless it is clearly established that injury to the public interests or damage to public property would result by such delay as would have been necessary to procure the authority of the Bureau for the proposed expenditure.

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

REVISED REGULATIONS CONCERNING UNIFORMS.

TREASURY DEPARTMENT,
OFFICE OF SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 31, 1896.

To Medical Officers of the Marine-Hospital Service and others whom it may concern:

SIRS: I transmit herewith a copy of the new regulations governing the uniforms of officers and employees of the United States Marine-Hospital Service, approved by the honorable Secretary of the Treasury June 20, 1896.

You are hereby informed that, in regard to the acquisition of the new articles of uniform and equipment prescribed by these regulations, it has been decided, in view of the expense attached thereto, that a period of five months from this date will be allowed for the purchase of such articles and equipment as were not prescribed by the regulations approved July 3, 1893.

It is, however, expected that on and after December 31, 1896, every medical officer, acting assistant surgeon, or other employee of the United States Marine-Hospital Service for whom uniform is prescribed by these regulations will have complied with the requirements of the new regulations.

You are requested to acknowledge the receipt of the uniform regulations and of this circular letter.

Respectfully, yours, WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

Approved:

W. E. CURTIS, *Acting Secretary.*

PURVEYING DIVISION.

In the purveying division, 370 requisitions for medical and other supplies to meet the needs of 21 marine hospitals and 41 additional relief stations of the Service have been filled.

Twelve national quarantine stations, 2 detention camps, and the

immigrant hospital at Ellis Island, New York Harbor (under control of the Immigration Service), have also received their supplies through this division. The requisitions were divided as follows:

Hospital and relief stations	307
Quarantine stations	50
Detention camps	7
Immigration Service	6

The amount of labor involved in purveying the material called for in these requisitions was as follows:

Number of packages shipped		2,993
Total weight	pounds	222,446

The pharmaceutical work of this division performed by the chemist and his assistants shows a total output of 6,138,700 grams of various articles manufactured for issue, of which there were 119 different kinds. These articles are divided as follows:

	Grams.		Grams.
Elixirs	1,093,000	Sirups	1,343,000
Fluid extracts	677,300	Tinctures	818,000
Medicated waters	118,000	Medicated wines	65,000
Liniments	970,000		
Spirits	183,400	Total	6,138,700
Miscellaneous	871,000		

The following is a summary of the cost of the various supplies purchased for issue during the year:

Medical supplies	$13,835.54
Hospital stores	5,592.21
Hospital sundries	5,818.47
Surgical instruments and appliances	2,340.55
Bedding and clothing	4,954.85
Medical books and journals	891.06

Of these amounts, the Service was reimbursed in the sum of $5,367.90 for supplies furnished quarantine stations, the Revenue Cutter, and the Immigration services.

The growth of the Service necessarily entails additional work upon this division. The opening of three new hospital stations last year is an instance of the increased labor involved in filling requisitions and adjusting of accounts, without a corresponding increase of force. But the greatest drawback to the work of the division is the overcrowded and ill-arranged storage and packing rooms. Supplies in process of being received and those being shipped to stations have to be constantly rehandled to make room for each other; and the medical supply storeroom being located up one flight and at a considerable distance from the packing room in the basement, reached through a narrow winding stairway, all goods of this class have to be carried up by hand for storage when received and carried back in the same way for shipment to posts. In order to relieve this congestion

it was thought that the hospital stores and sundries, such as canned goods, laundry supplies, etc., furnished by the Bureau and requiring much space on account of bulk, could be purchased at the several stations at about the same cost as by the Bureau, and thus save the labor and time of handling in the purveying division. Accordingly, the medical officers were directed to include all these articles in their annual schedules for proposals from local dealers. The result, as demonstrated in tabular form, showed such an advantage to the service in favor of the purchase by the Bureau that this plan of relief to the overcrowding of the division was reluctantly abandoned.

Additional storage room should be provided, either by the utilization of adjoining property, the building of an additional story on the present packing room, or construction of vaults.

Measures have been instituted through this division for the more economical administration of the hospital stations. Special instructions and rules have been laid down, curtailing the scope of emergency purchases; a more thorough and careful supervision of the public property at stations enjoined upon medical officers by means of actual inventories taken under their orders; the subject of special requisitions has received attention, and new methods devised for a stricter accountability in rendering them for consideration; medical supplies have been granted only upon the basis of the supply table, except where exigencies or new methods required a departure therefrom, and this has developed the necessity for a revision adapted to the progress of medical and surgical practice; all of which measures have resulted in a decreased expenditure of $7,546.19 over the previous year.

The revision of the hospital supply table above referred to has been partially completed and will be finished before the close of this calendar year. It bears in its present state the accumulations of many years' additions to the list of medicines which are put out by this division, many of them being little used now and others superseded by improved forms of the same drug. It is proposed to simplify it, issuing only the best preparation of the various drugs and chemicals instead of the numerous pharmacopœial forms of them which produce like effects. It is believed that this will result in further economical management of this division without detracting from its efficiency.

FINANCIAL STATEMENT.

FINANCIAL STATEMENT.

RECEIPTS AND EXPENDITURES UNITED STATES MARINE-HOSPITAL SERVICE FOR THE FISCAL YEAR ENDED JUNE 30, 1896.

The balance of the marine-hospital fund available at the commencement of the fiscal year was $29,529.23 and the receipts from all sources $583,380.88.

The expenditures were $559,476.24, leaving on hand at the close of the fiscal year $53,433.87.

SUMMARY—MARINE-HOSPITAL FUND.

Balance July 1, 1895	$29,529.23
Repayment, care foreign seamen, etc	12,038.33
Deficiency appropriation	25,000.00
Receipts, tonnage tax collected	546,342.55
Total available during the fiscal year	612,910.11
Expenditures	559,476.24
Balance June 30, 1896	53,433.87

STATEMENT OF APPROPRIATIONS.

Quarantine service, 1896.

Amount appropriated, act March 2, 1895	$125,000.00
Repayment, care foreign seamen, etc	811.45
Total available during fiscal year	125,811.45
Expenditures during fiscal year	125,500.07
Available balance July 1, 1896	311.38

Summary of expenditures on account of quarantine stations, fiscal year ending June 30, 1896.

Name of station.	Amount expended—maintenance of stations, officers' salaries, repairs to vessels, etc.	Medical and hospital supplies and miscellaneous.	Total.
Reedy Island	$14,619.47	$297.67	$14,917.14
Cape Charles	12,866.66	125.03	12,991.69
Delaware Breakwater	9,339.72	131.98	9,471.70
Brunswick	4,014.77	.....	4,014.77
Gulf	16,979.25	923.34	17,902.59
Tortugas	16,418.27	442.47	16,860.74
Southport	5,533.14	657.34	6,190.48
South Atlantic	12,879.60	195.28	13,074.88
San Diego	4,648.52	109.09	4,757.61
San Francisco	13,905.50	.....	13,905.50
Port Townsend	10,687.33	414.85	11,102.18
Miscellaneous	.....	310.79	310.79
Total	121,892.23	3,607.84	125,500.07

Preventing the spread of epidemic diseases.

Summary of expenditures, fiscal year 1896:		
Balance July 1, 1895		$562,742.61
Repayment on account damage to launch *Delta*		200.00
Total available		562,942.61
Expenditures:		
Foreign medical service, including Habana, Cuba; salaries, traveling expenses, and miscellaneous	$10,179.29	
Sanitary inspectors in United States; salaries, traveling expenses, and miscellaneous	7,361.68	
Special inspection duty, quarantine stations	1,539.32	
Special inspection duty, Florida coast, precautions against introduction of yellow fever from Cuba, viz, 4 naphtha launches, salaries officers and employees, and miscellaneous	9,267.16	
Cape Charles (Fishermans Island), paints, oils, etc	590.10	
Cape Charles (Fishermans Island), extension to south barracks	2,032.60	
Brunswick, Ga., towing launch	35.00	
Waynesville, Ga., tents, lumber, cots, and miscellaneous, precautions against outbreak of yellow fever	5,437.32	
Camp Low, New Jersey, pay of employees, subsistence, etc	1,703.51	
Eagle Pass (Camp Jenner), account of smallpox epidemic	14,745.09	
Savannah, Ga., repairing launch and miscellaneous	238.90	
San Francisco, Cal., employees steamer *Sternberg*, repairs, etc	4,707.20	
Smallpox epidemic, Crittenden County, Ark	764.99	
Total		58,602.16
Balance July 1, 1896		504,340.45

Appropriations for quarantine stations, act August 1, 1888.

Stations.	Balance July 1, 1895.	Expenditures during fiscal year	Balance June 30, 1896.
Cape Charles	$2,817.93	$8 75	$2,809.18
Delaware Breakwater	1,732 58	a 1,732.58	
Tortugas	10,246.22		10,246 22
Port Townsend	6,520.51	3,724.04	2,796.47

a Amount covered into Treasury.

Appropriations for quarantine stations, acts August 1, 1888, and August 5, 1892.

South Atlantic, balance July 1, 1895	$123.16
Balance July 1, 1896	123.16

Gulf quarantine, acts March 3, 1891, August 5, 1892, and August 18, 1894.

Balance July 1, 1895	$4,146.32
Expended to June 30, 1896	2,795.75
Balance July 1, 1896	1,350.57

San Francisco quarantine, completing station, act August 5, 1892.

Balance July 1, 1895	$142.10
Balance July 1, 1896	142.10

San Francisco fumigating steamer.

Balance July 1, 1895	$519.57
March 13, 1896, amount covered into Treasury	519.57

Key West quarantine disinfecting machinery.

Balance July 1, 1895	$900.40
March 13, 1896, amount covered into Treasury	900.40

Chesapeake Bay quarantine station, act March 3, 1893.

Balance July 1, 1895	$6,935.00
Balance July 1, 1896	6,935.00

Southport quarantine station, act August 18, 1894.

Amount of appropriation	$25,000.00
Expended to June 30, 1896	24,471.80
Balance July 1, 1896	528.20

Reedy Island quarantine, Delaware River, act March 2, 1895.

Amount of appropriation	$4,200.00
Expended to June 30, 1896	3,418.52
Balance July 1, 1896	781.48

Delaware Breakwater quarantine, act March 2, 1895.

Amount of appropriation	$4,000.00
Expended to June 30, 1896	3,919.75
Balance July 1, 1896	80.25

Brunswick, Ga., quarantine station, act March 2, 1895.

Amount of appropriation	$1,550.00
Amount expended to June 30, 1896	1,302.70
Balance July 1, 1896	247.30

South Atlantic quarantine, act March 2, 1895.

Amount of appropriation	$1,350.00
Expended to June 30, 1896	350.00
Balance July 1, 1896	1,000.00

San Francisco quarantine, act March 2, 1895.

Amount of appropriation	$4,200.00
Expended to June 30, 1896	4,157.87
Balance July 1, 1896	42.13

REDUCTION OF EXPENDITURES.

Attention is invited to the large reduction in the total of expenditures from the Marine Hospital fund brought about within the last fiscal year. The total expenditure for the fiscal year 1895, Marine Hospital fund, was $575,569.87, while for the fiscal year 1896 it was but $559,476.22, a reduction of $16,093.65. This reduction has been brought about chiefly by the following measures:

(1) Rigid scrutiny of requisitions acted upon through the purveying division.

(2) Close surveillance in the matter of employment of hospital attendants.

(3) Frequent examinations in the Bureau into the operations of minor ports, to detect unnecessary admissions into the contract hospitals and undue detention of patients therein.

(4) Careful enforcement of the regulations requiring that seamen entitled to the benefits of the Service, whose diseases or injuries can be properly relieved without admission to hospital, should be treated as out-patients. Circular letter of January 30, 1895, published in the last annual report, enjoined upon medical officers and others prompt discharge of patients from contract hospitals and the treatment of seamen as out-patients when not absolutely necessary to admit them to hospital. This circular letter has been productive of good results.

(5) Circular letters of March 5 and April 11, 1896 (published in another portion of this report), addressed to medical officers and acting assistant surgeons at contract stations and to collectors of customs who have charge of relief at stations of the third class, directed the transfer of such patients as needed hospital relief and were in condition to be transported, to the nearest marine hospital, provided the probable duration of hospital treatment exceeded twenty days. By the terms of these circulars, which have been embodied in the contracts for care of seamen for the present fiscal year, authority can no longer be given as formerly for hospital relief for a period not exceeding sixty days. Although under the old form of permit it was expressly understood that the patient was to be discharged as soon as recovered, there is no doubt that in a number of contract hospitals, the permit allowing sixty days, patients were continued in hospital longer than was absolutely necessary. As a result of these circulars and the rigid enforcement of their provisions, while the total number of seamen treated during the past fiscal year—53,804—was greater than during any other year in the history of the service, the proportion of patients treated at the dispensaries was also greater. Moreover, while the total number of patients treated in hospital in the fiscal year 1896 was 12,954 (being only 8 less than the total—12,962—treated in the fiscal year 1895), the total number of days' relief in hospital in the fiscal year 1896 was 19,621 less than in the previous year.

REPORTS OF FATAL CASES, WITH NECROPSIES.

REPORTS OF FATAL CASES, WITH NECROPSIES.

ENTERIC FEVER.

Case 1.

P. N.; aged 39 years; nativity, Sweden; admitted to United States Marine Hospital at Cleveland, Ohio, June 10; died June 22, 1896.

History.—Patient had been ill one week before admission, and during his entire treatment the temperature ranged near 40° C. except when lowered by artificial means. There were no unusual features in the case, and death was caused simply by exhaustion due to the continuous high fever.

Necropsy (twenty-five hours after death).—Post-mortem lividity and rigor mortis slight. The heart weighed 375 grams, and was soft and flabby. The pericardial sac contained 25 c. c. of clear serum; valves of heart appeared normal. Left lung weighed 835 grams; right lung, 970 grams. Hypostatic pneumonia found in bases of both lungs, extending somewhat higher in the right; pleural cavities normal. Œsophagus and stomach were normal. The ileum was filled with ulcerated Peyer's patches and solitary follicles, typical of typhoid fever. No perforation found. Mesenteric glands enlarged in the region of the ileum ranging in size from that of a bean to a filbert. The same ulcerations were found in the head of the colon, and ulcerated solitary follicles were scattered throughout the large intestine. The liver weighed 1,900 grams; apparently normal. The left kidney weighed 220 grams; the lower portion blackened by extravasation of blood. The right kidney weighed 200 grams; normal. The bladder was empty. The spleen weighed 630 grams, dark, diffluent, and very much congested. The brain weighed 1,460 grams. It and its membranes appeared normal.

R. M. W.

Case 2.

Œdema glottis.

L. R.; aged 31; nativity, Finland; was admitted to the United States Marine Hospital, Portland, Me., November 23, 1895; died February 15, 1896.

History.—Patient was recovering from enteric fever and had regained much of his strength when œdema of the glottis occurred, which terminated fatally.

Necropsy (twelve hours after death).—Body of small size and fairly well nourished; post-mortem lividity and rigor mortis well marked. On opening thorax a small amount of clear serum was found in the pleural cavity; lungs apparently small and surrounded with fat. Heart: Weight after opening 320 grams; walls thin and flabby; valves apparently competent; pericardium and fluid normal; pleura not adherent. Hypostatic congestion of lungs, arch of aorta and bronchial arteries normal, free from atheromatous deposit; slight hyperplasia of bronchial tubes, with diameters lessened. The larynx presented a pale and œdematous appearance; the triangular aperture behind the epiglottis and extending to the border of the cricoid cartilage, together with the upper vocal cords, were obliterated,

and the rima glottidis scarcely discernible. The cæcal pouch in the upper anterior portion of ventricle was even with the surrounding surface. Roof of mouth, fauces, and epiglottis normal; tongue dark and swollen; œsophagus normal; stomach small, and containing portions of food; intestines small, had signs of recent inflammation; peritoneum adherent in portions. Liver normal in size, pale in color; gall bladder partly filled. Kidneys small, pale, and capsule somewhat adherent. Pancreas normal. The spleen normal in size, but pale and flabby. Œdema of the glottis is a somewhat rare accompaniment or sequent of enteric fever, occurring only twenty times in 2,000 cases terminating fatally, and on which post-mortems were held at the Munich Pathological Institute.

CASE 3.

Perforation.—Double parotitis.

A. J. S.; aged 24 years; white; born in Kentucky; admitted to United States Marine Hospital, Evansville, Ind., October 2; died October 17, 1895.

History.—Family history good; has had typhoid fever, rheumatism, and malarial fever. Present illness began about a week ago, after working some days in the water about a sunken steamer. Says he has had chills, fever, and sweating, with headache, constipation, nausea, vomiting, and pain in abdomen, but now the bowels are loose, tongue coated, pulse full and strong at 105. Temperature, 40.4° C. Spleen enlarged; rose spots on abdomen, becoming very abundant on the 6th, and diarrhea growing more profuse, and pulse showing weakness. 8th: Temperature lower; no tympanitis; sudamina on lower part of abdomen; cramps in belly during the evening. On the 10th the temperature began to fall rapidly, with indications of perforation or intestinal hemorrhage. No movement of bowels from the 10th to 12th, inclusive. On the 12th the temperature, which had been subnormal, rose to 37° C., and the pulse came down from 130 to 110, and gained in strength and volume. Had one large stool on the 13th, and on the following day profuse diarrhea came on and continued till death. 16th: Double parotitis has developed since last night; the left gland is swollen very much, the right only slightly; there is active delirium; the tongue is dry and cracked; abdomen distended; pulse 129 and weak. Death occurred at 11.30 p. m. on the 17th.

Necropsy.—Body emaciated; rigor mortis present; both parotids swollen, the left being very large. The abdomen is much distended, and on opening it there are evidences of extensive peritonitis, the omentum being firmly adherent to the intestines, and they to each other, forming pockets for the collection of pus and fæcal matter, the latter having passed into the peritoneal cavity through a perforation in the intestine just above the cæcum. The perforation was caused by ulceration of one of Peyer's patches and was about half an inch in diameter. The intestines at this point were firmly adherent to the posterior wall of the abdomen. Upon examination there were found to be 64 ulcers along the course of the small intestine, though but one perforation. The spleen was enlarged; weight, 290 grams. Heart normal in weight and structure. Liver enlarged and congested; weight, 2,550 grams. Lungs congested and œdematous, the left being adherent to the chest wall. Kidneys normal in appearance; weight of left, 200 grams, and right, 185 grams. Pancreas weighed 126 grams.

P. M. C.

CASE 4.

F. M. L.; white; aged 30 years; nativity, Maryland; admitted to the United States Marine Hospital, Baltimore, Md., March 23; died April 8, 1896.

One brother died of consumption. Has had the usual infectious diseases of children. No distinct history of syphilis. Patient's sickness began one week ago. Has had headache, diarrhea, epistaxis, and anorexia. No chill. On admission

patient was a large, well-nourished man; heart and lungs normal; spleen palpable; temperature, 39° C.; pulse, 86. During the attack the temperature ranged from 39° C. at the beginning to 40° C. toward the close. During the last thirty-six hours patient had several hemorrhages from his bowels, which were followed by a quickening of the pulse with no marked change in temperature. Tympanitis was marked toward the end. Respirations were increased to 50 per minute.

Necropsy (twelve hours after death).—Patient fairly well nourished; rigor mortis not marked; intestines distended with gas; colon enormously inflated. Examination of the mucous coat of intestine shows numerous congested and infiltrated patches, varying in size from that of a 10-cent piece to that of a half dollar. Some of them were covered with purulent material, some eroded almost the entire thickness of the intestinal wall. In the lower part of colon was found a considerable quantity of dark blood. Kidneys: Weight, each, 240 grams, soft, and cortex pale. Thorax: Diaphragm encroached on thorax very much by the distended intestines; pleuræ normal; right lung weighs 720 grams; left lung weighs 540 grams; hypostatic congestion marked in both lungs. Pericardium normal; heart weighs 360 grams; valves normal. Spleen weighs 480 grams; very soft and pulpy. Liver weighs 2,400 grams; pale and soft; gall bladder not distended. Peritoneum appears normal; red congested patches seen on lower part of small intestine.

J. B. G.
G. W. S.

Case 5.

Congestion of lungs.

B. J.; aged 24 years; nativity, Virginia; was admitted to United States Marine Hospital, Baltimore, Md., July 22; died August 3, 1895.

Clinical history.—Patient stated that his illness began about ten days ago with headache and pains in back; also had nausea, vomiting, and constipation. Said that he had had several chills and constant fever. On admission tongue was heavily coated and bowels were active from cathartic recently administered. Temperature 40° C.; pulse 98. The temperature was irregular, declining from 40° C. at noon on the 22d to 37.4° C. on the evening of the 24th. From the 26th to the 30th, the evening temperature was 39° C., the morning register being 38° C.

July 31, a. m.—Temperature 37.2° C.; pulse 90 and easily compressed; abdomen distended. At 4 p. m., temperature 39° C.

August 2.—Patient much worse, and axillary temperature 40° C. (p. m.). No bowel movement during the last two days.

August 3.—Died at 9.30 a. m.

Necropsy (six hours after death).—Body emaciated; rigor mortis marked; slight distention of abdomen. Left lung weighed 500 grams; its lower lobe was congested, more marked posteriorly than anteriorly. Right lung weighed 750 grams, and showed intense congestion in the lower and middle lobes. Heart weighed 250 grams and was in diastole; ante-mortem clots were found entangled in the mitral and tricuspid valves; valves normal. Right kidney weighed 120 grams; capsule easily stripped; parenchyma friable; in the cortex was found a yellowish, caseous mass. Left kidney weighed 120 grams, and presented a caseous mass similar to that seen in the right. The spleen was enlarged, weighed 360 grams, dark purple in color and very soft; capsule slightly thickened. The liver weighed 2,500 grams and was apparently normal; the gall bladder contained a small amount of bile. Commencing at the cæcum, the small intestine was opened to the extent of about 60 cm. of its length and several thickened and inflamed Peyer's patches were found. No ulceration had taken place and there was no enlargement of the mesenteric glands.

G. W. S.

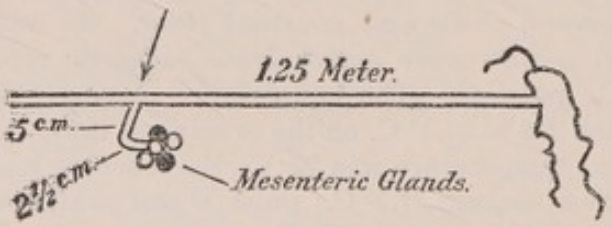
CASE 6.

Meckel's diverticulum present.

A. H.; aged 21 years; native of ——; admitted to the marine ward of the German Hospital, Philadelphia, Pa., April 25; died May 5, 1896.

History.—He had been sick about ten days with headache, fever, pain in bowels, and diarrhea; no epistaxis. Had taken a purgative which failed to relieve the pain. On examination his tongue was red and dry; abdomen distended, tender, and tympanitic; several rose spots present; spleen enlarged, temperature 40° C., pulse 120; diarrhea, three to five stools in twenty-four hours. He was treated with immersion baths, irrigation of bowels with solution of bichloride (1–10,000), and salol and Dover's powders *per orem*. Asafetida and emulsion of turpentine were given for the tympanites and a rectal tube was used, with very little success in relieving the distress. The baths were disagreeable, producing chilliness; so they were stopped for twenty-four hours, when they were resumed at the patient's request, the heat being so great from his fever. Whisky was given whenever the bath was used. Patient's mind was not affected, no delirium, and was clear to the last. Death from exhaustion.

Necropsy (twenty-four hours after death).—General nourishment good; post-mortem lividity in dependent parts and rigor mortis marked. Several (half-dozen) boil-like sores on back and buttocks. The intestinal peritoneum was injected. The cæcum and ascending colon and the transverse colon were enormously distended with gas, while the hepatic and splenic flexures and remainder of the large intestine were of normal size. Two or three large ulcers, 5 by 2 cm., were found in the lower part of the ileum and about the same number in the cæcum, while in both there were numerous ulcers of solitary glands—probably over a hundred minute ulcers. There was little or no swelling about any of the ulcers. One and



twenty-five hundredths meters (50 inches) from the cæcum was found a Meckel's diverticulum projecting from the ileum backward and ending in a blind extremity which was attached by means of the mesentery to a mass of enlarged mesenteric glands. The diverticulum was of about the same caliber as the ileum at its junction with that intestine, but a little smaller at the blind end. It extended at right angles from the ileum for 5 cm., at which point it was bent at right angles on itself and extended 2½ cm. further—7½ cm., (3 inches) in all. Both kidneys were enlarged and looked as if affected with cloudy swelling, especially the left, whose pelvis was inflamed and contained 4 c. c. of thin pus. Nothing abnormal was found in the ureters or bladder. The spleen was much enlarged and rather firm; weight, 775 grams.

Remarks: It is possible that the enormous distention of the transverse colon with gas and the large size of the spleen pushing the diaphragm up and encroaching on the pericardium contributed to the exhaustion. For two or three days before death the apex beat of the heart was felt between the third and fourth ribs just above the nipple—5 cm. above its normal position.

A fine needle was inserted through the abdominal walls about the eighth left costal cartilege into the colon, and some gas escaped through it, but not enough to have any appreciable effect.

G. T. V.

CASE 7.

G. S. P.; aged 25 years; native of Maine; admitted to marine ward of German Hospital, Philadelphia, Pa., September 21; died September 26, 1895.

History.—On admission patient's temperature was 40° C.; pulse 100, mind clear; nausea and vomiting; muscular system tremulous. Taken sick ten days before admission, with headache, backache, chilly sensations, vomiting occasionally, and profuse sweating. Bowels constipated, so took purgatives. Present condition: Tongue pointed and red at edges; spleen enlarged; abdomen not swollen nor tympanitic, no spots, tender on pressure over epigastrium. There has been no actual nose bleed, but twice he had a bloody lump in his nose. From the constipation, vomiting and sweating, and absence of delirium it was thought he might have malaria (remittent fever), and quinine was given, with little improvement, and examination of the blood for malarial organisms was negative. Irrigation of bowels with bichloride of mercury, 1 to 10,000, was used, with sponge baths and later immersion baths, but patient became comatose and died in that condition.

Necropsy (eighteen hours after death).—Cadaveric rigidity moderate; lividity of dependent parts marked. General nourishment good. Pupils moderate. Peritoneum intensely congested; visceral and parietal layers; no agglutination, but cavity contained about 500 c. c. of reddish fluid. The last meter of the ileum contained numerous ulcers (15 to 20) and enlarged Peyer's patches, varying in size from 1 to 5 cm. in diameter, situated chiefly opposite the mesenteric attachment, with their long diameter longitudinal with the intestine. The ulcers were not deep, only mucous membrane being involved. Contents of intestine, gas and a little soft, yellow fecal matter. Liver normal in size, but grayish or yellowish. Pancreas appeared normal. Spleen twice normal size, with numerous black spots scattered through the tissue, probably infarcts. Kidneys· Both much congested, swollen, with pyelitis, tissue friable; cloudy swelling evident.

G. T. V.

CASE 8.

M. K.; aged 21 years; nativity, Pennsylvania; admitted to the marine ward, Cleveland City Hospital at Cleveland, Ohio, March 30; died April 13, 1896.

History.—The fever was running the usual course, and there was no bad symptom until that rare complication "gangrene" developed in the buttocks along either side of the anus, when he sank rapidly and died.

Necropsy (nine and one-half hours after death).—Rigor mortis moderate. There was 75 c. c. of clear serum in the pericardium. The heart weighed 350 grams and was normal. The left lung weighed 570 grams; the right weighed 725 grams; normal, with the exception of a slight congestion. There was local peritonitis over the head of the colon. The Peyer's patches in the ileum and head of colon were swollen and just beginning to break down in ulceration. The liver weighed 2,200 grams; congested, soft and friable; the gall bladder and ducts were normal. The left kidney weighed 270 grams, the right 275 grams; congested. The spleen weighed 450 grams; soft and congested. A large portion of the buttock was gangrenous, black, and exuded an extremely offensive thin discharge. This was not in the nature of a bed sore, as it occurred at a point where there was no pressure.

R. M. W.

CASE 9.

Perforation of bowels.

R. W.; aged 21 years; born in Virginia; admitted to the marine ward, St. Vincent's Hospital, Norfolk, Va., July 24; died August 5, 1895.

History.—The history of the case, although showing continuous illness for seven or eight days, also showed four distinct chills, followed by fever and sweating, the attacks being diurnal, and between 10 a. m. and noon. The disease was con-

sidered complicated by malaria, and quinine was exhibited hypodermatically for two days. The fever then pursued a regular course, and was of moderate intensity, not rising over 39° C., and the whole course of the disease seemed favorable, until August 2 he was found in profound collapse followed by a profuse hemorrhagic discharge from the bowels, 270 c. c. of clotted blood being passed. This was quickly followed by two others nearly as large, and later (in the same day) by three other considerable discharges of the same character. He rallied from this condition and seemed to be doing fairly well until August 4, when symptoms of peritonitis developed and he died, having had two spells of vomiting on August 4, and 5, 1895.

Necropsy (five hours after death).—A thin, emaciated man, somewhat jaundiced. Thorax: Normal; fluid in pericardium. Heart: In diastole; soft and flaccid; valves normal. Lungs: Ænemic over anterior portions; hypostatic congestion in posterior; old adhesions over left apex; otherwise normal. Spleen: Soft but flaccid; somewhat (slightly) enlarged. Liver: Enlarged and dark; soft on section, but rather dry, not bloody; gall bladder full of dark bile. Peritoneal cavity showed presence of a moderate quantity of serum with flakes of fibrin, the intestines being loosely stuck together, the lower portion of them especially. There was a small amount of fecal matter in the cavity, especially in the lower part next to the pelvis. The bladder contained 180 c. c. of urine. There was a perforation in the small intestine about 40 cm. from the ileo-cæcal valve at the bottom of a deep, ragged, and unusually large ulceration, the opening being (as the intestines lay) just above the os pubis. There were no other large or deep ulcerations, indeed, only four others in all. The intestines were generally empty. Kidneys: Soft and rather ænemic, but exhibited no structural change.

H. R. C.

CASE 10.

G. B.; aged 23 years; native of West Indies; admitted to marine ward, German Hospital, Philadelphia, Pa., July 29; died August 11, 1895.

History.—On admission patient was very weak; temperature 40.4 C.; pulse 106. He stated that his illness began eight days before with headache, chilliness, vomiting, constipation followed by diarrhea, with thin, yellowish stools. No epistaxis. Examination showed enlarged spleen; abdomen tympanitic, but very slightly distended and tender to pressure. Complained of pain in back. Urine: 1,500 to 2,000 c. c. in twenty-four hours; acid; sp. gr., 1,008, with abundant granular casts and some pus cells. No delirium in course of the disease. Treatment: Irrigation of bowels with 1 to 10,000 solution of bichloride of mercury, cold baths and whisky, digitalis, turpentine, and quinine. Patient gradually grew thinner and weaker; no sweating, though kidneys acted well and bowels about once daily after irrigation; vomited shortly before death, which was from exhaustion. No spots were observed on patient, but as he was a negro, it was not surprising.

Necropsy.—General nourishment very poor. Rigor mortis well marked (twenty-five hours after death); pupils moderately dilated. Heart very small, about three-fourths normal size, and contracted. Pericardial sac, heart chambers, and valves normal; also aorta. Lungs and pleural cavities normal, except slight congestion postero-inferiorly in both lungs, and there was much less pigmentation than is usual. Peritoneum normal. Intestines normal in appearance, except last 8 cm. of small intestine, whose peritoneal coat was injected. On opening, this portion contained numerous enlarged and ulcerated Peyer's patches, from 0.5 to 2.5 cm. in diameter, some oval, but most of them round in shape, and seated opposite (on the other border) of the attachment of the mesentery; some only penetrated to muscular coat, others to peritoneum, but none perforated the entire wall. Mesenteric glands enlarged and numerous. Lumps of fecal matter were found in the rectum and transverse colon, the rest of bowel containing soft, yellow feces. No ulceration in large gut. Liver a little enlarged, very dark in

color: gall bladder and ducts appeared normal. Pancreas normal. Spleen about three times normal size. Kidneys both showed signs of chronic interstitial inflammation, capsule being adherent in places and showing yellowish spots on surface, though about normal size. Lower posterior half of each kidney (about one-fourth nearly of each organ) was very dark in color on the surface, and on section showed more marked atrophic changes, the cortical portion being much thinner here than elsewhere. Pelves and ureters normal.

G. T. V.

CASE 11.

Cerebral meningitis.

C. J.; aged 23 years; native of Canada; negro race; was admitted to the United States Marine Hospital, Evansville, Ind., June 16, and died June 29, 1896.

History.—Duration of illness prior to admission at first said to have been ten days, then five days. First had a chill, loss of appetite, swelling and pain in calves, and diarrhœa; 5 to 6 stools daily. For the first three or four days suffered with severe headache, which has now ceased. Had epistaxis twice yesterday, and again this morning. Temperature (after bath) 38.6° C.; pulse 90, full and regular. Tongue heavily coated in center and at base, with red tip and edges. Somnolent and dull; area of hepatic dullness increased. No appreciable enlargement of spleen. There is moderate tympanitis, and the belly is somewhat sensitive to pressure. Was put on the antiseptic (Woodbridge) treatment.

June 18.—Less stupid; complains of pain in belly, which remains moderately tympanitic. Morning temperature 37.2° C.; evening 37.6° C.; pulse 78. Six stools in twenty-four hours.

On 19th and 20th began to have attacks of hiccough, which were easily relieved, but frequently recurred. After the 21st the temperature did not rise above 37° C.; the tongue cleared off. The pulse was regular, free, and strong; appetite increased, but the hiccough continued at intervals. The mental condition varied; one day brighter and then more noticeably dull and sleepy. On the evening of the 26th patient had a severe convulsive seizure, followed by another, and another, at gradually increasing intervals until 2.30 a. m. on the 27th, when they ceased for several hours. The convulsions were general, but opisthotonus was not developed, and there was no abnormality of pupils observable. Urine drawn by catheter, and examination showed it to be normal, except for a slight excess of phosphates. Treatment by ice cap and bromide of potash and chloral, to which iodide of potash was added the following day. Consciousness was not regained, and light convulsions occurred at long intervals; death from paralysis of respiration took place at 12.30 p. m. on the 29th.

Necropsy (eighteen hours after death).—There was congestion of the entire dura mater, and the membranes were adherent to the cerebrum all along the margins of the longitudinal fissure, more particularly at its posterior extremity and over the parietal lobes, and the arachnoid in this locality was opaque and infiltrated; the subdural space contained considerable serous fluid, which of course gravitated to the base of the brain, and by its pressure gave rise to the symptoms which preceded death, and finally the death itself by paralysis of the respiratory center. The intestines were examined and a number of cicatrices found in the lower part of the ileum, from which the conviction arises that either this man had been sick longer than stated, or else there was a mistake in the diagnosis, and the cicatrices evidenced a previous attack of typhoid fever. The other abdominal viscera presented no marked evidences of disease, and as the day was excessively hot and the organs partially decomposed, a critical examination of them was not made. The pericardium contained a slight excess of fluid but the heart and its valves were normal. Old and strong pleuritic adhesions existed on the left side; the respiratory organs were in other respects normal.

P. M. C.

CASE 12.

Perforation of cæcum.

G. J.; aged 35 years; nativity, Sweden; was admitted to the marine ward, St. Vincent's Hospital, Portland, Oreg., July 9; died August 4, 1895.

History.—Patient gave a history of having been sick for a week previous to his admission. He was found suffering with fever; some diarrhœa, and a few rose-colored spots were found on his abdomen. His temperature was 38° to 39° C. in the morning and 1° to 2° C. higher in the evening. He was treated with cold baths, which easily controlled the hyperpyrexia. The nervous symptoms were not severe. The fever began to fall by lysis on the twenty-fourth day of the disease, and his general condition was good, when he was suddenly seized with pain in the abdomen and passed into a condition of profound collapse, in which he died one hour later. Although perforation was diagnosed, his prostrated condition rendered an operation inadmissible.

Necropsy (twelve hours after death).—External appearances: Body fairly well nourished; rigor mortis and post-mortem lividity slight. Thoracic cavity: The pleura and lungs were normal; heart and pericardium healthy. Abdominal cavity: Stomach normal; the small intestine presented the usual lesions of enteric fever in a severe form; the Peyer's patches were much ulcerated, the ulceration extending 1 meter above the ileo-cæcal valve. The cæcum contained six large ulcers, at the bottom of one of which there were four small perforations. The colon was normal. The liver and spleen were much enlarged. Pancreas was normal.

J. C. P.

DYSENTERY.

CASE 1.

J. S.; aged 30 years; nativity, Tennessee; colored; admitted to the marine hospital, Memphis, Tenn., November 26; died November 28, 1895.

History.—He was seized with the fatal attack ten or twelve days before admission to the hospital and had no treatment for the disease during that time. He was very far gone when admitted and did not rally at all. The bowels were acting almost without control, the passages being mucous and bloody and very offensive. There was some evidence of peritonitis. His temperature was slightly above normal, but went 0.2° below normal toward the last.

Necropsy (nineteen hours after death).—No post-mortem lividity. Moderate rigor mortis. General nourishment poor. Pupils natural. Putrefaction had begun, notwithstanding the weather was cool. A complete examination of the viscera was not made and the heart and lungs were not removed from the body. There were no adhesions in the left pleural cavity. The right lung was completely adherent to the chest wall. Both lungs, examined in situ, appeared to be healthy. Over the surface of the small intestine the peritoneum was injected; it was dry, and the peritoneal sac contained no serum. On the surface of the large intestine there was some plastic exudate, particularly at the sigmoid flexure, and the intestine was adherent to the liver and to the abdominal parietes in several places; it was congested and softened, and became torn in several places in removing; its mucous membrane was a mass of ulcers from rectum to cæcum, the ulcers being about the size of a finger nail, but not so deep anywhere, apparently, as to have threatened perforation of the peritoneal covering of the intestine. The greatest amount of ulceration was at the sigmoid flexure and the least in the cæcum. The tissue of the liver was quite hard, pale in color, and evidently in process of cirrhosis; no evidence of pus infection could be found in it; the surface was mottled; the weight was 1,625 grams.

A. C. S.

CASE 2.

Multiple abscesses of liver.

G. P. (colored); aged 23 years; nativity, Iowa; admitted to United States Marine Hospital, St. Louis, Mo., September 16; died October 10, 1895.

History.—Diarrhœa had existed for three weeks, and abdominal pain during the last week. A chill on September 11. On admission he complained of pain in lumbar region and severe headache. He was found to have elevation of temperature and pulse; frequent thin stools, containing mucus and blood, and a thickly coated tongue. Amount of blood increased. Abdominal pain and tenesmus became more severe.

October 1.—Intestinal hæmorrhage. Later he became delirious.

The day before his death there was fluctuation in the epigastrium, evidently from hepatic abscess.

Necropsy.—Much emaciated; pericardial sac contained about 50 c. c. of fluid. Heart weighed 360 grams; valves negative. No adhesions in left pleural cavity; exudation at base on right apparently due to infection from liver. Left lung, 670 grams; apparently normal, except hypostatic congestion at base. Right lung, 530 grams; apparently normal. Stomach contained numerous congested areas in mucous membrane; small intestine negative; entire length of large intestine contained many ulcers. Rectum was one mass of ulceration. Liver, 3,500 grams; large, and contained many abscesses. Pancreas, 130 grams; apparently normal. Kidneys: Left, 190 grams; right, 200 grams; pale, fatty. Spleen, 110 grams; small, apparently normal.

S. D. B.

CASE 3.

J. R. (colored); aged 39 years; nativity, Virginia; admitted to the United States Marine Hospital, St. Louis, Mo., October 12; died October 14, 1895.

History.—The previous history is negative except that patient was treated for an attack of diarrhœa in this hospital one month ago. Five days before admission he again had a severe diarrhœa, later with blood in stools. On admission his condition was fair, stools very frequent, very thin and offensive, and blood stained. The next day he developed hiccough, which continued in spite of treatment, and he died from exhaustion.

Necropsy (thirteen hours after death).—General condition fair. Rigor mortis absent. The pericardial sac and heart were negative. There was slight hypostatic congestion at the base of right lung and a few old pleuritic adhesions at the apex of left lung. The kidneys were of about normal size, capsule adherent, and on section seemed rather pale; markings distinct. The bladder and urethra negative. The liver and spleen were negative; also the stomach and small intestines. The entire large intestine was much thickened, the mucous surface deeply ulcerated and covered with shreds of necrotic tissue, and beneath the sloughs were pockets of pus in many places.

A. R. T.

BERIBERI.

J. D.; foreign seaman; aged 28 years; nativity, Nova Scotia; admitted to United States Marine Hospital, Delaware Breakwater, November 29; died December 19, 1895.

History.—The vessel from which this patient was removed was sugar laden; one hundred and sixteen days from Manila direct. Patient was well during voyage until about three weeks previous to his arrival at this port. He then noticed a slight swelling of the legs just above the ankles, with a numbness of skin over the

peroneii group of muscles. The swelling increased and extended, involving the calves of the legs, and later the feet, the numbness of the skin being coexistent and coextensive with the swelling. Urine was scanty and high colored. There was marked muscular weakness and some gastric disturbance; bowels moved several times in twenty-four hours, the discharges being watery in character. The swelling of the legs increased daily, and, extending upward, involved the thighs, and later the trunk. This condition existed until about ten days before his arrival (i. e., for about two weeks), when swelling began to disappear and a general improvement in his condition took place. This improvement continued for only two or three days, when all these symptoms returned again more markedly than before. When first seen on the arrival of the vessel at this port, the legs and thighs were more than double their normal size, the skin tightly stretched over them; the swelling extended as high as the lower edge of the pectoralis major muscle. Ascites and œdema of lower portion of both lungs existed. He was very feeble; respiration labored; face pale and anxious. Was brought to hospital and given elixir iron quinia and strychnia phos. 5 c. c., with 10 drops tincture of digitalis, every three hours. Under this treatment the improvement was marked. Urine passed freely, swelling rapidly decreasing; patient was troublesome, and would walk about at every opportunity. At the end of the first week after admission the œdema had all disappeared except a little around the ankles and feet. About this time, through imprudence, the patient caught cold, and all the symptoms returned with renewed force. The œdema quickly involved the lower limbs and extended up the trunk, producing ascites and œdema of the lungs. Urine became scanty; heart's action feeble. He failed to respond to the usual remedies, so as a last resort the use of the bromide of gold, arsenic, and mercury, solution 10 m., hypodermically every four hours, was commenced. Poultices to chest and close confinement to bed, with strict nursing, succeeded in improving his condition. The œdema gradually decreased, appetite returned, urine increased in quantity, heart's action stronger and fuller. He seemed to be on a fair road to recovery. On December 19, 1896, about 7 a. m., he was sitting up in bed, the nurses assisting him, when he suddenly fell back on the pillow and died in a few minutes.

Necropsy (thirty-two hours after death).—Body of a male; 33 years of age; height, 6 feet 5 inches. Post-mortem lividity marked. Rigor mortis marked Large quantity of fluid in chest and abdominal cavities. Heart: Muscle pale and thinner than usual; valves normal and competent. Both lungs were œdematous in lower portion; remains of an old infarction, which had undergone calcareous degeneration, in right lung, near bifurcation of trachea. Intestines normal. Liver: Evidence of fatty degeneration; color lighter than normal. Both kidneys were slightly enlarged, with markings distinct. Other organs not examined. Cause of death: Heart failure from debility caused by beriberi.

C. P. W.

MALARIAL FEVER, REMITTENT.

Case 1.

Volvulus—Laparotomy—Perforation of intestine—Peritonitis.

H. R. E.; aged 28 years; native of Indiana; white; admitted to United States Marine Hospital, Evansville, Ind., September 18; died September 26, 1895.

History.—Family history good: Has had typhoid fever, pneumonia, and organic stricture of urethra. Has been ill for about a week with chills and fever and was under treatment at the city office. Bowels have been, and are still, constipated. Tongue coated white; no appetite; complains of pains and stiffness in post-cervical muscles. Temperature, 39.4° C. Calomel administered and followed by quinine, phenacitin, and salol.

September 20.—Temperature down to 37.4° C.; chill last night.

September 21.—Complains that milk causes vomiting; does not sleep well.

September 23.—Feels better; temperature 38° C.; slept under influence of chloral. Enema required to move bowels.

September 24.—Had attack of severe pain during the night in region of bladder and in urethra; pain paroxysmal and called for the use of morphia. Urine drawn with catheter. Vomiting during the day, but toward evening this ceased, and patient took and retained nourishment. Temperature 38.3° C.

September 25.—Restless during the night, and had much pain in left side, extending up to shoulder and down to hip; vomiting again, and bowels do not move; abdomen, heretofore only slightly distended, is now markedly tympanitic; frequent belching; grew worse during the day, and enemata failed to give relief. In the evening, it being evident that there was some form of intestinal obstruction, laparotomy was done. Extensive purulent peritonitis was found to be present, caused by a perforation in the small intestine near the cæcum. The perforation was closed, the abdominal cavity sponged out, and gauze drainage introduced; the patient was put to bed, heat applied, and hypodermic stimulation resorted to, but without avail; death occurred at 7.30 a. m. on the 26th.

The body being immediately claimed by relatives, only an imperfect examination was made. The lower 10 inches of the small intestines was highly congested, as was the cæcum, and there was a ragged ulcer in the ileum near the ileocæcal valve, which led to the perforation referred to. This ulcer differed from the ulcers found in enteric fever in general appearance, and in the fact that its long diameter was transverse to the gut; the limited congestion led to the belief that there had been a volvulus of this portion of the intestine, which had been restituted in course of the operation.

P. M. C.

Case 2.

Congestive type.

J. L.; aged 58 years; nativity, New York; admitted to United States Marine Hospital, Vineyard Haven, Mass., June 23; died June 23, 1896.

History.—When admitted to hospital he was partly unconscious, with a subnormal temperature (36.5° C.), weak and intermittent pulse, and jaundiced surface. The unconsciousness deepened into coma, and he died a few hours after admission. No history could be obtained from the patient, but the master of the vessel stated that the patient had been suffering from chills and fever for the past seventeen days, and that his vessel had last sailed from Newbern, N. C.

Necropsy (twelve hours after death).—Rigor mortis present. Calvarium unsymmetrical and very thick. Dura firmly adherent to bone, and separated with difficulty. Surface of cerebral lobes congested and traces of old leptomeningitis found. A blood stain the size of a 50-cent piece was noted on the pia on the upper and posterior surface of the right lobe of the cerebrum. It was superficial, and did not extend beneath the membrane. No hemorrhagic clots, emboli, or thrombi were found in any part of the cerebrum or cerebellum. Ventricles contained considerable serum, but presented nothing abnormal. Brain substance congested throughout, and slight softening noted on basilar surface of middle cerebral lobes. Thorax: Heart large, with marked hypertrophy of the left ventricle; borders of mitral valve beady; other valves normal, and all competent; ascending thoracic aorta slightly dilated and a few patches of atheroma observed in it. Extensive pleural adhesions on both sides. Left lung very small but crepitant. Abdomen: Liver large, dark slate-gray in color on surface and melanotic in appearance on section; the structure is very friable and easily broken down by the finger; gall bladder much distended, and the parts in its vicinity are bile-stained. No gall

stones in bladder or duct. The stomach presented nothing abnormal; pancreas slightly enlarged. Spleen large, and on section is found very friable, dark, and almost semifluid. Small intestine normal, except congestion of mucous surface in lower part of ileum, with swelling of Peyer's patches. Large intestine normal. Genito-urinary organs: Slight congestion of the kidneys; otherwise normal. Weight of viscera: Brain, 1,330 grams; heart, 365; right lung, 370; left lung, 160; liver, 1,660; spleen, 295; pancreas, 130; right kidney, 150, left, 150.

D. A. C.

PERNICIOUS MALARIAL FEVER.

K. T.; aged 38 years; native of Pennsylvania; was admitted to the marine division of the Mercy Hospital, Pittsburg, Pa., June 25, and died June 27, 1896.

History.—Patient entered hospital on the afternoon of the 25th and was seen and prescribed for by the resident. At the morning visit on the 26th it was found that she had recently arrived from New Orleans, La., and other ports on the lower Mississippi; that during this voyage she had been attacked with malarial fever and that for two weeks, or since her return, she had been continuously ill. During this latter period there was history of only one chill. Examination gave furred, flat tongue; pale lips, and conjunctivæ; peculiar, dingy-yellow skin of face and neck; a slight bronzing of the skin on other portions of the body; splenic dullness filling Traube's space, forward to the nipple line; liver from sixth to the lower border of ribs; lungs normal; heart sounds weak; pulse, 126, weak and intermittent; temperature, 38.5° C. During the night there had been some nausea, and quinine had been ejected almost as given. Strychnia was ordered hypodermatically and quinine by the rectum. Blood taken from finger tip and allowed to remain in the pipette of the hemocytameter, with normal salt solution tinged with methyl blue, for three hours gave large number of parasites. At least 70 per cent of the red corpuscles showed they contained organism. In many the appearance was embryonic, but the larger number were in various stages of segmentation; numbers of extra corpuscular bodies were seen as irregular rosettes, masses of protoplasm deeply pigmented, and granular pigment; there were especially numerous shadow cells with fragmented periphery; corpuscles not estimated; white cells increased in number, the polynuclear neutrophiles predominating. The normal red corpuscles were noticeably larger than those containing the organisms, and this confirmed the history of quartan, or remittent type of fever. Urine examined: 12 ounces; acid; sp. gr. 1,020; traces of albumen; a few pus cells; amorphous urates; no casts. At 6 p. m. temperature 38° C. and pulse 120. Quinine had been retained; iced milk punch and milk retained; no chill at highest temperature, at 1.30 p. m., 40° C. Quinine in full doses during night. At 9 a. m. of 27th the temperature was 37.6° C.; pulse, 118 and stronger. She had slept during night and was now brighter and hopeful. Calomel given with aloin and followed with saline, and quinine ordered; 6 grains t. i. d. At 2.30 p. m. a strong chill came on which lasted an hour, the temperature rising to 39.5° C., and was followed by a stage of depression, which ended in death at 9 p. m.

Necropsy (twenty-four hours later, limited).—Body of fairly nourished white female; 160 cm. long; no distinguishing marks; some hypostasis of dependent parts; skin of body a distinct bronze; median incision, and spleen found enlarged, congested, the pulp purplish black and diffluent; the mesentery and the surface of the intestines was decidedly bronzed; the liver enlarged, and of dark color and friable. Owing to the extreme objection of the friends no further examination was made. Death from pernicious malarial fever.

E. W.

SECONDARY SYPHILIS, PACHYMENINGITIS.

C. C.; aged 40 years; nativity, Kentucky; admitted to the United States Marine Hospital, Cairo, Ill., March 27; died March 31, 1896.

History.—Patient had just concluded a prolonged alcoholic debauch and was on the verge of delirium tremens. He complained of headache, chilliness, and general malaria. Temperature on admission, 37.5° C., which shortly increased rapidly to 39.5° C. He was given a hot bath, put to bed, and his bowels unloaded with a brisk purge. Quinine with tonics and stimulants, followed by inunctions of mercurials and sedatives, seemed of little effect. He became delirious, refused nourishment, and required constant restraint until coma supervened, followed by death.

Necropsy (six hours after death).—Body that of a muscular, middle-aged white man, much emaciated. Rigor mortis feeble. Post-mortem lividity marked in dependent portions. Encephalon only examined. The scalp and skull presented no special feature of interest except on the inner surface of the latter; from about the vertex backward for 6 cm. was a double line of small erosions to which adhered strongly an equal number of small masses embedded in corresponding situations in the dura mater, which was thickened at this place. Beneath these tumors were corresponding congestion points of the pia mater and a series of yellowish tubercular deposits on the underlying portions of the cerebrum. The entire encephalon was congested, the sinuses discharging freely very fluid dark blood in large quantity.

J. M. G.

SYPHILIS OF BRAIN.

G. W. W.; aged 48 years; nativity, Germany; admitted to the United States Marine Hospital, Port Townsend, Wash., December 10, 1895; died February 23, 1896.

History.—The patient has been admitted to this hospital at various times with rheumatism and headache, which was general and not defined. Syphilis was suspected, but the patient denied having been infected. No positive indications of the disease existed except the rheumatism and the headache. The last time he was admitted to the hospital was for rheumatic pains in legs and shoulders. This condition grew worse, and he shortly afterwards complained of a constant headache which prevented sleep. The headache could not be controlled by bromides, and occasionally morphia was given hypodermatically, but this even failed to give relief. During this time he was under large dosage of potassium iodide. About two months before his death he became delirious and lost control of his legs; there was also incontinence of fæces and urine. He grew worse rapidly and finally died from exhaustion.

Necropsy (fifteen hours after death).—Skull opened. Pericranium thickened; the skull softened in places; membranes very much congested; dura adherent to skull in places; brain undergoing softening; third ventricle full of fluid; body much emaciated; abdominal organs normal; lungs normal; heart very small, and on the wall of left ventricle was a large white cicatrix; the valves were normal.

J. O. C.

ALCOHOLISM—LACERATED WOUNDS OF FACE.

J. B.; aged 34 years; nativity, New York; admitted to United States Marine Hospital, Chicago, Ill., September 27; died October 2, 1895.

History.—Patient stated he has been drinking for the past three or four weeks, and that he fell down stairs. There was a small wound at outer extremity of right eyebrow and one somewhat larger on bridge of nose. Ecchymosis all around eye and sclera bright red. He was rational, but very nervous. In spite of sedatives

and stimulant nourishment, on September 28 he became delirious and violent. He remained until his death in this condition. Owing to the location of the injuries and possibility of violence as a cause the coroner was notified and conducted the necropsy.

Necropsy.—Heart, large; weight, 430 grams; valves, competent; pericardial sac normal. Larynx and trachea were congested posteriorly, but no fracture. Left pleura universally adherent; right, weak, adhesions posteriorly. Lungs normal; left, 530 grams; right, 590 grams. Œsophagus and surrounding tissues congested. Intestines normal. Section of liver firmer than normal; color, dark; weight, 1,750 grams. Kidneys normal, left, 170 grams; right, 225 grams. Spleen normal, 185 grams. Brain, 1,370 grams. No fracture of skull.

S. D. B.
J. B. H.

CHRONIC RHEUMATISM—VALVULAR DISEASE OF HEART—ATHEROMA.

J. B.; aged 68 years; nativity, Switzerland; admitted to United States Marine Hospital, Chicago, Ill., December 2, 1891; died September 21, 1895.

History.—He was admitted with rheumatic fever, which subsided into a chronic form. He was incapacitated for any work. There was progressive weakness and loss of motion generally. Latterly there were occasional attacks of palpitation of heart and a systolic murmur was found at apex, propagated into left axilla.

Necropsy.—Pericardial sac adherent to heart. Weight of heart, 435 grams. Thickening of cusps of all valves; vegetations on mitral. Mitral and pulmonary valves incompetent. Walls of ventricles thickened. Coronary arteries atheromatous; brittle. Thoracic aorta contained atheromatous patches. Many adhesions in both pleural cavities free at apices. Upper lobes of both lungs crepitant; lower nearly solid, resembling red hepatization. Stomach slightly congested, thickened pylorus. Liver adherent, small, smooth; no nodules; "nutmeg" dark color; weight, 880 grams. Kidneys apparently normal; left weighed 145 grams; right, 135 grams. Spleen, 130 grams; normal appearance.

S. D. B.
J. B. H.

LYMPHADENOMA OR HODGKIN'S DISEASE.

F. M.; aged 32 years; nativity, Michigan; admitted to the marine ward, Cleveland City Hospital, Cleveland, Ohio, September 28; died October 18, 1894.

History.—The patient's symptoms were misleading, being apparently those of a case of acute bronchitis, followed by catarrhal pneumonia. The history was not that of a chronic ailment, the patient having worked with comparative comfort up to a very short time before entering hospital. There was an entire absence of the glandular enlargement described as occurring in Hodgkin's disease in the neck, axilla, and groin. He complained of severe pain in the region of the sacrum, evidently due to the enlarged lymphatic glands of the mesentery which were found post-mortem. Ordinary remedies directed to the relief of the cough, pain, and lung consolidation were employed, but with little effect.

Necropsy (*four hours after death*).—Rigor mortis absent. No enlargement of lymphatic glands in neck, axilla, or groin. The incision over the sternum and abdomen showed several enlarged subcutaneous glands. The heart was normal in size, color, and consistency; the right ventricle partly filled with antemortem and post-mortem clots; pulmonary artery filled with fluid and clotted blood; valves and arteries of heart normal. About 25 c. c. clear pericardial fluid found. The lungs were both very large; no adhesions of the pleuræ. Both lungs partially filled with air, distinguished by crepitation on handling; the bases were œdematous. Throughout the entire lung surface were yellowish-gray, somewhat cheesy

nodules, varying in size from that of a pea to that of a hazelnut; they were equally distributed at bases and apices; they contained no tubercle bacilli. In the stomach were a few superficial ulcers, being apparently degeneration of growths similar to those in the lungs. The small intestines, especially the duodenum and jejunum, contained numerous small ulcers, similar to those in the stomach, and some nodules in the submucosa that had not yet broken down. Large intestines normal. The mesentery of the small intestines was literally filled with enlarged lymphatic glands, many of them the size of a walnut. The left kidney was normal in size, capsule not adherent, and beneath the latter were a number of grayish nodules, some of which were partially broken down; the medullary portion was not involved. The right kidney was normal in size, but was more thoroughly studded with similar nodules, which were not confined to the cortical portion, but were scattered throughout its entire substance. The spleen was of normal size, very dark and soft, and there were two or three nodules the size of a pea within it. The liver was very little enlarged and of normal color. In its substance there were five or six caseous necrotic spots about the size of a hazelnut, one being somewhat larger. Many large glands were found in the mediastinal spaces and about the bronchi. The brain, bladder, and larynx were normal. Microscopic examination of sections of the new growths described above showed that they consisted of a fibrous reticulum, containing numerous cells averaging in size about half that of a leucocyte. These cells contained nuclei, with, in some cases, nucleoli. At various points could be distinguished small dark bodies, somewhat resembling those described by Flexner, of Johns Hopkins Hospital. About the growths was a distinct area of pressure atrophy, and in many places they had invaded the proper structure of the organs. It would appear that the original growths occurred in the mesentery, while the wide and uniform distribution of the growths in other organs, especially the lungs, would indicate that the latter were metastatic.

R. M. W.

DIABETES MELLITUS.

J. R.; aged 20 years; native of Ireland; admitted to the United States Marine Hospital, San Francisco, Cal., August 26; died August 29, 1895.

History.—Patient came to the hospital complaining of weakness, malaise, headache, and great thirst. Was in the habit of passing a large quantity of pale urine at intervals of from one-half to three-quarters of an hour, throughout both day and night, for the last month. Had been perfectly healthy up to date of present trouble, one month ago. The mind was dull and it was found impossible to get a good history of the case. Physical examination showed nothing abnormal. No temperature. Heart normal. Examination of urine showed high specific gravity and about 7 per cent of sugar. Urine was light in color and had a sweetish taste and smell. The diagnosis of diabetes mellitus was made. August 27 found the patient declining and in a semicomatose condition. Large quantity of urine passed during the day. Patient became delirious at night, and remained so all the next day. August 28 found patient delirious, heart weak, respiration rapid, but urine only passed twice during the day. Patient gradually declined; stimulants were of no avail. Died August 29, 1895, at 2.55 a. m.

Necropsy (eight hours after death).—Body slight. Lungs normal. Pleuræ normal. Heart normal. Liver hyperæmic and slightly enlarged. Spleen found very small; pale and tough; weight, 170 grams. Intestines were congested. Pancreas small. Left kidney about normal in size, congested and soft; the capsule was thickened and adherent; a small pocket of pus found in the pelvis. Right kidney slightly congested and a small pocket of pus found in the pelvis; capsule slightly adherent.

G. S. N.
J. G.

SPINAL MENINGITIS.

C. P. W.; aged 46 years; native of Finland; admitted to the United States Marine Hospital, San Francisco, Cal., August 30; died October 6, 1895.

History.—Six months before entrance to the hospital patient received an injury to the back which was soon followed by paralysis of all the muscles below the neck. After nine days of complete paralysis the muscles gradually regained strength and patient was able to stand and then to walk, but never without great embarrassment.

The power in the muscles of arms never improved, however, and he was unable to work. Shooting pains down the legs and arms continued. On entrance to the hospital patient was found weak and emaciated. The vertebral column was sensitive, and all the nerves branching from it were very sensitive. Was compelled to hold the body in a stooping position, and all movements were labored and painful. Shooting pains down the spine and extremities were excruciating. The eyes were congested and all the reflexes exaggerated. After treating patient for inflammation of spinal cord some improvement noticed. On September 9 patient suddenly lost power of muscles of right side, trembling, pain in the head, nausea, vomiting, etc. Pain in the abdomen also. Did not lose consciousness at the time. From this time on the patient declined in health, the pains increased, the eyes became more congested, and severe pain in the head persisted. On September 20 patient became delirious and cerebral meningitis was complicated with the spinal meningitis. Patient gradually declined, and died October 6.

Necropsy (forty hours after death).—Body found emaciated. The membranes of the brain were inflamed and in a state of cloudy swelling. On either side of the longitudinal fissure several small calcareous bodies found on the cortex of the brain around the motor area. Heart and other organs found normal.

G. S. N.
J. G.

CEREBRAL HEMORRHAGE—RIGHT HEMIPLEGIA.

Case 1.

A. G.; aged 53 years; nativity, Pennsylvania; admitted to the United States Marine Hospital, Baltimore, Md., March 14; died April 26, 1896.

Early in the summer of 1895 patient was admitted to hospital at Philadelphia for symptoms that seemed due to cerebral hemorrhage. There was at that time considerable weakness and loss of memory. On November 4, 1895, patient was again seized with right hemiplegia and loss of consciousness. Tongue was not involved. There were no bladder or rectal symptoms. Later on patient became worse and speech became affected.

March 14, 1896.—Patient on admission to marine hospital at Baltimore was very much emaciated; could move his right upper and lower extremities but little; sensation was somewhat blunted; muscles of the face were drawn to the left. Patient's speech was very little affected, but memory was bad. Bowels were regular and appetite good. Later patient became absolutely helpless and passed his urine involuntarily. On the day before death respiration became loud and rapid; pulse rapid and weak. Patient died quietly at 5 a. m. of the 26th.

Necropsy.—Confined to the brain. On making numerous horizontal sections of the brain there was found a dark, broken-down necrotic area, the size of a silver dollar, in the lenticular nucleus of the left hemisphere. This area encroached on the internal capsule. The artery that ruptured was found to be a branch of the middle cerebral.

J. B. G.
G. W. S.

CASE 2.

Ascending limb of Sylvian fissure.

J. W.; aged 44 years; nativity, Austria; admitted to United States Marine Hospital, San Francisco, Cal., August 15; died at 2 p. m. September 5, 1895.

History.—Patient gave a clear history of acute articular rheumatism, which had disabled him for two months before admission to hospital. The disease was readily controlled by salicylates and the patient was convalescent when, on the morning of September 3, he was found paralyzed on the right side of the body and face. Neither pupil reacted to light. Persistent vomiting was a marked symptom to the last. Consciousness not entirely lost at this time, but the power of speech was absent. The muscles of deglutition acted normally. Purgatives, heart stimulants, ergot, and potassium iodide given without permanent benefit. Late on September 4, paralysis became more marked, patient collapsed and death occurred at 2 p. m. on the 5th of September.

Necropsy (twenty and one-half hours after death).—When the brain was inspected a large clot was discovered just anterior to and over the location of the ascending limb of the sylvian fissure. This clot was just beneath the membranes of the brain. On making cross sections it was discovered that a hemorrhage had occurred in the left lateral ventricle, which was filled with clot and disintegrated brain substance, and that all the substance of the tempero-sphenoidal lobe was disintegrated except a very thin external layer. Small hemorrhages had also occurred in the ascending parietal and parieto-occipital fissures. The island of Reil was completely destroyed. Right side of brain normal. There was a small effusion into the pericardium. The heart showed evidence of a very slight endocarditis. Light plural adhesions on the right side. The scrotum was œdematous.

J. B. C.
J. G.

CASE 3.

Softening left corpus striatum—Softening right internal capsule posterior to genu.

C. B.; aged 30 years; nativity, New Mexico; admitted to the United States Marine Hospital, San Francisco, Cal., March 18; died September 6, 1895.

History.—Three days before his entrance to the hospital, while working, the patient fell to the deck. He did not lose consciousness, but on attempting to arise found that he was unable to move the left side of his body. Upon examination paralysis of the muscles of the face, tongue, body, and extremities of the left side was found. The muscles of affected side were in a state of tonic contraction. Anæsthesia of the whole of left side of body. The reflexes were exaggerated, but the mind was clear and memory fairly good. After treatment for some time the movement in the face and leg returned to nearly normal, but the arm remained completely paralyzed. Urine and fæces under control. Persistent neuralgia of the supra and infra orbital nerves gave great distress. On June 20 patient had a contraction of the muscles of affected side, a feeling of constriction of the chest and impending dissolution, followed by retention of urine and fæces. Patient recovered from this attack, and no visible trace left behind. Up to this time a syphilitic history had been denied, but on further questioning a clear history was obtained and patient was treated accordingly. On August 29 the power of speech was lost, and the left side of body was in a state of tonic contraction. The muscles of deglutition were also paralyzed. Patient gradually declined. Died September 6.

Necropsy (nine hours after death).—Body emaciated; head, asymmetrical; the membranes of the brain found in a condition of cloudy swelling. The anterior two-thirds of the corpus striatum on the left side found degenerated and soft. In

the internal capsule of the right side just posterior to the genu was found a spot of degeneration 5 cm. in diameter. A hard caseous cyst as large as a pea found superimposed on the optic commissure. Other organs not examined.

G. S. N.
J. G.

CEREBRAL MENINGITIS.

Case 1.

G. McN.; aged 67 years; nativity, Maryland; admitted to United States Marine Hospital, Baltimore, Md., October 19; died October 31, 1895.

History.—On admission to hospital patient's mental condition was considerably depressed, and he talked somewhat at random. Said he had always been a healthy man. Illness began about ten days before admission to hospital with a chill, followed by fever and sweating. This recurred at irregular intervals, and the last chill occurred the night before entrance to hospital. Patient was weak, but said he had no pain; bowels had not moved for several days; tongue was coated and cracked; temperature, 37° C.; pulse, 80. Physical examination of chest revealed nothing abnormal. The urine was dark colored, alkaline in reaction, and free from albumen or sugar. On his right leg, over spine of tibia, was a cicatrix, marking the site of an old ulcer (syphilitic). Patient was given a mercurial, which was followed by free catharsis.

October 20.—Mental condition about same. Right pupil somewhat more dilated than left. Temperature, 38° C.; pulse, 90, and very restless.

October 21.—Temperature normal, but pulse 128. Patient lying in a stupor from which he can not be aroused; breathing of Cheyne-Stokes type. Fæces and urine passed in bed. During the afternoon the breathing became somewhat more regular, and patient could be aroused.

On the fifth day in hospital patient was able to articulate a few words, but was quite restless, and temperature remained subnormal from then on. Pulse ranged from 90 to 102 until three days before death, when the average was about 50 per minute. The stupor was broken by frequent spells of noisy delirium. Patient gradually grew weaker and died October 31, 1895, at 5.50 a. m.

Necropsy (four hours after death).—Male, about 5 feet 9 inches in height; gray hair and beard; body emaciated; rigor mortis not marked. The heart weighed 240 grams; left ventricle somewhat hypertrophied and a small calcareous deposit found in one of the aortic valves. The lungs were apparently normal. The liver weighed 1,441 grams and was congested; gall bladder was atrophied, so much so that it was with some difficulty found. The kidneys weighed 120 grams each; capsules somewhat adherent; the cortical substance was, on section, seen to be much atrophied, showing a marked cirrhosis. The spleen weighed 180 grams and was congested. There was a marked congestion of the small intestines. A constriction in the ileum, extending about 6 inches from ileocæcal valve, was discovered. The dura was thickened, and over the frontal lobe was noted a hemorrhagic spot about the size of a half dollar. Brain and membranes were markedly congested. Arteries were atheromatous and contained aneurismal dilations.

J. M.
G. W. S.

Case 2.

W. V. McC.; aged 24 years; nativity, Michigan; admitted to the United States Marine Hospital, Cleveland, Ohio, April 23; died April 28, 1896.

History.—Patient entered hospital with a very high fever, giving a history of two days' illness when admitted. His temperature stayed between 39° C. and 41° C. during the entire time he was in the hospital, and he was delirious during the last few days.

Necropsy (eight hours after death).—Rigor mortis moderate. Pericardial sac contained 50 c. c. of clear serum. The heart weighed 350 grams; normal. The left lung weighed 390 grams; the right 490 grams; normal. Peritoneum normal. Stomach and large intestines normal. The mesentery of the small intestines was filled with mesenteric glands as large as a horse chestnut. As the intestines appeared absolutely normal and there was no lesion of any other part which seemed associated with them it was impossible to locate the origin of the trouble. The liver weighed 1,740 grams; was normal. The pancreas weighed 180 grams; was normal. There was a small supernumerary pancreas. The left kidney weighed 160 grams; the right 150 grams; both normal. The spleen weighed 450 grams; congested, dark, and friable. The membranes of the brain were extremely congested, and there were fine adhesions to the brain and to the skull. When the skull was sawn into probably 20 c. c. of fluid escaped. The ventricles were also filled with clear serum. The punctæ hemorrhagicæ were very prominent and oozed blood upon section. Weight of brain, 1,410 grams.

R. M. W.

CASE 3.

W. C. H. (colored); aged 23 years; nativity, Maine; admitted to United States Quarantine Hospital, Delaware Breakwater quarantine station, November 15; died November 18, 1895.

History.—Was brought ashore, comatose, from Norwegian steamship *Leon*, with following history: Came aboard as a passenger at Port Antonio six and a half days previously; seemed to be well until two days before arrival of vessel at this port. On morning of 13th he was found in the hold of the vessel among the cargo of fruit; gave no reason for being there. It is supposed that he had been in the hold all night. He complained of headache and diarrhœa. The master of the vessel gave him a Dover's powder. The next morning patient was very stupid and gradually became comatose, in which condition he was brought ashore. He never recovered consciousness and died November 18, 1895, at 11:21 a. m.

Necropsy (twenty-two hours after death).—Body of a male (colored); height, 5 feet 5 inches; body fairly well nourished; rigor mortis well marked; on right cheek a dark scar about the size of a 50-cent piece, apparently due to an old burn; hair black, fine, curly, short; slight growth of beard and slight mustache; small abrasion of skin about 1 inch to right and above right nipple; on right thigh, outer side, three abrasions about one-fourth inch wide, from 1½ to 2 inches long, and about one inch apart, as though they had been made by scraping against some hard substance; marks of recent blister on nape of neck; heart, normal; valves, competent. The posterior aspect of the lower lobe of each lung was the seat of a chronic pneumonia; small amount of fluid in abdominal cavity; intestines empty, normal; liver, normal, congested; kidneys, small, normal in appearance, congested; spleen, normal. Scalp and skull exhibited nothing of note; membranes of brain, seat of an acute inflammation; vessels injected; dura mater adherent along median fissure; brain, general contour normal, slightly œdematous; vessels injected; other organs not examined; death due to exhaustion, incident to cerebral meningitis and œdema of brain tissue.

C. P. W.

CASE 4.

Pneumonia—Dilatation of the heart.

G. E.; aged 50 years; nativity, Alabama; admitted to United States Marine Hospital, St. Louis, Mo., August 5; died August 21, 1895.

History.—Family history, negative. He has had rheumatism, malarial fever, gonorrhœa, buboes, and variola. Present illness began in May, 1895, after a contusion of the chest, received while carrying heavy lumber on board a boat.

Hæmoptysis and severe pain in the lower sternal region followed, and later on there was urgent dyspnœa on exertion and frequent dizziness. Early in July, 1895, he fell unconscious in the street and was taken to the city hospital. Improvement followed and he returned to work, but the hæmoptysis continued and he was very weak. He was admitted to United States Marine Hospital, St. Louis, Mo., July 11, 1895. On admission there was tenderness on pressure over the lower part of the sternum, moist rales in the upper lobes of both lungs, dullness on percussion, and diminished respiratory murmur over lower and middle lobe of right lung, urgent dyspnœa, albumen and granular casts in the urine and œdema of the lower extremities. His temperature was 37.8° C., but was normal the following morning and there was no subsequent rise of more than two-fifths. He improved under treatment, and on July 22 he went out on leave and did not return. Readmitted August 5, 1895, with similar symptoms. Severe dyspnœa, pain in chest, particularly at lower part of sternum, bloody expectoration and œdema of feet and ankles. On August 17 the stomach rejected everything, the dyspnœa was urgent, and he was very weak. On the 19th he became delirious, which continued until death.

Necropsy (four hours after death).—Rigor mortis absent. Body fairly nourished. Head: scalp congested; general cerebral menengitis; brain substance congested and ventricles filled with serum. Chest: Right lung fixed in cavity by numerous firm pleuritic adhesions and the entire lung is hepatized; left lung presented a few pleuritic adhesions at apex and a calcareous deposit at the entrance of the bronchus. Heart greatly enlarged (dilated) and the pericardial sac contains 110 c.c. of fluid; all the valves of the heart are enlarged and the tricuspid admits the passage of four fingers. Abdomen: Liver nutmeg in appearance; gall bladder and ducts distended; stomach small, mucus membrane thickened and congested, openings normal; intestines normal. Spleen enlarged and congested and on the posterior side of the left border a supernumerary spleen was found. It was about the size of a silver dollar, had true splenic pulp, and was attached to the spleen proper by a firm band of white fibrous tissue; pancreas large and very firm in texture. Kidneys congested but otherwise normal; bladder distended with urine and mucus membrane congested. Weight of viscera: Brain, 1,170; heart, 550; right lung, 850; left lung, 770; spleen, 180; liver, 1,365; right suprarenal capsule, 2; left suprarenal capsule, 5; right kidney, 130; left kidney, 145 grams.

D. A. C.

HEMIPLEGIA.

Case 1.

Cerebral embolism—Syphilitic liver.

H. C.; aged 54 years; nativity, England; admitted to the United States Marine Hospital, San Francisco, Cal., June 20, 1895; died March 11, 1896, at 3.50 p. m.

History.—On admission he complained of nausea, headache, loss of appetite, dating from exposure to severe weather one month before. Three days after admission he fell suddenly from his chair, and was picked up unconscious. After the fall both motion and sensation were lost on the left side of the body and face, and his mind was much obtunded. The sphincters were uncontrollable during this period. The above symptoms lasted a few days, then gradually passed off under treatment consisting of ergot and counterirritants, purgatives, digitalis, iron, and potassium iodide. The same symptoms as in the previous attack occurred in October, leaving the patient with the muscles of the left arm and hand paralyzed and with a slowness and uncertainty of swallowing. The symptoms again recurred on the 1st of March, and death resulted at 3.50 p. m. on March 11, 1896.

Necropsy (nineteen hours after death).—In removing the brain from the skull all that portion immediately surrounding the fissure of Rolando on the right side was so soft that it escaped, leaving an ill-defined cavity about 1 cm. deep and 2 cm.

wide. On section of the brain no other lesion save the one mentioned was found. In the left pleural cavity was found a small quantity of pus. There were no adhesions of the pleura on the left side. There were small, slight adhesions of the pleura anteriorly on the right side. The right lung was slightly congested. Hypostatic pneumonia was present at the base of the left lung. The heart muscle was soft and of a lighter color than normal. The left ventricle was dilated; the walls were thin. Small vegetations were found on all the valves of the heart. The condition of white softening found in the motor area of the right side of the brain was probably due to embolism of the artery or arteries which supply that tract. The condition of the liver (vide infra) was probably due to syphilis, but the lesion of the brain was too indefinite to be called gummatous. The liver weighed 1,850 grams. The surface was divided by bands of connective tissue into irregularly quadrangular figures. These lines of depression and the resulting intervening elevations were much larger than in an ordinary "hobnailed" liver. Small cysts, some containing a semifluid mass, others a cheesy material, were found scattered all through the substance of the liver. The kidneys were congested, but otherwise normal.

J. B. C.
J. G.

CASE 2.

B. B. B.; aged 69 years; nativity, New Jersey; admitted to United States Marine Hospital, Chicago, Ill., February 19, 1895; died February 6, 1896, at 9.10 p. m.

History.—Patient transferred from Michigan City; helpless, and scarcely able to speak a word. Speaks so indistinctly that few words can be understood, and the following history obtained by writing: Has been on United States vessels since 1839, and a master for forty-five years; general health always good; three days before admission he was walking along the street carrying a box of tools, when he suddenly fell helpless, but did not lose consciousness. The left arm and leg are powerless, left cheek smooth, right cheek drawn up, also right angle of mouth. Tongue protruded, about straight. He has control of extremities on right side, and can raise head. Deglutition somewhat difficult.

February 21.—Patient informs orderly that he had been laid up with rheumatism of arms and shoulders all winter, and had just started to work the morning the stroke came on. Had rheumatism several years ago. Also says that he had slight shock three years ago which deprived him of the power of speech for a day and affected left lower extremity.

Necropsy (seventeen hours after death).—The vessels of the brain were atheromatous; weight of brain, 1,280 grams, and very much congested; the dura mater was thickened and very firmly adherent to the calvarium. Beneath the inner layer of this membrane there was a collection of serous fluid. This layer of the dura was thickened and opaque. The pia mater was very much congested. Heart enlarged; weight, 400 grams; walls thickened; pericardium adherent; found several callous growths on aortic valve; other valves seemed competent. Right lung very much congested; found several cavities containing pus; weight, 1,135 grams; left lung weighed 580 grams, also contained several cavities containing pus. Left kidney: weight, 130 grams; appearance normal; capsule peeled easily. Right kidney very small and hard; capsule adherent; weight, 65 grams. No further examination made.

J. B. H.

EPILEPSY.

W. D. (white); nativity, Pennsylvania; aged 35 years; admitted to United States Marine Hospital at Cincinnati, Ohio, July 13; died August 8, 1895.

History.—Patient was admitted for epilepsy. He gave a history of remote injury and long-continued alcoholic intemperance. Syphilis was denied. There was no

doubt in regard to the character of the fits; they were typically epileptic. Patient was given the iodide and bromide of potassium in heroic doses. He steadily grew worse; toward the end he became comatose and death occurred.

Necropsy (fourteen hours after death).—Scalp and cranium showed no signs of injury. Dura mater was opaque, and its blood vessels were engorged. There was a considerable quantity of fluid in the subdural space. Pia mater was intensely inflamed throughout, especially in the sylvian fissures. Arachnoid was opaque and, with the pia, was adherent along the edges of the longitudinal sinuses to the brain tissue. Subarachnoid space contained fluid.

P. C. K.

VALVULAR DISEASE OF HEART.

CASE 1.

Gastric carcinoma.

J. L.; aged 53 years; nativity, Chile; admitted to United States Marine Hospital, San Francisco, Cal., September 25; died October 4, 1895, at 2.15 a. m.

History.—When brought to the hospital the patient's intellect was very much clouded, and no definite history could be obtained. He was treated for rheumatism at the city office one month previously with good result. Area of cardiac dullness increased. An aortic systolic murmur was found. Lungs normal; liver enlarged; jaundice present; tenderness elicited by pressure over right hypochondrium; tongue coated; lips pale; temperature normal; arteries not atheromatous. Treatment: Purgatives, which caused the passage of a large quantity of dark-colored hard fæcal matter; heart tonics and stimulants; diet, milk and aqua calcis at frequent intervals.

September 29.—Improved slightly under this treatment; singultus persistent and distressing, and was treated without permanent effect.

October 1.—A diastolic mitral heart murmur was discovered. Heart grew gradually weaker, in spite of treatment, until death.

Necropsy (nine and three-fourths hours after death).—Heart muscle pale and friable; aortic valve incompetent; a few small vegetations on it; mitral valve competent; right side of heart normal. Intima of thoracic aorta was ulcerated and easily separated from muscular coat. Lungs normal. Liver: Pale, cut easily; soft and friable. The right end of the stomach, about one-third of the whole, was carcinomatous. The pylorus was patulous and not involved. The carcinoma was probably of the colloid variety. Peritoneal adhesions had been set up between the stomach and the colon, the small intestine, in two places, and the pancreas. The peritoneal glands were enlarged.

J. B. C.
J. G.

CASE 2.

Aortic.

P. J. McE.; aged 50 years; nativity, New York; admitted to United States Marine Hospital, Chicago, Ill., July 10; died September 15, 1895.

History.—Previous to admission he had attacks of dyspnœa, with anasarca and pain in lower portion of chest. On admission he was found to be very feeble. There was marked dyspnœa, anasarca, præcordial pain, headache, dimness of vision. Constipation usual. Urine, sp. gr. 1,015; acid reaction; a trace of albumen. Liver enlarged and tender on pressure. Heart enlarged; irregular in action. A systolic murmur was audible over lower half of præcordia and propagated into left axilla. The urine was always diminished in quantity, never contained more

than a trace of albumen, and casts were never found in the sediment, which was small in amount. He had been in the care of a physician for a number of months, and difficulty with the circulation had been increasing. For a while there was marked improvement under the use of heart tonics, laxatives, etc., and the anasarca largely disappeared. But the anasarca became extreme and the heart completely failed. Œdema of the lungs and hæmoptysis were present.

Necropsy.—Pericardial sac contained 50 c. c. of clear fluid; appearance normal. The aortic valve was atheromatous. Other valves normal. Left ventricle of large size, wall 1.6 cm. thick; right ventricle large, wall of medium thickness. Thoracic aorta atheromatous; adhesions in upper portion of both pleural cavities; 800 c. c. bloody fluid in left, 1,200 c. c. in right. Pleural surfaces thickened and granular feeling. Upper lobes of lungs crepitant; lower contained little air, were greatly congested, and tissue easily broken down; deep red in color. Infarction in lower right lobe. Left lung weighed 665 grams; right, 630 grams. Abdomen contained 165 c. c. bloody fluid. Gastro-intestinal tract apparently normal, not opened. Liver purplish brown externally, yellow internally; fine granular feeling over whole surface; section tough; lobules distinct; weight, 1,380 grams. Left kidney contracted; tissue tough; infarction near hilum; weight, 135 grams. Right kidney not apparently abnormal; weight, 210 grams. Spleen tough; thickened, wrinkled capsule; weight, 90 grams.

S. D. B.
J. B. H.

CASE 3.

Mitral insufficiency.

A. P.; aged 30 years; nativity, Tennessee; admitted to the United States Marine Hospital, Cairo, Ill., December 11, 1895; died April 8, 1896.

History.—The patient had been under treatment several times previously at this hospital for secondary syphilis. He was brought to the hospital by the ambulance, having lain some weeks on his boat. On admission he was very weak, extremely emaciated, and abdomen greatly distended with fluid. Temperature, 38.5° C.; pulse, 120, hardly perceptible; respiration, 32, superficial. The heart sounds were weak and indistinguishable. Under digitalis, quinine, ammonium, and whisky the patient's condition improved, the ascites disappearing and the temperature becoming normal. The diet, from the first, milk and soft-boiled eggs, was gradually increased until full and extra diet was reached. February 1, 1896, a course of mercurials was begun, and continuously pursued, with satisfactory result, as evidenced in the general improvement of the patient. The stomach became irritable, and all medicine was withdrawn. The patient was quite cheerful and comfortable, ate and slept fairly well until the day of his death, when coma was followed in six hours by the end.

Necropsy (twenty-six hours after death).—Body that of a young, much-emaciated negro man. Rigor mortis well marked. Heart small, and so firmly adherent to diaphragm as to be extremely hard to get out; weight, 224 grams. On section, it proved to be a fibrous almost solid mass, and so disorganized that neither cavities nor valves could be clearly defined. Pericardial sac had become extinct. Left lung contracted, fibrous, with some points of breaking down, and so closely adherent to the chest wall as to defy extraction. Right lung congested, though otherwise apparently normal; weight, 600 grams. The entire abdominal contents except the bladder were bound together in a dense fibrous mass, impossible to separate or remove from abdominal cavity, except in small pieces.

J. M. G.

CASE 4.

Mitral.

D. McI. (negro); aged 22 years; admitted to the United States Marine Hospital at Wilmington, N. C., March 21, 1896, and a diagnosis of "valvular disease of heart, mitral," was made.

History.—The patient gave a history of about ten days' illness prior to admission, consequent on long exposure to cold and snow. Severe rigor, followed by fever of somewhat remittent type, occurred, and, subsequently, pain and oppression in the præcordial region, and general dropsy supervened. Mitral disease was evident on admission, and was then the immediate cause of his abnormal condition. His death occurred suddenly, after a paroxysm of dyspnœa, on April 9, 1896, and was due to acute inflammation of the mitral valve, with almost total loss of its function, as was shown at the necropsy, made eighteen hours after death. The segments of the mitral valve were degenerated, curled upon themselves, and covered with exceedingly friable granulations. All the other valves appeared to be normal. An ante-mortem clot was found in the aorta, extending into the left ventricle, and a very large one extended from the right auricle, through the auriculo-ventricular opening, between the segments of the tricuspid valve. The body of this subject was fairly well nourished, and, apart from the heart disease and the dropsical effusion in the cavities, all the organs were in normal condition.

The following are the weights of some of those examined: Heart, 590 grams; lungs, left 730 grams, right 1,000 grams; liver, 2,210 grams; kidneys, left 200 grams, right 170 grams; spleen, 540 grams.

J. V.

CASE 5.

Mitral.

J. L. D.; aged 48 years; nativity, Massachusetts; admitted to United States Marine Hospital, Boston, Mass., February 12, 1896, with diagnosis of valvular disease of heart, mitral; died May 1, 1896, at 4.25 a. m.

History.—Patient gave no history on admission, but appeared simply weak and was inclined to be drowsy. His speech was thick and his answers to questions incoherent. Physical examination was negative, except a loud, blowing, mitral systolic cardiac murmur. He became weaker, and apparently died from exhaustion.

Necropsy (nine hours after death).—The body was that of a medium-sized male, extremely emaciated.

The left pleural cavity was entirely obliterated by adhesions; the right contained about 60 c. c. of pale straw-colored fluid. The left lung was negative; the right was somewhat congested posteriorly. Pericardium negative. Heart: Weight, 355 grams, filled with dark clot; the aortic semilunar valves were thickened at edges of contact; the mitral valves had several small vegetations along margins; the other valves were negative; the endocardium of valves and beginning of aorta appeared atheromatous. Liver: Weight, 510 grams; gritty on section; otherwise negative. Gall bladder negative. Suprarenal capsules negative; weight, 15 grams each. Spleen: Weight, 160 grams; opaque area in capsule on posterior surface; section negative. Pancreas: Weight, 95 grams; negative. The kidneys weighed 135 grams each and were normal in appearance; the left contained a small cyst. Urinary bladder and prostate gland negative. Brain: Weight, 1,335 grams; dura mater negative; considerable clear serous beneath dura mater. The brain was negative on section, except a small area of softening in the right optic thalamus.

A. R. T.
H. M. A.

CASE 6.

Aortic, mitral, and tricuspid.

M. M.; aged 52; native of Spain; admitted to the United States Marine Hospital, San Francisco, Cal., April 23 and died August 25, 1895.

History.—Patient had been complaining of pains in the cardiac region, accompanied by weakness, fluttering of the heart, dyspnœa, and œdema for some time. On examination the area of cardiac dullness was found increased in all directions. An aortic, regurgitant murmur and a "Corrigan" pulse easily detected. Heart would miss one beat in about ten. After treatment with cardiac stimulants and tonics for a month all the distressing symptoms disappeared, slight œdema remaining in the feet. Patient remained comparatively well for three months before the dyspnœa, irregular heart, and general anasarca returned. On July 25 patient had a severe attack of heart failure, which was repeated next day. Examination of the heart on July 26 showed an increase in the area of cardiac dullness to the right and left, showing dilatation of both sides of the heart. On auscultation, besides the aortic murmur, a mitral and tricuspid regurgitant murmur was heard. From this time on the patient's health began to decline, the dyspnœa became more intense, and anasarca more general. After repeated attacks of cardiac failure the patient began to collapse on August 25. Death took place at 12.20 p. m.

Necropsy.—The necropsy was held twenty-five hours after death. Body found œdematous. The pericardium was inflamed and adhered to the heart. The heart itself was enormously dilated and the walls thickened; weight, 700 grams. The mitral and aortic valves totally incompetent; the tricuspid valve also incompetent; an endocarditis and endarteritis on both sides found. Both lungs were normal. Liver and kidneys normal. Effusion in all of the serous cavities.

G. S. N.
J. G.

CASE 7.

Aortic and mitral.—Cancer of stomach.

E. L. R.; aged 64; native of Norway; admitted to the United States Marine Hospital, San Francisco, Cal., March 24, and died April 6, 1896, at 6.55 a. m.

History.—On entrance the patient was greatly emaciated, and complained of severe attacks of vomiting, followed by constipation. His ankles and feet were swollen, and continued so until he died.

Physical examination.—The heart was found to be very weak, and mitral and aortic regurgitant murmurs were present. On palpation, a tumor was plainly felt in the epigastric region, to the left of the median line. It was about 5 cm. long, 3 cm. wide, and was quite sensitive to the touch. The patient was put upon an exclusive milk diet, and a heart tonic was administered. This improved him slightly. On March 28 he was very weak, and unable to keep medicine on his stomach, so hypodermic injections of digitalis and strychnia were resorted to. Subsequently, he was able to retain small quantities of gruel, but he continued to decline until he died.

Necropsy (eight hours after death).—Great emaciation present. There were no adhesions of the pleurae, and the lungs were normal with the exception of a slight hypostatic congestion at the base of the left. The heart was very small, weighing only 190 grams. The left ventricle was greatly hypertrophied. The right side of the heart showed signs of fatty degeneration, and had varicose veins running over its surface. All the valves had calcareous vegetations on them. The aorta was also greatly dilated. The liver was adherent to the diaphragm, and Glisson's capsule peeled off on removing it. On section the organ was found to be studded with

numerous cheesy masses. The stomach, intestines, and spleen were firmly adherent—the latter otherwise normal. In the pyloric end of the stomach, and involving the whole of the lesser curvature, a dense mass was found. It was about 10 cm. long, 5 cm. wide, and 2 cm. thick. The pyloric opening was the size of a goose quill. The kidneys were normal.

G. S. N.
J. G.

CASE 8.

Aortic and mitral.

M. G.; aged 38 years; native of Chile; admitted to the United States Marine Hospital, San Francisco, Cal., April 11, and died April 13, 1896.

History.—Patient had been complaining of a severe dry cough, dyspnœa, pain in cardiac region, and palpitation of the heart for six weeks. Physical examination showed slight body, rapid breathing, and cyanosis. Area of cardiac dullness greatly enlarged. A very distinct mitral and aortic regurgitant murmur heard. Heart beats were 150 per minute, and pulse was compressible and thready. A harsh broncho-vesicular breath-tone indicated some congestion of lungs. Diagnosis of mitral and aortic insufficiency with dilatation of heart and passive congestion of lungs made. A strong heart tonic given. Death April 13, 1896, 6.30 a. m.

Necropsy (three and one-half hours after death).—Body emaciated. Pericardium contained about 30 c.c. of pus. Heart was large and flabby, weighing 490 grams; vegetations on the mitral valve; aortic opening dilated. A small circumscribed dilatation was found in the aorta, about 2.5 cm. above the aortic valve. A small spur of osseous matter about 1 cm. long found attached to the aorta just above the aortic valve. Lungs in a state of passive congestion. Liver large, weighing 1,630 grams; presented a nutmeg appearance, and was gritty to the touch. The left kidney was large and congested, weighing 190 grams. The right kidney weighed 155 grams. Both presented the appearance of double kidney.

G. S. N.
J. G.

CASE 9.

Aortic and mitral.

G. N.; aged 62 years; a native of Greece; admitted to the United States Marine Hospital, San Francisco, Cal., December 20, and died at 9.30 p. m. on December 21, 1895.

History.—Patient came to the hospital complaining of shortness of breath and swelling of the lower extremities. Physical examination showed a barrel-shaped chest, sibilant and sonorous rales, and hyper-resonance all over the lungs. Heart was found to be dilated and valve notes muffled. The whole organ was displaced downward. The liver was likewise displaced downward. Treatment consisted of heart tonics and stimulants and purgatives. About 6 p. m., December 21, patient sank rapidly, and died at 9.30 p. m. on December 21.

Necropsy (fifteen and a half hours after death).—Small amount of pericardial fluid found. Heart muscle soft and flabby; left ventricle dilated; vegetations found on both mitral and aortic valves. Right side of heart normal. Left lung held by pleuritic adhesions; hypostatic congestion. Right lung held by pleuritic adhesions at base and posterior part; hypostatic congestion present here also. Liver cirrhotic. Spleen normal. Both kidneys were congested and contracted.

J. B. C.
J. G.

CASE 10.

Aortic and mitral.

D. W.; aged 44; native of Jamaica; admitted to the United States Marine Hospital, San Francisco, Cal., October 14, and died November 14, 1895, at 2.20 a. m.

History.—On admission complained of cough with slight expectoration, dyspnœa, insomnia, palpitation, and cold extremities. Physical examination showed aortic and mitral regurgitant murmurs, increased breath sounds, and enlargement of the liver. Treatment: Heart tonics and stimulants, expectorants, and dry cups to chest. In spite of vigorous stimulation the patient began to sink rapidly on the 13th, and died at 2.20 a. m. on November 14, 1895.

Necropsy (eight hours after death).—There was fluid in all the serous cavities. Organized pericardial adhesions as well as recent pericarditis. Heart large. All valves except that at the pulmonary orifice were incompetent and were fringed with vegetations. In addition there were calcareous deposits on the mitral valve. There was hypostatic congestion of the bases and posterior parts of both lungs. Liver was found congested and slightly cirrhotic. Two small supernumerary spleens were found. Kidneys were hard, cortex narrow, and capsule stripped off easily.

J. B. C.
J. G.

CASE 11.

Aortic and mitral.

J. F.; aged 43 years; native of Germany; admitted to the United States Marine Hospital, San Francisco, Cal., December 4, 1895, and died February 2, 1896.

History.—Patient had been complaining of shortness of breath, which was exaggerated upon exertion. First noticed trouble one month before, up to which time he was healthy. Had used alcoholics and tobacco to excess. Physical examination showed slight cyanosis, dyspnœa, and a weak, compressible pulse, irregular at times. Area of cardiac dullness enlarged greatly. A mitral regurgitant and an aortic regurgitant murmur heard. Lungs were normal and patient was physically perfect otherwise. With the exception of occasional attacks of dyspnœa patient improved rapidly under treatment. The attacks of dyspnœa soon became less frequent; the pulse grew stronger and less compressible. On February 2, at 8 p. m., patient was seized with a violent attack of dyspnœa, and, regardless of all that could be done, he died in an hour.

Necropsy (eighteen hours after death).—Organized adhesions of pleura on right side. Both lungs normal. About 150 c. c. of fluid found in pericardium. The heart was enlarged, weighing 750 grams, and it was in a state of eccentric hypertrophy. The aortic valves were calcareous and incompetent; the mitral valve incompetent. The arch of the aorta was dilated and calcareous. The liver was slightly congested. The kidneys were slightly congested. All other organs normal.

G. S. N.
J. G.

CASE 12.

Aortic and mitral.

F. M.; aged 37 years; native of Germany; admitted to United States Marine Hospital, San Francisco, Cal., August 23, 1895, and died September 15, 1895, at 12.55 p. m.

History.—When admitted patient complained of dyspnœa. This symptom had

lasted for one month. He had been compelled to cease work two days before admission. He had been in the habit of using alcohol and tobacco to excess. Had had pneumonia two years ago. Physical examination showed cyanosis, œdema of lower extremities, ascites, diffused heart impulse, area of cardiac dullness increased, systolic mitral murmur, systolic tricuspid murmur, and heart beat feeble and irregular. Nothing abnormal found in the urine. Treatment: Heart tonics and stimulants. Patient improved slightly at times, but ultimately grew worse, and died on September 15, 1895.

Necropsy (twenty-two hours after death).—All serous cavities filled with fluid. Pleural adhesions at posterior part of right lung. Heart much enlarged; eccentric hypotrophy present. Mitral valve incompetent, and covered with soft vegetations. Aortic valve in the same condition. Valves of right heart normal. Liver presented nutmeg appearance, and grated under the knife. Spleen enlarged and tough; weighed 840 grams. Kidneys were of the large white variety; cortex thin; capsule nonadherent; scar on posterior surface of right kidney about 1 cm. in diameter.

J. B. C.
J. G.

CASE 13.

Aortic and mitral.

J. O.; aged 41 years; nativity, Pennsylvania; admitted to the United States Marine Hospital, Cincinnati, Ohio, April 25; died May 22, 1896.

History.—The patient had been sick with present trouble for a year, and part of this time was treated at Pittsburg, from which hospital he was transferred here. He gave a history of having caught a cold and of having had some rheumatism, from which he did not suffer much at the time. He noticed, however, that he did not regain his strength and that he was easily fatigued and was short of breath on the least exertion. His condition grew worse and he sought medical aid, but not improving, he entered the hospital. When admitted into this hospital he was in a very bad condition, being scarcely able to breathe and so weak he could not stand. There was general dropsy and fluid in pleural cavities. The heart sounds were very loud and confusing; a loud, blowing murmur was heard over the aortic valve on the first heart sound. There was also insufficiency of the mitral valve with enormous hypertrophy. Patient gave a history of an old gonorrhœa, but denied having had syphilis. The urine was loaded with albumen and contained casts. The immediate cause of death was pulmonary congestion.

Necropsy (seven hours after death).—Both pleural cavities full of fluid. The lungs were very much congested; otherwise normal. Pericardium firmly adherent to heart throughout and was with difficulty peeled off. Heart enormously enlarged, weighing 1,110 grams. The mitral valve was partly destroyed, and one leaflet of the tricuspid was entirely destroyed. From one of the aortic valves there was a large spur of calcareous matter projecting across the channel of the artery. This accounted for the blowing murmur heard on the first heart sound. Both ventricles contained large clots of dark blood. No emboli were found. The kidneys were enlarged. The capsules were not adherent. The upper portion of left kidney contained a large mass of scar tissue, which extended entirely through the kidney and had caused considerable contraction at that point. On the right kidney there was a small scar and a small calcareous deposit. Both appeared to be syphilitic kidneys. Other viscera normal. Brain not examined.

J. O. C.

CASE 14.

Aortic and mitral.

W. B. (negro); born in Georgia; aged 48 years; admitted to United States Marine Hospital at Cincinnati, Ohio, October 21; died December, 27, 1895.

History.—Patient was admitted for valvular disease of heart. He was suffering with œdema of legs, shortness of breath, and cough. He had had rheumatism. Compensation was destroyed. Patient received palliative treatment. He steadily declined, and, as a fatal end was foreseen, he was given opiates for the comparative comfort that they afforded him. Death occurred rather suddenly.

Necropsy (two hours after death).—Heart weighed 765 grams, was enormously enlarged, and was covered with fat. The walls of the coronary vessels were thickened and hardened, and the caliber of the vessels was much increased. The cardiac walls were all hypertrophied, the ventricular walls being 2.5 cm. in thickness. The aortic and mitral valves were calcareous and fatty, and the former was incompetent, and one of its segments was perforated. The arch of the aorta was indurated. Left lung weighed 680 grams, was slightly congested, and was emphysematous in some places. Right lung weighed 822 grams, was congested, and was adherent to the thoracic walls. The right pleural cavit, was obliterated. Liver weighed 1,417 grams and was enlarged, congested, and hardened. Both kidneys were indurated and weighed 198 grams apiece. Other organs were normal.

P. C. K.

CASE 15.

Aortic and mitral.

S. C.; aged 40 years; nativity, Massachusetts; admitted to United States Marine Hospital at Boston, Mass., November 23, 1895, suffering from valvular disease of heart (aortic); died December 24, 1895, at 10.40 p. m.

Necropsy (twelve hours after death).—Body of white male above medium height, spare built; very anemic; no hypostatic congestion; feet and hands œdematous; copious discharge of frothy mucous from mouth; pupils moderately dilated; rigor mortis marked. Clear, straw-colored ascitic fluid gushed from abdominal cavity in abundance when opened. Both pleural cavities filled with fluid similar to that found in abdomen. Pleuritic adhesions at apex of left lung; upper half of right lung strongly adherent. Left lung somewhat œdematous, otherwise normal; floated on water; weight, 980 grams. Right lung œdematous throughout; marked at apex; weight, 1,200 grams. No excess of fluid in pericardial sac; no adhesions. Heart considerably larger than normal. Large ante-mortem clot in right side. Pulmonary and tricuspid valves normal; no atheroma. Aortic valves thickened and insufficient; one valve perforated by two holes. Mitral valves also thickened and insufficient. Liver about normal in size; weight, 2,050 grams. Whole organ markedly indurated (nutmeg liver); microscopally showed fatty deposits. Pancreas showed nutmeg appearance also; weighed 120 grams. Left kidney weighed 170 grams; capsule adherent; pale in appearance. Right kidney weighed 170 grams; capsule stripped normally. Stomach distended, filled with gas, and contained about a liter of dark fluid coffee-ground substance, mixed with milk curds. Mucous membrane pale, except at pyloric end, where there was a spot 2 inches in diameter deeply congested, and no doubt had been source of blood which was vomited. Bowels normal in appearance. Urinary bladder empty and normal. Brain and spinal cord not examined.

E. S.

CASE 16.

Mitral and tricuspid.

H. M. (colored); aged 34 years; native of Pennsylvania; admitted to United States Marine Hospital, Evansville, Ind., December 6, 1895; died February 25, 1896.

History.—Recently treated in the Marine Hospital at Baltimore for acute Bright's disease, and was discharged apparently cured. Now has severe pain in back and præcordial region, shortness of breath on least exertion, and spasmodic cough without expectoration. No œdema at present.

Physical examination.—Right lung seems to be about normal; left lung, upper portion hyper-resonant, and breathing sounds puerile. Respiration 30 to 36. Pulse 90. Action of heart somewhat irregular and tumultuous; apex beat 1 inch below and to the left of the nipple. There is a loud presystolic murmur, heard in greatest intensity at the apex, and the first sound is almost lost. The liver is considerably enlarged, and is plainly felt through the abdominal wall. Examination of urine, negative. This case made steady progress toward a fatal termination, œdema and effusions into abdominal and thoracic cavities taking place, and giving rise to distressing dyspnœa. Much pain was complained of in the region of the spleen. Death occurred by gradual failure of the circulation.

Necropsy (ten hours after death).—Face and upper extremities emaciated; lower extremities œdematous. Rigor mortis, moderate. Conjunctivae, jaundiced. Pericardium contained a little more than the normal amount of fluid. The heart was greatly hypertropied, the ventricular walls being very thick, and the organ weighed, after opening and washing, 770 grams. The right side was dilated, and both ventricles contained ante-mortem clots and semi-fluid blood. All three segments of the tricuspid valve bound by firm adhesions to the walls of the ventricle. The mitral valve was thickened and incompetent; other valves competent. The left pleural cavity contained a large amount of sero-sanguinolent fluid, and the left lung was completely collapsed. Right pleural cavity contained a small serous effusion, and the lung was congested throughout, with several lobules in a state of red hepatization. Abdomen: Great omentum wasted; moderate ascites present. Gall bladder distended. Liver weighed 1,970 grams; substance, dark mottled color and hard on section. Spleen weighed 400 grams, and was bound by very firm adhesions to the parietal peritoneum and surrounding organs; when dissected out it was found to be lobulated, and irregularly crescentic in shape, the left and thicker end lying in the left hypochondriac region, while thin, lobulated and rather pointed right extremity extended into the epigastric region. The splenic tissue was hard, resembling liver in appearance, and contained numerous cicatrices. Left kidney weighed 295 grams. Capsule nonadherent. Intensely congested, and cortical substance wasted in parts. Right kidney very similar to left, but there was rather more than less of cortex. All other organs were normal in appearance.

P. M. C.

CASE 17.

Mitral and tricuspid.

W. S.; aged 22 years; nativity, West Indies; admitted to United States Marine Hospital, Boston, Mass., October 29, 1895, suffering from valvular disease of heart, mitral and tricuspid insufficiency, with stenosis to slight extent at mitral; died November 23, 1895, at 11.45 p. m.

Necropsy (fourteen hours after death).—Body of colored male; slightly built; emaciated. Rigor mortis present; no cicatrices on body; teeth covered with sordes; pupils normal. Heart hypertrophied; walls of ventricles very much

thickened. Weight of heart, 350 grams. Large ante-mortem clot filling cavity of right side. Pericardial sac contained large quantity of fluid—about 300 c. c. Evidences of ulceration; endocarditis present; patches of vegetable ulcerations in both ventricles and on mitral and tricuspid valves, rendering these valves incompetent; the mitral valve greatly thickened, forming a somewhat hard ring (beginning stenosis); the tricuspid was thickened and bound down by adhesive vegetations. Aortic and pulmonary valves pale and flabby, but competent. Both lungs congested and somewhat œdematous. Left lung, weight 500 grams. Right lung, weight 590 grams. Intestines very dark and softening from post-mortem changes. Liver: Chronic congested or nutmeg liver; organ contained very little blood. Gall bladder contained small quantity thick, black bile. Kidneys in degeneration stage known as large white kidney. Capsule peeled readily; line of medullary and cortical substance fairly marked. Weight of left kidney, 295 grams. Weight of right kidney, 250 grams. Spleen, hypertrophied and hard nodular. Sago spleen. Two small supernumerary spleens along course of artery. Brain and cord not examined.

W. P. McI.

Case 18.

Aortic, mitral, and tricuspid.

J. M.; aged 59 years; nativity, England; admitted to United States Marine Hospital, Boston, Mass., April 20, 1895, suffering from valvular disease of heart and dilatation of stomach; died July 30, 1895, at 3.45 a. m.

Necropsy (eight and one-half hours after death).—Body of medium-sized, strongly built white male. Bled freely on section; some fluid in peritoneal cavity. Cicatrix on posterior aspect of left side, 4 inches from spine between tenth and eleventh ribs, which was afterwards found to have been caused by entrance of bullet lodged in kidney and incapsulated. Post-mortem lividity marked. Rigor mortis present. Some fluid (100 c. c.) in pericardial sac. Heart weighed 550 grams, dilated and filled with black blood. Aortic valve contained calcareous plates and was incompetent. Mitral and tricuspid valves both thickened and incompetent; mitral contracted. Left lung weighed 400 grams, somewhat collapsed. Arteries hard. Right lung weighed 595 grams. Pneumonia of lower lobe. Pleural cavity contained about 1,200 c. c. of fluid. Liver: "Nutmeg" from chronic congestion; color, deep brown; weight, 1,420 grams. Gall bladder full of black bile. Kidneys: Left weighed 120 grams; capsule adherent; cortical portion almost oblit. erated; .30-caliber round pistol bullet embedded in posterior portion, where it had been for years, no doubt, as it was incapsulated and causing no trouble. Right kidney weighed 110 grams, granular and hard, with adherent capsule. Spleen weighed 150 grams. Sago spleen.

W. P. McI.

CEREBRAL EMBOLISM.

Case 1.

Rupture arch of aorta.

W. H.; aged 49 years; nativity, England; admitted to United States Marine Hospital, New Orleans, La., July 27; died July 28, 1895.

History.—When admitted patient was in an unconscious condition, with right hemiphlegia. The only history obtainable was that he was found in the above condition eighteen hours previously on board ship. Physical examination of chest revealed a bruit, heard best in second left intercostal space, about 1 inch from

sternum. Abdomen negative. The pupils were contracted and equal; temperature 37.4° C.; pulse 60, strong and full; respiration 20; no stertor; deglutition difficult. About 200 c. c. of urine was drawn off with a catheter.

July 28.—A. m.: Temperature 37° C.; pulse 62; stertorous breathing; dysphagia; urine passed involuntarily; paralyzed leg rigid. Milk was administered by means of an œsophageal tube. P. m.: Temperature 38.5° C.; pulse 62, strong and full; respiration rapid and stertorous. At 9.30 p. m. there was a great rise of temperature, and a profuse hæmorrhage occurred from mouth, from which he died.

Necropsy (thirteen hours after death).—Body well nourished; rigor mortis well marked; some post-mortem lividity; pupils evenly dilated. Lungs were congested, otherwise negative. Heart: Pericardium negative; heart large and flabby; weight, 452 grams; all cavities dilated, and there was slight thickening about base of aortic, semilunar, and mitral valves. The aorta seemed dilated, measuring at beginning of arch 10 cm. in circumference, and at end of arch 8 cm. The walls were thickened, and contained many calcareous plates. There were numerous areas of ulceration, and near beginning of descending aorta, posteriorly below, a slight rupture was found, which corresponded to an opening in the œsophagus, which was the probable source of hæmorrhage. There was a small amount of dark, bloody fluid in the stomach. On exposing the brain, the pia mater seemed congested; the surface of brain was otherwise negative. On section, the right hemisphere was negative. In left hemisphere there was an area of softening, about as large as a walnut, situated toward the base and embracing the anterior portion of lenticular nucleus of corpus striatum. No hæmorrhage was observable. The remainder of the brain was negative.

A. R. T.

CASE 2.

Hemiplegia, aphasia, innominate aneurism (old).

E. B. (colored); age, 46 years; nativity, Louisiana; admitted to United States Marine Hospital, St. Louis, Mo., January 29; died March 3, 1896.

History.—Patient stated he contracted a severe cold in May, 1895, and cough had been continuous and violent since. Previous history negative. He denied venereal disease. He was treated in this hospital in June, 1895, and left somewhat improved. The cough continued, and became more violent in cold weather. At his second admission he appeared in excellent physical condition generally, though he stated he had lost some flesh. Respiration was markedly wheezing and somewhat labored. Severe paroxysms of coughing occurred. Expectoration abundant, frothy, viscid, not purulent. Heart apparently normal. Strong impulse visible over right carotid, less marked over left. Pulse at time of admission 90, but 72 to 78 during first week. Percussion of chest yields rather exaggerated resonance everywhere; no dullness. Auscultation yields coarse, noisy, mucous râles over whole chest, and prolonged expiration. Urine: Sp. gr., 1022; reaction acid; no albumen; no sugar. Temperature 38° C. on evening of admission; normal after this for six days, when it ceased to be recorded. Right epitrochlear lymph-gland enlarged. Inguinal glands palpable. Until the latter part of February condition remained practically unchanged. He slept in half-sitting posture and sleep was much interfered with by cough. Microscopical examination of sputum negative. All treatment was of little avail.

February 27.—Patient arose at usual hour, washed, and conversed. Just before breakfast he was seen to stagger and fall at his bedside. Examination showed paralysis of right side. For some time he was apparently unconscious, and when consciousness returned he was aphasic. Left angle of mouth was drawn up. Tongue could be slightly protruded and was drawn somewhat to the right. Pupils alike, of normal size; react feebly to light. The condition of the lungs

was aggravated by inability to expectorate, and threatening suffocation compelled a sitting position.

February 28.—Sleeps little. Can take liquid food. Urine and fæces passed involuntarily.

March 2.—He has gained slight control of right hand and arm, and to-day moved great toe on right foot. No control of rectum and but little of bladder. Respiration more difficult. Strength failing. Urine: Sp. gr., 1021; acider action; no albumen. Temperature: February 27, p. m., 37.4° C.; February 28, a. m., 37° C; p. m., 38.4° C; never above 37° C after this and usually subnormal. Pulse 132 on February 27, gradually diminishing to 95 on March 2 and 3. Died March 3, 4.20 p. m.

Necropsy (March 4, 11 a. m.).—After removing the sternum a hard mass like an extension from the base of the heart to the neck was found. This was dissected out with the heart. Pericardium contained 20 c. c. of clear fluid, and there were several white patches on cardiac surface Valves of heart apparently competent. Heart appeared large—not weighed separately from its attachments. The mass above heart was found to be an old aneurism of innominate artery. The greatly enlarged innominate was filled with a firm, old clot, through the center of which was a channel connecting aorta with right subclavian and common carotid. A post-mortem clot extended from left ventricle through this channel. Right subclavian and common carotid were of normal size. The thoracic aorta contained atheromatous plaques, and between the orifice of innominate and that of left common carotid was a ring, mostly calcareous, slightly reducing aortic caliber. There were a few slight adhesions in both pleural cavities. Upper lobes of both lungs appeared normal, lower lobes much congested. Lower lobe of left lung felt granular on section, and contained grayish miliary masses, like tubercle. Right lower lobe contained fine, glistening, translucent masses. Left lung weighed 970 grams; right, 1,240 grams. Gastro-intestinal tract not opened. Liver negative; weight, 2,095 grams. Kidneys enlarged; capsules adherent; cyst at upper end of left. Left weighed 280 grams, right 240 grams. Spleen rather small, 122 grams; appearance normal. Scalp and skull thick. Membranes of brain negative. In examination of brain, circle of Willis opened first and Sylvian artery followed, but no obstruction found. The lateral ventricles were then opened, and, on the left, just below Sylvian fissure and involving corpus striatum, which projected into lateral ventricle more than opposite corpus, was an area of softening, of red color, about 3 cm. in diameter. Left choroid plexus appeared distended. Right lateral sinus was larger than left and contained a soft, dark clot. Weight of brain, 1,360 grams.

S. D. B.

TUBERCLE OF LUNGS, TRACHEA, INTESTINES.

H. J. (colored); age 21 years; nativity, Mississippi; admitted to United States Marine Hospital, St. Louis, Mo., October 26, 1895; died May 1, 1896.

History.—Early history of disease unknown, but he was in this hospital June 17 to August 26, 1895, for same disease. On last admission disease was far advanced. Emaciation, night sweats. Occasional hemoptysis. Greater amount of consolidation in left lung. No diarrhœa. Voice clear. Many tubercle bacilli in sputum.

Necropsy.—Fifty cubic centimeters of clear fluid in pericardial sac; no adhesions. Valves of heart competent; cavities of normal size; walls thin. Weight of heart, 350 grams. Thoracic aorta normal. Three large ulcers in trachea just above bifurcation. Left pleura greatly thickened and dense; very firm general adhesions. No crepitation in left lung; large vomica and several small ones at apex; tubercle everywhere; weight, 1,600 grams. Right plural cavity contained

325 c. c. clear fluid, and extensive adhesions. Tubercle universal through upper lobe of right lung; less in middle; few in lower. Lower lobe crepitant; weight, 1,390 grams. Abdomen contained 250 c. c. clear fluid. Peritoneum normal. Stomach normal. Intestines contained many ulcers, especially near valve. Liver "nutmeg" in moderate degree; deep purple color; weight, 2,290 grams. Other viscera negative. Left kidney weighed 215 grams; right, 165 grams. Spleen, 380 grams, deep purple color.

S. D. B.

ANEURISM ARCH OF AORTA.

Case 1.

W. B.; aged 39 years; nativity, Cape de Verde Islands; admitted to the United States Marine Hospital, San Francisco, Cal., January 8; died March 6, 1896.

History.—The patient had left the hospital several weeks before greatly improved, but returned in an extremely weak condition. Examination showed a large pulsating tumor on the left side of the sternum, extending from the first to the fourth ribs. On auscultation, a distinct bruit was heard. A regurgitant murmur over the aortic valve heard. The main symptoms complained of were pain over the tumor and great bodily weakness. The stomach was in very poor condition, and patient would be unable to retain food for several days at a time. Diagnosis of aneurism of the arch of the aorta with aortic insufficiency was made. Rest and careful attention to the diet seemed to have no effect, and a gradual declining was noted. On February 21 examination showed the aneurism increased in size and patient's general condition very poor.

March 4.—Found patient's mind wandering, heart weak, and aneurism seemingly larger.

March 6.—Found patient rapidly sinking; pulse imperceptible; death took place at 9 a. m.

Necropsy (five hours after death).—Body emaciated. The left pleura was adherent to the chest wall all around. An aneurism as large as a new-born baby's head found involving the transverse and descending portions of the arch of the aorta. A large laminated clot within the aneurism weighed 325 grams. The anterior portion of the fourth, fifth, and sixth vertebræ were eroded. Lungs normal. Kidneys congested, and the cortex found very thin. Liver congested. Vegetations on both the aortic and mitral valves found. Spleen was very much enlarged, weighing 480 grams.

G. S. N.
J. G.

Case 2.

G. C.; aged 57 years, nativity United States; admitted to marine ward of the German Hospital, Philadelphia, Pa., July 15; died July 19, 1895.

History.—On admission patient seemed to be suffering from acute spasmodic asthma, from which he stated he had suffered since October, 1894, when the first attack came on, never being entirely free from asthma since, though sometimes better. Patient gave all the symptoms of asthma, inability to lie down, wheezing respiration with prolonged expiration, and occasional cough; no elevation of temperature nor acceleration of pulse. On auscultation the usual asthmatic râles were heard over the left lung, but the respiration in the right lung was very feeble, so that a tumor was thought of, possibly pressing on the right bronchus, but nothing further could be ascertained on auscultation, the heart sounds being apparently normal. Various asthmatic remedies, as lobelia, nitrite of amyl, bromid of ammonium, and morphine, were tried without effect, and the patient died of exhaustion.

Necropsy (twenty-two hours after death).—Rigor mortis well marked. Pupils dilated. Heart seemed normal except a little hypertrophy of left ventricle, walls of which were about 25 mm. thick, and a little atheroma at base of aortic valves, which were competent. The aorta was dilated, and from its arch anteriorly between the origin of the arteria innominata and left carotid, arose a saccular aneurism with a capacity of about 400 c.c. filled with a hard laminated grayish clot. The sides of the sac were attached to the posterior surface of the sternum between the first and second ribs, and the manubrium on the right side was eroded entirely through the bone, but not enough to bulge in front. On the left side the bone was eroded but not perforated. The caliber of the aortic arch seemed little, if at all, affected, though the tumor pressed especially on the arteria innominata, the right bronchus, and the right pneumogastric nerve. There was no rupture of the sac, and death must have been due to pressure on the vagus and thus interfering with respiration.

G. T. V.

CASE 3.

Occlusion of left common carotid artery.

C. H.; aged 35 years; nativity, Sweden; admitted to St. Vincent's Hospital, Norfolk, Va., October 22, 1895; transferred to marine hospital at Baltimore, January 16, 1896; died May 30, 1896.

History.—Family history negative. Patient gives an indistinct history of syphilis, though it is not evidenced by glandular enlargement or skin lesions. Had rheumatism nine years ago. Patient was first treated at the marine hospital office in Norfolk during the summer of 1895 for dyspnœa and pain in the region of the chest. When admitted to St. Vincent's Hospital in October, 1895, patient was suffering from the same complaint. For some time iodide of potash served to relieve the pain. Later on the tincture of digitalis had a tendency to lessen the pain.

January 16, 1896.—On admission to the marine hospital at Baltimore patient was found to have considerable dyspnœa and suffered considerable pain.

Inspection: There was noted a slight fullness in the region of the inner aspect of the clavicle. Pulsation was marked in the vessels of the right side of the neck and right arm, even to vessels of the hand.

Palpation: Behind the inner end of the right clavicle a distinct throbbing was felt which could not be outlined. The pulse in the vessels of the right upper extremity was of a distinctly "Corrigan" type, while the pulse of the left side was only weak. The heart's apex was found to be in the sixth intercostal space, 5 cm. to the left of the mammary line.

Percussion: There was noted a defective resonance in the region of the inner end of the right clavicle.

Auscultation: At heart's apex there was heard a diastolic and a systolic murmur. In the region of the right second interspace there was heard also a systolic and diastolic murmur. Over the bulging at the inner end of the clavicle there was heard a systolic murmur, rumbling in character. In the left subclavion there was heard a murmur which was systolic in tone.

The patient progressed fairly well till about ten days before his death, when the dyspnœa became very much worse. Tincture strophanthus was tried with partial relief. The dyspnœa continued to grow worse, and four days before death nausea and vomiting set in, so that the patient could not retain the simplest food. This continued till death, which occurred May 30, 1896.

Necropsy (eighteen hours after death).—Rigor mortis marked. Body fairly well nourished. Pericardial sac contained about 50 c. c. straw-colored fluid. Heart weighed 660 grams; pale in color; two of the aortic segments were sclerotic and

shortened; left ventricle very much dilated; wall somewhat thickened. On examining the aorta we found an extreme dilation in the ascending and beginning transverse portions. The inner coat of the aorta was covered with white sclerotic patches, some of which had undergone calcareous degeneration. The left common carotid artery was found to be absolutely occluded. It was converted into a fibrous cord. Right lung: Weight, 720 grams; very much congested; pleural cavity contained a considerable quantity of straw-colored fluid. Left lung: Weight, 840 grams; congested. Liver: Weight, 1,920 grams; on section, "nutmeg" in appearance; gall bladder distended. Spleen: Weight, 270 grams; soft and pulpy. Left kidney, 150 grams; capsule not adherent; cortical portion narrow. Right kidney same as left. Intestines were congested.

J. B. G.
G. W. S.

CASE 4.

D. W.; aged 65 years; nativity, Pennsylvania; admitted to the United States Marine Hospital, San Francisco, Cal., May 31; died December 22, 1895.

History.—Patient had been complaining of dyspnœa, palpitation of the heart, pain in the sternal region of the chest and right supraclavicular region for some time. Examination revealed a pulsating tumor behind the upper third of sternum. The lungs were apparently normal. The heart beats were very irregular both in rhythm and force. The aortic valve evidently not perfect, but no distinct murmur heard. The diagnosis of aneurism of the arch of the aorta was made. Patient's mind would wander at times; speech became incoherent, and he would become malicious and even violent.

July 1.—Found patient's memory and reason returning. The heart beat stronger.

August 1.—Found patient's general condition very much improved. Mind became perfectly clear. Pain over the site of the aneurism was persistent. Great weakness was a prominent feature.

On August 12 he had a severe attack of asthma, accompanied by dry cough.

November 1.—Found patient still complaining of pain in the sternal region and very severe and persistent pain in the supra and infra clavicular regions on the right side. The heart became weaker and general condition worse.

December 16.—The aneurism markedly increased in size. Frequent asthmatic attacks also tended to hasten his decline.

December 21.—Respiration was very much embarrassed and heart flighty; mind wandering.

On December 22, at 3.50 p. m., patient died.

Necropsy (twenty-two hours after death).—Body was emaciated. The sternum was eroded by the aneurism. A large aneurism weighing about 400 grams was found on the ascending portion of the arch of the aorta. The aneurism contained laminated clots. Heart was dilated and flabby. The aortic valve found incompetent. Semilunar valves lined with warty excrescences. Calcareous deposits in the aorta were found. The left lung was congested at its base. All the other organs found normal.

G. S. N.
J. G.

ANEURISM OF THORACIC AORTA.

A. M. (colored); aged 31 years; nativity, Tennessee; admitted to the United States Marine Hospital, Memphis, Tenn., November 19; died November 20, 1895.

History.—Before admission to the hospital he had been treated as an out-patient at intervals for several months on a diagnosis of disease of the mitral valve. The murmur, which was quite loud, was heard most plainly in the area of the apex of the heart, and the distinction between a valvular murmur and an aneurismal bruit was not made. At the time of admission to the hospital he had symptoms of inter-

mittent malarial fever, but did not appear very ill. He complained much of pain just below the last rib on the left side. He was put to bed and treated for the fever. The next morning he was found dead in bed, having given no sign of distress in the night.

Necropsy (five and one-half hours after death).—No post-mortem lividity. Moderate rigor mortis. General nourishment, good; pupils, natural. The heart weighed, after opening, 425 grams; all the valves were competent. The ventricles were hypertrophied, the left one much so. The thoracic aorta, where examined, was found to be affected with chronic endarteritis. On the descending portion of the arch was a saccular aneurism, 7 or 8 cm. in diameter, which rested against the left side of the spinal column and, while adherent to the vertebræ, had eroded them quite deeply. It was also adherent to the left pleura and had burst into the pleural cavity. The sac was lined with organized fibrinous laminæ and was nearly filled with a clot which was evidently in process of organization. The opening from the aorta into the aneurismal sac was quite circular and about two centimeters across. The break in the sac, on the opposite side, was quite small. The left lung weighed 218 grams. It was collapsed and its pleural cavity was filled with blood, both clotted and fluid, the quantity being about 3,000 c. c. The right lung weighed 385 grams and was somewhat congested. When the chest was opened, considerable clear serum appeared, and there was some œdema of all the loose connective tissues, both deep and superficial. There was also moderate serous effusion into the peritoneal cavity. The mesenteric glands were enlarged. On the upper surface of the right lobe of the liver were found two deep scars, extending into the substance of the organ with contraction of the tissue. One was about 5 cm. from the posterior border, the other about the same distance from the free border. The cause of these scars was not apparent, and there was no mark of any wound outside in the skin. The liver weighed 2,655 grams. The left kidney weighed 173 grams. The cortex was very pale, and the medulla was congested. The ligaments were quite lax. The right kidney weighed 193 grams. Its tissue was pale and congested by areas in both cortex and medulla. The ligaments were very relaxed, making almost a floating kidney. The tissue of both kidneys showed evidence of interstitial changes. The spleen weighed 227 grams; there were inflammatory adhesions between it and the diaphragm. It is plain to see how the mistake in the diagnosis was made, since the aneurism was situated behind the heart, at about the level of the mitral valve. Although the evidence is not positive, it is probable that the patient was a victim of syphilis.

A. C. S.

ANEURISM OF ABDOMINAL AORTA.

(*Colitis.*)

E. J. C.; aged 37 years; nativity, England; admitted to the United States Marine Hospital, Evansville, Ind., January 8, 1895; died July 11, 1895.

History.—Has been a deep-sea sailor all his life, and served for several years in the United States Navy as able seaman, but recently has been employed on Ohio River steamboats. There is no history of syphilis, and his family history is good; has a father and sisters now living in England. Was treated at the city office in December last for intermittent fever, and in this hospital, December 22 to 29, 1894, for dysentery. Three days after leaving hospital his illness returned; the stools were loose and watery with some hard lumps and blood, and he suffered considerable pain in the back and left iliac region. When admitted at noon, the stools were small and very frequent, with some blood and mucus. Abdomen not distended, but had pain and tenderness along the line of the colon; had a slight cough with scanty expectoration; tongue coated; temperature, 37.8° C.; defecation accompanied by pain and tenesmus. Treatment, by internal medication and

medicated enemata, was effective as regards the bowel symptoms; appetite returned and patient gained weight, but there were occasional partial relapses alternating with periods of almost entire freedom from bowel symptoms. Attacks of pain in the back, however, became more severe and frequent. Pain at times dull and aching, then lancinating and requiring the use of morphine. Pain in testicles also complained of. Careful physical examination from time to time failed to reveal any organic disease of sufficient gravity to account for such excruciating pain. The liver and spleen were found to be somewhat enlarged. Heart sounds normal; no evidence of spinal necrosis; no abdominal tumor. During the last few weeks of life the condition of the bowels was fairly good; two to three stools daily without blood or tenesmus, and but for the frequent attacks of pain in back and testicles the patient might have been considered convalescent. On July 10 patient complained all day of pain in epigastrium, and shortly after evening ward call he began vomiting, complaining of much pain in stomach and lower extremities. At the same time a prickling sensation was experienced in the feet, rapidly extending to legs, thighs, privates, and loins. The feet and legs grew cold, and complete paralysis—sensory and motor—quickly ensued, the patient meanwhile tossing from side to side and crying out in great agony. A high degree of tympanitis developed quickly after the paralysis reached the waist line, and the patient soon became unconscious, the paralysis ascending rapidly, death ending the scene at 2 a. m. on the 11th.

Necropsy (*seven hours after death.*)—Body emaciated; rigor motis well developed; post-mortem lividity of dependent portions. Abdomen distended with gas. Great omentum wasted and contained no fat. Stomach and intestines moderately distended, and abdomen contained a small amount of fluid. Stomach normal in appearance. The entire small intestine presented evidences of recent inflammation, most marked in the upper ileum. The colon was also inflamed, and contained many small cicatrices. Liver weighed 2,200 grams; the right lobe being soft and in a state of fatty degeneration. Pancreas 135 grams; substance hard and tough. Spleen 485 grams; very dark colored and soft. Left kidney 270 grams; capsule nonadherent; substance normal in appearance. Right kidney 255 grams, and normal, except that there was a double hilus, each portion being drained by an independent ureter—the two ureters uniting about 2 inches from the bladder. There were slight pleuritic adhesions at base of each lung, and the cavities contained a little fluid. Right lung 820 grams; lower lobe congested. Left lung 725 grams; no abnormalities. Pericardium contained 30 c. c. of fluid. Heart 330 grams; empty and flaccid; right side fatty; all valves competent. Aorta: An aneurism of the abdominal aorta was found, extending from the eighth to the twelfth dorsal vertebræ, inclusive; in shape it was fusiform, and of a size to admit two hands, palms together. The bodies of the vertebræ named formed the posterior wall of the aneurism, and projected into its cavity, the arterial coats in this locality having been completely destroyed, and firm adhesions laterally and posteriorly had taken place. The bodies of the ninth, tenth, and eleventh dorsal vertebræ were extensively and the twelfth slightly eroded and between the tenth and eleventh there was a tortuous sinus which extended through to the spinal canal, which was filled with semifluid blood.

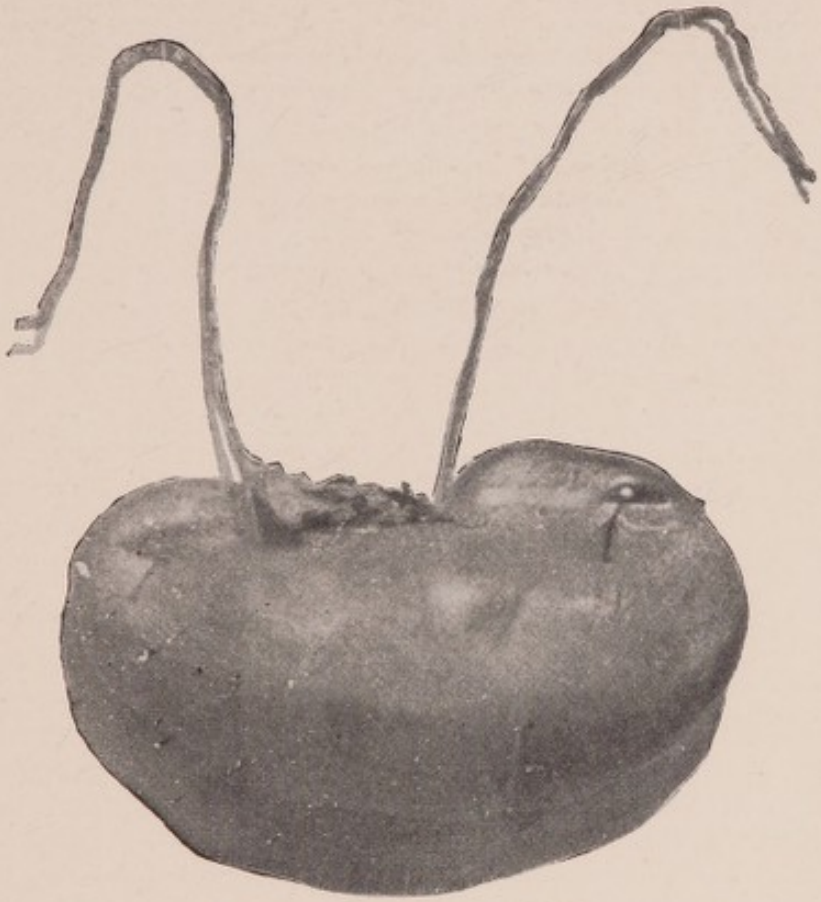
P. M. C.

LOBAR PNEUMONIA AND PERICARDITIS.

Case 1.

C. S.; aged 41 years; nativity, Finland; entered the marine ward, St. Vincent's Hospital, Norfolk, Va., March 10; died March 16, 1896.

History.—Recorded diagnosis on entrance, lobar pneumonia and pericarditis, both well made out by physical signs.



KIDNEY WITH DOUBLE URETER.



KIDNEY WITH DOUBLE URETER.

Necropsy (fourteen hours after death).—Small, spare, ill-nourished man, looked 60 years. Thorax: Pericardium opened, showed a considerable amount (100 c. c.) of turbid fluid, containing flocculi of fibrin. Both visceral and parietal pericardium is covered with a dense, white membrane, rough, like the nap of rough cloth—this is about 0.25 cm. thick—and covered the whole pericardium. Right lung: Some old adhesions over apices, and behind, lower down, hypostatic congestion behind, but not marked; otherwise normal. Left lung: Adhesions of lower lobe to diaphragm, lower part of right lobe, and to costal pleura, and to pericardial sac. These are dense, soft, and recent. The whole lower one, save the anterior lower edge and part of the other, is in a state of hepatization from pneumonia. The heart is in diastole; cavities full of soft clot; valves normal. Muscle is softer than normal and its exterior surface is covered with a deposit of fibrin 0.25 cm. thick; rough on the surface. Kidneys: Right kidney large, darkly congested; bleeding freely when cut; striæ well marked, as is cortical portion. Left kidney like the right. Liver, save for venous engorgement, normal. Cultivation of the exudate in pericardial sac shows the diplococcus pneumoniæ, and no other organism was discoverable.

H. R. C.

(*Double serous pericarditis.*)

CASE 2

J. G.; aged 26 years; nativity, Tennessee; admitted to the United States Marine Hospital, New Orleans, La., January 9; died January 16, 1896.

History.—Health usually good. Denies syphilis and chancroid. Several weeks ago an ulcer appeared over tibia at middle third of leg. Stated that he had had a chill every day for past two weeks. On the 7th instant, after one of the usual chills, pain commenced under right nipple and increased by deep inspiration. Cough, slight; tongue heavily coated; anorexia and constipation present. Respiration shallow and accelerated. Percussion: Diminished resonance anteriorly and in mid-axillary line over middle lobe and over lower portion of upper lobe of right lung; normal resonance over anterior surface of left lung. Posteriorly, percussion note of low pitch at angle of right scapula; negative over left lung; tympanitic resonance over lateral aspect of left lung. Auscultation: Over anterior surface of right lung, including the third and fourth intercostal spaces, were bronchial respiration and bronchophony; in mid-axillary line marked bronchophony, crepitant râle and pleuritic-friction sound. Over left lung anteriorly and above nipple was bronchial respiration. Palpation: Vocal fremitus absent. Heart: First sound, muffled; second sound, distinct, but not accentuated. Temperature, 38.8° C.; respiration, 30; pulse, 102 and compressible; sputum, tenacious and scanty.

January 10.—Sputum, rusty; temperature, 39.6° C.; pulse, 110; respiration, 32. On same evening, temperature, 40.6° C., and pulse weak.

January 13.—Evening temperature, 39.2° C.; respiration, very shallow and rapid; pulse, soft and compressible and cardiac sounds indistinct; wandering delirium.

January 15.—Extensive pleuritis has developed over both lungs; temperature, 39.5° C.; respiration, 60; pulse, 146.

January 16.—Death occurred at 6.20 a. m.

Necropsy (five hours after death).—Rigor mortis slight; body well nourished. Pericardium was thickened and adherent to pleura and contained 100 c. c. of flaky, straw-colored fluid. Heart weighed 310 grams; ante mortem clot filled right ventricle; long, ante mortem coagulum extended from left ventricle into auricle; valves, normal. Left pleura presented extensive sero-fibrinous inflammation and contained about 325 c. c. of pale-yellow serum. Left lung weighed 450 grams; lower lobe deeply congested. Right lung weighed 845 grams; in upper and middle

lobes incipient gray hepatization; lower lobe in resolution. Liver was hypertrophied, weighing 2,500 grams, dark in color, and congested. Spleen, congested; weight, 225 grams. Both kidneys were large; the left weighing 295 grams, the right 265 grams.

S. N.
H. S.

CASE 3.

T. K. D.; aged 21 years; nativity, England; admitted to the United States Marine Hospital, Port Townsend, Wash., April 24; died May 1, 1896.

History.—The patient was a bugler upon the U. S. revenue steamer *Perry*. While the *Perry* was on her way from San Francisco to Port Townsend she encountered heavy seas and a man fell overboard. A rowboat was lowered, manned by four sailors, who tried to pick up the man in the water. In doing so, the rowboat was swamped and the men thrown into the sea. They remained in the water about half an hour before they were rescued. The patient was one of the four men who were thrown out of the boat. When taken on board he was very much exhausted and stayed in his berth until brought to the hospital, April 24, about a week after the accident. He then complained of dyspnœa, a severe cough, and pain in his chest under his sternum. Physical examination: Chest well developed; vocal fremitus not increased over either lung; slight dullness over left lung. Respiratory murmur harsh and bronchial over both lungs; sibilant and mucous râles heard over base of both lungs. Respirations, 36; heart sounds, normal; pulse, 112, full and strong; temperature, 40.7° C.; face flushed; liver and spleen not enlarged; gurgling sounds heard upon pressure over right iliac fossa; tongue coated; bowels very loose; passes his water freely. On the 26th the patient had a slight hemorrhage from the lungs. On the morning of the 28th the dyspnœa was much less and the respiratory murmur was more vesicular. On the evening of the same day the dyspnœa became as bad as before and the respiratory sounds again sounded harsh. The respirations ranged from 38 to 52 per minute, and the pulse from 107 to 133. The pulse continued strong until the last day, when it was weak and rapid. The temperature fell to 38.5° C. on the 27th. It soon rose again, however, and remained above 39° C. until the morning of May 1, when it fell to normal. The face was of a bright-red color until the last two days, when the countenance and the finger tips became spotted with blue marks, showing deficient aeration of blood. He had six to eight stools of a light-yellow color a day for the first three days, but after that his bowels were not so loose. There was no tympanitis or swelling of the abdomen at any time. The patient was delirious for a few hours the last day, but conscious the rest of the time. He died at 6.30 p. m. May 1, from exhaustion, due to heart failure.

Necropsy (nineteen hours after death).—Body poorly nourished; rigor mortis well marked, heart normal; valves competent; lower lobes of both lungs of a dark-blue color, heavier than normal; slight crepitation upon pressure; on section, white-grayish, sticky matter exuded from the bronchials, and minute soft grayish nodules filled the whole lung tissue; upper lobes of lungs of a bright-red color; crepitant upon pressure; bronchials open, and grayish nodules not so abundant; no cavities found. Left lung at base bound to side of chest by small adhesion. Other organs not examined.

W. G. S.

CASE 4.

Double pleurisy and sero-fibrinous pericarditis

C. B.; aged 23 years; nativity, Louisiana; admitted to United States Marine Hospital, New Orleans, La., December 24, 1895; died January 7, 1896.

History.—Patient was a negro of fine physique, with shoulders broad and chest of deep expansion. Entered hospital for ulcer at margin of prepuce, phimosis, and

suppuration of inguinal glands. An ulcer about 5 cm. in length and 1.5 cm. in width existed in the groin. Circumcision was done on December 27, the prepuce being removed posterior to the ulcers and primary union resulting.

December 31.—Had chill at 3.30 p. m., and at evening ward visit temperature was 40° C. and pulse 130; nausea, vomiting, and constipation.

January 1.—Temperature 40.5° C. at 8 a. m.; respiration, 36; pulse, 118; nausea and vomiting.

January 2.—Morning temperature, 37.8° C.; evening register, 40.3° C.; complained of pain in right side.

January 3.—Temperature, 37.8° C. a. m.; 39.8° C. p. m. Felt better and pain was absent. Percussion gave diminished resonance in a small area around right nipple and in mid-axillary line; bronchophony was not marked; vocal fremitus slight. Sputa sanious and muco-purulent.

January 4.—Temperature now vacillated between 39° and 40° C. Pleuritic friction sounds were heard over middle lobe of right lung; bronchophony increased and the crepitant râle appeared.

January 6.—Symptoms of consolidation well marked over upper anterior portion of right lung; tympanitic resonance over lower lobe of left lung. Pleuritic friction sounds detected over entire anterior surface of chest. Area of cardiac dullness increased and heart sounds muffled. Probably on account of the intensity of the pleuritic friction sounds the pericardial murmurs could not be differentiated. Cardiac and respiratory stimulants were freely administered, but without benefit, the patient expiring suddenly after an attempt to rise from bed.

Necropsy (four and a half hours after death).—Well-developed, muscular male. Rigor mortis slight; no post-mortem lividity. Pericardium contained about 500 c. c. of lemon-colored fluid, which consisted of serum and small masses of fibrin. The external surface of pericardium was inflamed and firmly adherent to sternum and adjacent pleuræ. Of the internal surface, the parietal layer was roughened and studded with small yellowish, mulberry-like projections; the visceral layer presented the same appearance over both auricles and ventricles and could be easily detached from the surface of the heart. Heart weighed 435 grams, being hypertrophied; the right chambers contained large ante-mortem coagula; valves normal. Right lung weighed 995 grams; its costal and pulmonary pleural surfaces were adherent and presented small masses of yellow coagulated lymph; marked red hepatization in upper lobe; incipient gray hepatization in middle lobe; pronounced venous congestion in lower lobe. Both upper and middle lobes sank in water. The pleura of left lung was similar to that of right, the pleuritis over lower lobe being most advanced. Left lung weighed 532 grams; both lobes were engorged, crepitated on pressure, and floated in water. The blood in the thorax was liquid and black in color. The liver was enlarged, weighed 2,900 grams, was very dark externally, and hard and resistant on section; gall bladder empty. Spleen weighed 338 grams; capsule slightly adherent. The kidneys were normal, the left weighing 195 grams, the right 210 grams. The suprarenal bodies were enlarged, the right weighing 16 grams, the left 11 grams. Pancreas weighed 70 grams and was longer than normal, extending from left hypochondriac across epigastrium into right hypochondriac region. The appendix vermiformis was 15 cm. in length and patent.

S. N.
H. S.

CASE 5.

(*Empyema.*)

E. B.; aged 38 years; nativity, Missouri; admitted to Marine Hospital, Louisville, Ky., March 6, 1896, suffering from lobar pneumonia of lower right lobe.

History.—The man was very sick, insomuch so that the ambulance was called for three times inside of half an hour for fear he would die before he reached

hospital. Both pneumonia and pleurisy were found on right side of chest. Man gave a history of chronic diarrhœa, alcoholism, and exposure. Recovered from immediate effects of pneumonia, although delirious for several days. Died from chronic enteritis and exhaustion on March 20, 1896, at 11.05 p. m.

Necropsy (fourteen hours after death).—Body of muscular white male. Post-mortem lividity well marked on dependent parts of body. Rigor mortis present. No cicatrices observed. Froth on lips and nostrils. Upon opening chest pus welled up from an empyema of right pleural sac. Pericardium contained normal amount of fluid. Heart small and contracted; weight, 300 grams; its valves pale and flabby, but competent; small ante-mortem clot in right ventricle. Larynx and trachea covered with dark bloody froth. Left lung weighed 620 grams and was congested; right lung presented evidences of recent pneumonia in lower lobe; middle and upper lobes congested posteriorly; hypostatic congestion; stomach contained many petechiæ and small hemorrhages; the mucous membrane chronically inflamed and thickened. Small intestines seemed to have undergone lardaceous degeneration, causing diarrhœa, follicular ulceration, and disintegration of mucous membrane of intestine; in places the intestinal mucous membrane was so intensely inflamed as to give rise to a suspicion of gangrenous enteritis; large intestine in much the same condition. Liver: Chronic congestion or nutmeg liver, of pale brown color and bleeds easily on section; weight, 2,700 grams. Left kidney weighed 185 grams; capsule peeled off with difficulty. Right kidney weighed 180 grams; slightly contracted. Spleen weighed 235 grams; contained remains of several hemorrhagic infarcts. Urinary bladder empty. Brain and cord not examined.

W. P. McI.

Case 6.

Traumatic.

I. W.; aged 21 years; nativity, Mississippi; admitted to the United States Marine Hospital, New Orleans, La., December 19; died December 25, 1895.

History.—Usually enjoyed good health. Several years ago had pneumonia, but has since been well. Thirty hours before admission to hospital was knocked down by a barrel of sugar, which passed over his chest. No visible contusion of chest nor fracture of ribs. Inspection showed dyspnœa and shallow respiration. Percussion gave dullness anteriorly and laterally over middle lobe of right lung; slight tympanitic resonance over upper lobe. Auscultation revealed bronchophony and bronchial respiration over same area of chest. Vocal fremitus not marked. On day of admission patient had chill, followed by fever. Temperature, 40.5° C.; pulse 132, full and regular; respiration, 36. Tongue coated; bowels active. Pain, referred to right nipple, was diminished by lying on the affected side. Was given tincture of aconite every hour as a cardiac sedative, and a hypodermatic injection of morphin as an analgesic.

December 20.—Temperature, 38.3° C.; pulse, 118; respiration, 34. Patient had another chill during morning, and temperature rose to 40.8° C. in the afternoon. Ordered a prescription containing tincture of digitalis, ammonium carbonate, and morphin sulphate every three hours.

December 21.—Evening temperature, 41° C. Pleuritic friction sounds heard over both lungs; crepitant rales over anterior surface of right lung.

December 23.—Temperature, 39° C. a. m.; 40.5° C. p. m. Nocturnal delirium and jaundice.

December 25.—In spite of energetic stimulation with whisky and hypodermatic injections of strychnin, patient succumbed at 1 a. m. The changes in the sputum were especially noticeable—at first slightly tinged with blood and frothy, then darker, becoming almost black, and finally, during the last twenty-four hours, being a pure grass green. The urine contained bile pigment.

Necropsy (fourteen hours after death).—Rigor mortis marked. Body well nourished. Livores slight on posterior aspect of thorax. Skin and conjunctivæ jaundiced; pupils normal. Pericardium was adherent to pleuræ and contained about 15 c. c. of serous fluid. Heart weighed 350 grams; the walls of the left ventricle were thick and its cavity contained a small ante-mortem clot; similar coagula occupied almost the entire capacity of the right ventricle; valves normal. Right pleura was thickened; its pulmonary and costal layers were adherent and covered with masses of yellowish coagulated lymph. The left pleura presented a similar appearance, but the inflammatory changes were not so far advanced. Right lung weighed 930 grams and sank when placed in water. The upper and middle lobes were in a condition of red hepatization; the lower lobe was dark in color and showed marked venous engorgement. The left lung weighed 470 grams and both lobes were intensely congested. The liver weighed 2,350 grams and appeared to be normal; gall bladder contained a small amount of bile. Spleen weighed 400 grams; capsule adherent, and was soft and pultaceous.

S. N.

CASE 7.

T. R.; nativity, New York; aged 40 years; admitted to the United States Marine Hospital at San Francisco, Cal., July 11; died July 13, 1896, at 3 p. m.

History.—On entrance he complained of a feeling of general weakness, a slight headache, night sweats, no appetite, and a continuous thirst. He had a slight fever, expectorated considerably, and his tongue was heavily coated. He had always been healthy, but was quite a heavy drinker. There was a slight dullness of both apices, more marked on the right side. The patient became rapidly worse and died the second day after entering the hospital.

Necropsy (twenty-three hours after death).—The membranes of the brain were normal; the brain was slightly congested; weight, 1,480 grams. The heart was large and flabby, valves normal; weight, 460 grams. The left lung was adherent at the apex and slightly congested; weight, 490 grams. The right lung was strongly adherent over the greater part of the surface. It was in a state of gray hepatization and consolidated all over, with the exception of a small area at the apex; weight, 1,700 grams. The liver was congested; weight, 2,250 grams. The spleen was very soft and flabby; weight, 230 grams. The kidneys were congested; weight, right, 240 grams; left, 250 grams. The generative organs were normal. The bladder and urethra were normal.

J. H. O.
J. G.

CASE 8.

J. W. B.; aged 50 years; nativity, Germany; admitted to the United States Marine Hospital, San Francisco, Cal., June 5; died June 20, 1896, at 3.30 a. m.

History.—On entrance he complained of loss of appetite, constipation, pain in the region of the heart, dyspnœa, and general weakness. Examination revealed an enlargement of the heart and liver. A murmur was heard over the mitral valve. Patient did fairly well under treatment. On June 18 an intercurrent pneumonia set in. He then grew rapidly worse, and died June 20, 1896, at 3.30 a. m.

Necropsy (seven hours after death).—Some emaciation, and a general icteric appearance present. Extensive adhesions were found all along the surface of the right lung. The base was consolidated. The remainder was greatly engorged, and contained a large amount of fluid. The left lung had a few adhesions at its base; it was completely consolidated, and in the stage of red hepatization. The heart was enlarged; there was concentric hypertrophy of the left ventricle, and

vegetations upon the aortic valve. Other valves normal. Liver and spleen slightly enlarged. Both the kidneys were pale and had a very thin cortex.

N. M. N.
J. G.

CASE 9.

Double pleuritis.

C. O. D.; aged 42 years; nativity, South Carolina; admitted to United States Marine Hospital, New Orleans, La., January 27; died January 29, 1896.

History.—Previous health had been good; about four years ago had an attack of malarial fever; denies venereal disease, but presents evidence of secondary syphilis. States he had severe chill on the evening of January 22; had not been exposed to cold. High fever followed, and pain, exaggerated on deep inspiration, commenced in left side. Right lateral decubitus most comfortable. Tongue heavily coated, constipation and anorexia present. Percussion: Over lower lobe of left lung anteriorly and laterally note is dull, almost flat; on right side upper limit of liver is higher than normal; dullness laterally in line parallel to and above right nipple. Auscultation: Slight bronchial breathing over upper portions of both lungs; bronchophony not marked; pleuritic friction sounds heard over greater portion of anterior surface of lower lobe of left lung; similar sounds noted in mid-axillary line on right side; dry friction sound just above right nipple in parasternal line; vocal fremitus over lower lobe of left lung. States that sputa have been sanious; at present, are frothy and faintly tinged with blood; cough, dry. Temperature, 38.8° C.; pulse, 110; respiration, 40. Heart sounds not muffled, but less distinct than normal.

January 28.—Moist rales and rattling in larger bronchi and trachea; bronchophony and bronchial breathing over middle lobe of right lung. Cardiac impulse scarcely perceptible; sounds muffled and area of heart's dullness increased. Temperature, 39° C.; pulse, 114; respiration, 42. Patient continued to grow worse, dying at 8 a. m. January 29.

Necropsy (six hours after death).—Body well nourished; panniculus adiposus slight. Old scar in right groin; small ulcers of skin over external malleolus and anterior surface of lower fourth of tibia. Rigor mortis marked. Pericardium contained about 100 c. c. of bloody fluid and was not adherent to pleura. Heart weighed 350 grams; large ante and post mortem clots in right ventricle; small ante-mortem coagula entangled in chordæ tendineæ of left ventricle; valves normal. Serous pleuritis over anterior surface of middle lobe of right lung; interlobular septa of same lung invaded; marked sero-fibrinous pleurisy over left lung; costal and pulmonary layers of left pleura adherent to each other and to chest wall. Left lung weighed 1,420 grams; red hepatization in lower lobe; marked engorgement in upper lobe. Right lung weighed 420 grams; lower and middle lobes in a state of intense engorgement; upper lobe congested. Liver weighed 2,550 grams; pale and soft on section. Spleen weighed 180 grams and was congested. Kidneys were much larger than normal; capsules easily detached; pyramids not well marked.

S. N.
H. W. S.

CASE 10.

Pleurisy and pericarditis.

J. H.; aged 25 years; nativity, Louisiana; admitted to United States Marine Hospital, New Orleans, La., February 1; died February 5, 1896.

History.—Was intemperate in the indulgence of alcoholic stimulants and had secondary syphilis. Four days before admission had been drinking freely; was

attacked with severe chill, followed by sharp, lancinating pain in left side, harassing cough, and expectoration of rusty, tenacious sputa. Dilated nares, rapid and shallow respiration, with symptoms of diaphragmatic pleuritis. Pleural fremitus present in left infra-axillary region; vocal fremitus marked over same area. Dullness over lower lobe of left lung, anteriorly, laterally, and posteriorly. Bronchial rales over sternum; crepitant rales over lower portion of left lung; bronchophony marked laterally over lower lobe of left lung. Cardiac sounds slightly muffled. Tongue coated; bowels active from recent purgative. Temperature 39.2° C.; pulse 110, soft and compressible; respiration 51 and jerky.

February 2.—Temperature 39.8° C.; pulse 116; respiration 58; pain in left side continues; dorsal decubitus most comfortable; sputum yellow and sanious; tubular breathing posteriorly over lower portions of both lungs.

February 3.—Area of heart's dullness increased; sounds muffled; pleuritic friction sounds over anterior aspect of lower areas of both lungs.

February 4.—Delirium during past twenty-four hours. Temperature 39.3° C.; pulse and respiration much accelerated.

February 5.—Death occurred at 4 a. m.

Necropsy (several hours after death).—Body well nourished. Rigor mortis marked. Scar noted in left groin; remains of old cutaneous ulcers on legs. Pericardium was adherent to sternum and contained about 100 c. c. of straw-colored fluid. The parietal and visceral layers presented throughout their entire extent small, yellow projections of fibrinous lymph; the visceral layer was easily detached from the surface of the heart. The heart weighed 370 grams; both right and left ventricles contained large ante-mortem coagula; small hemorrhagic spots were noticed in a section of the left ventricle; valves normal. Left lung weighed 570 grams; in lower lobe, incipient gray hepatization; in upper lobe, marked engorgement. Right lung weighed 490 grams; all lobes deeply congested. Extensive sero-fibrinous pleurisy was apparent on both sides, more marked over anterior and lateral portions of left lung. Other organs not examined.

S. N.
H. W. S.

Case 11.

Pericarditis.

A. W.; aged 34 years; nativity, Alabama; admitted to United States Marine Hospital, Cairo, Ill., April 3, and died April 7, 1896.

History.—The patient had been under treatment for four days with remittent malarial fever, when pneumonia developed, and progressed rapidly to a fatal termination. Treatment was supportive, revulsive, and antipyretic.

Necropsy (thirty-one hours after death).—Body that of an immensely muscular, coal-black, young negro man. General nourishment good. Rigor mortis well marked. Pupils moderately dilated. Heart enlarged, somewhat flabby, covered with a yellowish deposit of lymph, and filled with ante-mortem clots. Aortic valve incompetent. Left ventricle hypertrophied; weight 450 grams. Pericardial sac showing signs of recent high grade of inflammation. Lungs: Left, coated with organized lymph and in state of gray hepatization, weight 640 grams, pleural cavity containing lymph. Right lung: Weight 1,824 grams, adherent to chest wall and diaphragm, superior lobe congested, middle and inferior lobes solidified, pleural cavity obliterated. Liver of a light yellowish almost boxwood color; otherwise normal; weight, 2,528 grams. Gall bladder moderately full of black, tarry bile. Kidneys somewhat fatty; weight of left, 112 grams; right, 120 grams. Spleen: Weight, 400 grams; very friable; pale in color.

J. M. G.

CASE 12.

C. V.; aged 34 years; nativity, Ohio; admitted to United States Marine Hospital, Cincinnati, Ohio, March 7; died March 11, 1896.

History.—Patient complained of cough, pain in chest, shortness of breath, weakness, excessive expectoration, loss of appetite, headache, etc. He stated that he had been ill for a week or ten days. Temperature was 39° C.; pulse was 86. Family history was negative. Physical examination revealed dullness posteriorly on left side, bronchial respiration, and moist râles. Expectoration was free and profuse. Sputum was not rusty. The case progressed favorably until the fifth day after his admission to hospital. Severe nervous symptoms arose suddenly on that day. Patient was delirious; his eyes were directed fixedly to the right; he moved incessantly; carphology was present; temperature rose to 40.7° C.; pulse rapid and very weak. Stupor, deepening into coma, supervened until death ensued.

Necropsy (seventeen hours after death).—Heart weighed 342 grams; valves were competent; one segment of the aortic valve had attached to it a calcareous mass. Right lung weighed 684 grams and was congested. Left lung weighed 1,169 grams; was congested throughout; its lower lobe was intensely congested and hardened; its pleura showed a fibrinous deposit. Liver weighed 2,475 grams; was enlarged, congested, and hardened. Membranes of brain were all inflamed, especially pia. Along great longitudinal fissure on either side there were patches of fibrin. Cerebro-spinal fluid excessive.

S. A.
P. C. K.

CASE 13.

(*Endocarditis.*)

J. N.; aged 36 years; nativity, Tennessee; admitted to the United States Marine Hospital, Cairo, Ill., March 1, and died March 5, 1896.

History.—Patient had been sick for eight days, and had coughed much during the past twenty-four hours, raising blood. He seemed but little incommoded and was more apprehensive for hemorrhage than anything else. Temperature, 40.4° C.; pulse 100 moderately full; respiration 25 fairly deep; sputa, rusty. On auscultation the inferior lobe, right lung, was found silent. The temperature remained high until the end. Treatment consisted of a gentle mercurial purge, cotton jacket, quinine, salol, digitalis, ammonia, and whisky, with milk ad libitum. The course of the disease was uninfluenced. The urine was suppressed for forty-eight hours before death.

Necropsy (thirteen hours after death).—Body that of a large, very muscular, well-nourished, intensely black negro man. Rigor mortis marked. Heart, weight, 560 grams; enlarged, fatty, and flabby, on section showing a high degree of recent inflammatory action; valves competent, walls of both ventricles thinned, and ventricles filled with firm ante-mortem clots. Lungs: Left, weight 650 grams, congested; right, 1,240 grams, hepatized throughout, and breaking down into pus, strongly adherent to adjoining tissues. Liver somewhat fatty, softened, light in color; weight, 2,440 grams. Kidneys: Left, weight, 285 grams, swollen, and showing signs of recent inflammation; right, 240 grams, normal. Spleen: Small, pale; weight, 150 grams.

J. M. G.

CASE 14.

I. McC.; aged 65 years; native of New Jersey; admitted to the marine ward of the German Hospital, Philadelphia, Pa., March 30, died April 8, 1896, at 4 a. m., of exhaustion.

History.—Was taken five days before admission with chill, fever, headache, vomiting, cough, dyspnœa, and sharp pain in right side below the nipple. He had slight chills or chilly sensations every day for four days. Examination March 31. Dark red spot on each cheek; brow corrugated, as if in pain. Pulse 80, respiration 40, temperature 38.8° C. Slight, painful cough with expectoration of rusty sputum, in which the diplococci of pneumonia were found in multitudes. Vocal resonance and fremitus increased on right side except a small area at apex. Crepitant râles heard at the base only at the end of inspiration, and right side of chest was tender to pressure. There was considerable increase in the number of white blood corpuscles. Urine contained a little albumen. Treatment: Acetate of ammonium and spirits of niter mixture was given. Later, whisky, brandy, and strychnine were given. The temperature did not rise above 39° C.; and on April 4 it was 37° C., normal, a. m. and p. m., though the other symptoms indicated that the disease had by no means terminated. Next day the temperature was 38° C.; diarrhœa set in, and he had from four to five passages daily until death. Temperature was 38.4° C. the evening before death. Highest points of pulse, respiration, and temperature were, respectively, 116, 40, and 39° C. There was little delirium—only muttering during sleep. The chest was enveloped in cotton batting from the first. Diet was milk, meat soups, milk punch, and it is possible that the milk caused the diarrhœa. No purgative was given except on the day of admission, when 15 grams of magnesium sulphate were given, and on April 2 an enema of soap and water, as the bowels were constipated.

Necropsy (six hours after death).—The body of an old man, poorly nourished. Rigor mortis marked. Pupils moderately dilated. Purpuric spots on the end of the nose. The pericardium was normal and contained about 75 c. c. of serum. The heart was in diastole; the right auricle was distended with dark clots, while the right and left ventricles contained a few "chicken-fat" clots. Possibly there was some hypertrophy of the left ventricle. All the valves were competent, and the blood vessels appeared normal except the aorta, which contained two small patches of calcareous deposit, each situated near the origin of a coronary artery. The left lung and pleural cavity were normal with the exception of slight hypostatic congestion along the posterior border of the lung. The right pleural cavity was obliterated by recent and easily broken adhesions. The right lung was completely hepatized from base to apex, sinking in water, and exuding a bloody or rusty material on section. The abdominal organs, peritoneum, liver, gall bladder, stomach, intestines, spleen, kidneys, and ureters appeared normal except the ileum, which was slightly injected; the spleen was smaller and more friable than normal, and the kidneys were congested. Death was due to exhaustion, probably increased by the length of time which elapsed before he went to bed and the natural failure of the organs to react from disease or injury at the age of 65.

G. T. V.

CASE 15.

G. H.; aged 37 years; native of Pennsylvania; admitted to the marine ward of the German Hospital, Philadelphia, Pa., April 6; died April 13, 1896.

History.—Patient stated that he had been taken sick seven days before with chilly sensations, headache, fever, slight cough, pain in right side, and dyspnœa. Was in bed part of the time. Examination, April 6: Pulse, 105; respiration, 28; temperature 39.6° C. Face not flushed. Rusty sputum abundant on coughing.

Dullness over base of right lung, and moist râles at end of inspiration; vocal fremitus and resonance diminished on right side and respiration feeble, due probably to absence of extensive pleuritic adhesions, as shown at the necropsy. Treatment: At first, ice bags to chest and head, and Dover's powder; later, whisky, strychnine, and digitalis. April 10: Temperature, 40.2° C., p. m.; respiration, 40, and pulse, 116; somewhat delirious. April 11: Delirious all last night; got up and tried to go out. April 12: Pulse, 150; temperature, 40° C., and respiration, 52. Death occurred at 6 a. m. April 13. Examination of sputum and blood soon after admission showed abundant diplococci and great increase in leucocytes.

Necropsy (five hours after death).—Body of a well-nourished, muscular man. Rigor mortis well marked. Lividity of dependent parts. Pupils normal. Pericardium normal, and contained about 30 c.c. serum. Heart in diastole. A few white clots in the chordæ tendineæ of both ventricles. The right auricle was almost filled with a firm white clot about the size of a hen's egg. Valves and vessels normal. Heart weighed, after opening, 400 grams. Left lung weighed 400 grams, slightly congested posteriorly, but otherwise normal, and floated in water. Pleural cavity normal. Right lung weighed 2,200 grams and was solidified throughout (red hepatization), except a small area in the apex and a smaller strip along the anterior border of the base. There were adhesions of the pleural surfaces in front and near the apex—the far greater portion being free—hence the absence of vocal fremitus and resonance mentioned above. Stomach had a constriction in the middle, dividing the organ into two equal compartments. The constricted portion was about half the diameter of the remaining portions of the stomach. No sign of ulcer or scar could be detected. Kidneys were both congested. Pelves and ureters both slightly dilated, and contained urine which had backed up from the bladder, this viscus being found distended with 1,000 c. c. of urine. Spleen was double the normal size and firmer in structure. Liver, gall bladder, intestines, and pancreas normal. Vermiform appendix lay behind the cæcum and colon, inclosed in the mesocolon, and contained three or four hard balls of fæcal matter. Cause of death was owing to not beginning treatment until seven days after the disease began, probably; and directly to the firm clot in right auricle, causing cardiac exhaustion. The retention of urine could only have occurred during the last eighteen hours of life, so probably had no effect as to the fatal termination.

G. T. V.

Case 16.

Double.

B. T.; negro; aged 28 years; nativity, Tennessee; admitted to United States Marine Hospital, Evansville, Ind., March 15, died March 17, 1896.

History.—Taken sick about a week ago with a hard chill, followed by fever, severe pain in right (?) side, rapid, painful respiration, and cough with bloody sputum. Bowels have been loose. Present condition: Temperature, 38.6° C.; pulse, 100; respiration, 60 to 80; typical pneumonic sputum; frequent cough; tongue coated; left lung consolidated; right lung dull on percussion, and abundant crepitant râles are heard at base. Treatment by quinine and codeine, with mustard poultices applied to chest; later, strychnia by hypodermic injection, aromatic spirits of ammonia, and brandy. Death from heart failure thirty-six hours after admission.

Necropsy (nine hours after death).—Body well nourished. Rigor mortis marked. Pericardium contained 100 c.c. fluid. Right side of heart contained a large and left side a small ante-mortem clot; valves competent; weight, 440 grams. Lungs: Both lobes of left lung in state of red hepatization, verging on gray; weight, 1,340 grams. Right lung, lower lobe in early stage of red hepatization; upper lobes

highly congested; weight, 690 grams. Extensive and firm adhesions of left pleura, and the cavity contained 500 c. c. of serous fluid. Liver enlarged and congested; firmly adherent by its posterior-inferior surface to adjacent organs; weight, 2,730 grams. Gall bladder distended. Left kidney weighed 240 grams, and right 210 grams; both normal in appearance. Spleen was small, weighing 185 grams.

P. M. C.

CASE 17.

P. M.; aged 52 years; native of France; admitted to the United States Marine Hospital, New Orleans, La., November 26; died November 27, 1895.

History.—About ten or twelve years ago patient had "swamp fever" and was ill two months. Denies syphilis. Has always been accustomed to alcoholic stimulants, especially wines. On admission patient was in a condition of partial collapse. He stated that he had had a chill two days ago, followed by fever, but no perspiration; complains now of constant chilliness. Tongue is coated nearly to edges; has nausea, anorexia, and constipation, and is very thirsty. Temperature, 39° C.; pulse, 130; respiration, 42. Marked flatness was detected over upper and middle lobes of right lung anteriorly; tympanitic resonance over lower lobe anteriorly, laterally, and posteriorly; loud bronchial respiration, bronchophony, and vocal fremitus were also observed. No distinct râles could be heard. Over left lung the percussion note was of high pitch, and bronchial respiration and bronchophony were noticed. There was pain in right side and tenderness at margin of right false ribs, slight cough, and scant expectoration. Treatment: Mustard plaster was ordered to be placed over area of pain and a capsule of quinine sulphate and mercurous chloride administered every two hours. Sherry was to be given every three hours.

November 27.—At 6 a. m. patient became worse, and strychnine was administered hypodermically, but with little effect, death occurring at 7.30 a. m.

Necropsy (five hours after death).—Body well nourished; rigor mortis marked; post-mortem lividity general. Right lung weighed 1,300 grams and its pleural surfaces were adherent. The upper and middle lobes were in a state of gray hepatization and sank when placed in water; the lower lobe was in a state of incipient red hepatization. Sections were attended by a discharge of mucopurulent exudation. Left lung weighed 600 grams and showed recent adhesions to pleura. Both lobes were congested and crepitated on pressure. Heart weighed 270 grams, its pericardial sac being normal. The parenchyma of heart was somewhat soft and tore easily. Large ante-mortem clot and smaller post-mortem clots were found in right ventricle; valves normal. Liver weighed 2,570 grams, was pale red in color, and appeared to be fatty. Gall bladder moderately distended; cystic and ductus communis normal. Left kidney weighed 210 grams; capsule easily stripped and was fatty. Right kidney weighed 170 grams and presented the same appearances as the left. Spleen was small; weight, 120 grams; its parenchyma soft, with capsule nonadherent.

S. N.

CASE 18.

Pleurisy and pericarditis.

A. K.; aged 24 years; native of Hawaii; admitted to the United States Marine Hospital, San Francisco, Cal., January 3, and died January 9, 1896.

History.—Patient came to the hospital complaining of pain in the right breast, great weakness, chills and fever, cough, which exaggerated pain in the chest, and shortness of breath. Physical examination: Dullness on percussion over the right lung. On auscultation crepitant râles over the right lung. The heart beat was

weak and irregular. Patient was unable to retain nourishment. Diagnosis of "pneumonia" was made and stimulants administered immediately. On January 4 pulse was stronger under the stimulants, but still very compressible. Emesis was still present. January 5 found patient declining, pulse getting weaker, pain more extensive, and emesis persistent. Patient became delirous and temperature remained at 39.5° C. January 8 found patient rapidly sinking and pulse growing weaker in spite of stimulants. January 9, patient's condition worse; pulse imperceptible. Death at 10:05 a. m. January 9.

Necropsy (twenty-seven hours after death).—The pericardium was thickened and inflamed. The heart was soft and flabby. Dilatation of both ventricles marked. The right pleura was adherent to the chest wall, and was in an inflamed condition. The right lung was consolidated and in a state of gray hepatization, with small portions still in state of red hepatization. Weight was 1,720 grams. Left pleura adhered to chest wall anteriorly and posteriorly. Passive congestion of left lung found. The spleen was enlarged. Both kidneys congested, but the left more so than the right.

G. S. N.
J. G.

ABSCESS OF LUNG.

C. P.; aged 30 years; native of Sweden; admitted to the United States Marine Hospital, San Francisco, Cal., November 6, 1895, and died June 7, 1896, at 3.30 a. m.

History.—On entrance he complained of a pain in the right breast which had been there a week and a half. He began to cough soon after entrance, became emaciated, had night sweats, and a good deal of pain. These symptoms became more severe until the patient died.

Necropsy (six and one-half hours after death).—The heart was slightly pale, but otherwise normal. The left lung was somewhat congested, but contained no tubercles. The right lung contained one large cavity, only the limiting walls and the apex remaining. The cavity was filled with fluid, containing a large quantity of pus, and communicated with a cavity in the posterior border of the right lobe of the liver. With the exception of this cavity, the liver was normal. The spleen was soft, pale, and slightly smaller than normal. Both kidneys were normal. The gall bladder was very much enlarged and filled with bile.

C. W. D.
R. B.

TUBERCULOSIS OF LUNGS.

Case 1.

Dilatation of heart.

M. C.; aged 42 years; nativity, England; entered the marine ward, St. Vincent's Hospital, Norfolk, Va., January 29; died April 5, 1896.

The history of the patient was obscure; had lung trouble for some years, which had been bad about four years ago, but had troubled him little until recently. Has been getting short of breath on exertion, however, for about six months, and now is very short of breath. Œdema of feet was well marked toward end of life. Has consolidation, left apex well marked, and on right side below clavicle large moist râles all over chest; also signs of emphysema. Heart enlarged and weak, but no valvular lesion of left side made out; the pulmonary valve leaks and the veins of neck pulsate. Urine loaded with albumen; no casts found; an average of 24 ounces per day (sp. gr. 1024) passed. No elevation of temperature at any time; pulse small and soft. Death occurred suddenly from cardiac syncope.

Necropsy (twelve hours after death).—A large man; emaciated, but œdematous as to feet and legs. Thorax: A considerable amount of fluid in pericardial sac; clear serum, 200 c.c.; considerable fluid in both pleural cavities, clear serum. Left lung firmly adherent over apex and for some ways down, evidently old adhesions. Lung is emphysematous; over the edges markedly so. The upper part is full of hard lumps perceptible to the hand, and there is a depressed scar about 2.5 cm. below the apex, which is very hard to the touch. On section, the tissue of these lumps creaks and the section reveals small caseous and calcareous masses; most of the former and the latter were gritty to the finger and grate against the knife. The upper part of the lung was simply studded with these masses, and not a few were lower down on the inner apex of the lung. The right lung is emphysematous also, showing a small patch very clearly at the apex. The same condition existed, but to a less degree in this lung—in the front and back of the subapical region as in the apex of the left lung. The heart is much enlarged and dilated, the right side (ventricle) enormously so. It is in diastole and distended with blood. One of the mitral valves is crimpled up and short, the others normal. A typical "nutmeg liver." Kidneys large, hard, with cortex and striæ well marked and full of venous blood.

The starting point in this case seems to have been the obstruction to circulation n the lungs from the old (quiescent) tuberculosis, hence hypertrophy and dilatation of the right heart, and hence a chronic venous congestion of liver and kidneys.

H. R. C.

CASE 2.

J. S.; aged 34 years; nativity, Maryland; admitted to the United States Marine Hospital, Baltimore, Md., October 29, 1894; readmitted January 9, 1895; died July 6, 1895.

History.—Had chills and fever one year ago and also when first admitted to hospital; no history of syphilis. About two weeks before his original admission to hospital patient fell overboard. On the following morning cough began and continued to grow worse. Complained of sharp pain in left side of chest; deep inspiration; increased pain; dyspnœa marked; also had diarrhœa and vomiting. Expectoration not profuse. Bronchial breathing was noticed over both lungs and at the apices of both lungs mucous râles could be heard. Vocal fremitus slight on left, absent on right, side. Temperature, 39° C.; pulse, 102; respiration, 19. The temperature of patient continued irregular, being normal in the morning and varying between 38° and 39° C. in the evening. The cough was persistent and expectorants gave little relief. During the latter part of illness laryngeal symptoms were prominent—pain in the larynx, hoarseness, and difficulty of articulation. The disease steadily progressed to a fatal termination, the patient dying at 5.30 a. m., July 6, 1895.

Necropsy (ten hours after death).—Rigor mortis slight; body greatly emaciated. The right pleura showed evidences of chronic inflammation, the pulmonary and costal layers being adherent throughout their whole extent. The left pleura was not materially altered. The right lung weighed 1,375 grams. Its exterior was pale in color and nodular to touch. On section, numerous abscesses were found, about equally distributed in the upper, middle, and lower lobes. Extensive necrosis of the pulmonary parenchyma nad taken place, the resulting cavities being filled with dark-colored and offensive pus. The left lung weighed 870 grams. Several small tubercular masses were seen in the upper lobe, and on section a small vomica was found at the apex; in the lower lobe no tubercles were detected, but sections were very dark in color and congested. The pericardium contained 150 c. c. of transparent fluid. The heart weighed 360 grams, was pale and easily torn; valves normal. The liver weighed 2,500 grams, was pale externally, and gave, on section, all of the macroscopic appearances of the amyloid or waxy liver.

Both kidneys were hypertrophied, of the large white amyloid variety, the left weighing 240 grams, the right 250 grams. The capsules were adherent. On section, the cortex and medulla were both pale, the cortical portion being much thicker than normal. Tubercular ulceration was advanced in both true vocal chords and pus was abundant in both larynx and trachea.

S. N.
G. W. S.

CASE 3.

A. J.; aged 44 years, readmitted to marine ward, St. Vincent Hospital, Portland, Oreg., September 7, 1895, died February 29, 1896.

History.—The patient was first admitted to the hospital on March 18, 1895, suffering with a dropsical effusion; he was readmitted September 7, 1895, for tubercle of the lungs. All the physical signs of phthisis were present, and the symptoms of cough, hæmoptysis, night-sweat, and febrile disturbances existed. He also had a typical pulmonary murmur, which was supposed to be due to a lesion of the pulmonary valve.

Necropsy (twelve hours after death).—External appearances: Body much emaciated; post-mortem rigidity and lividity slight. Thoracic cavity: The pleural cavities were obliterated by numerous adhesions. The right lung contained a large cavity in the upper lobe; the remaining portions of its structure were consolidated, being densely studded with tubercles. The left lung was small, devoid of air, and only contained a few tubercles. It had undergone atelectasis. The lumen of the left pulmonary artery was much diminished by the pressure of this lung, and to this obstruction was probably due the murmur heard over the pulmonary valve. The heart and pericardium were normal. Abdominal cavity: The liver was slightly enlarged and fatty. The other viscera were normal. Brain not examined.

J. C. P.

CASE 4.

Delirium tremens.

J. R.; aged 34 years; nativity, Illinois; admitted to United States Marine Hospital, Chicago, Ill., August 7; died August 14, 1895.

History.—A number of years ago he was treated at this hospital for some laryngeal trouble and in January, 1894, was operated on here for fistula in ano. No recurrence of the fistula. Otherwise, general health good. Slight, hacking cough for the past year. States he has been drinking hard for more than a year. August 1 and 2 he expectorated a small clot of blood. Hæmoptysis increased on 3d and 4th, and on the evening of the latter date there was a hæmorrhage of considerable amount, on the 5th, 6th, and 7th, small amounts of blood. On admission his mind was clear, but he was so shaky that he could scarcely control his movements. He was much alarmed regarding the hæmoptysis. Nothing abnormal was recognized in the examination of his chest. This examination was carried out with difficulty, owing to his continued convulsive movements. During the first night and the following day a little blood was raised, more subsequently. Frequent, loose, fæcal stools on admission and for two days following. August 8 and 9 there was apparent improvement, and no complaint with reference to his head, but during the evening of the 9th he became delirious and violent; restraint apparatus was applied. After this he was at no time free from delirium, and during 10th, 11th, and 12th there were incessant convulsive movements of whole body and constant shouting or muttering. He recognized individuals and answered questions with reference to food. He took nourishment in sufficient amount. Temperature normal on admission; 38° C. on 8th p. m.; 39.5° C. on 11th p. m. On the 13th his movements were less violent and he seemed exhausted. At no time did his mind become clear again. Exhaustion deepened into coma.

Necropsy.—Pericardial sac and heart presented normal appearance; heart weighed

305 grams; thoracic aorta normal; trachea normal; left pleural cavity obliterated by dense adhesions; pleural tissue, when torn, had a granular feeling; lung tissue torn in removal; lung deep red, engorged with blood, except at apex, where there was a mass 4 cm. in diameter distinctly outlined, slightly crepitant, dark drab color, and containing miliary tubercles; right pleural cavity also obliterated by dense adhesions; right lung (torn in removal) deep red from excess of blood, contained one deep red, hard nodule, size of a hickory nut, containing miliary tubercles. This nodule was in the upper lobe, laterally, about 3 cm. from lower margin, and near surface. Weight of lungs, left 510 grams, right 580 grams; peritoneum normal; œsophagus, normal except a cicatrix with radiating lines, anteriorly, about the middle of its length. Stomach: Large capillary congestion over most of mucous surface; one longitudinal ulcer, 2 cm. long by one-quarter to one-half cm. wide, was found in the small intestines 25 meters above ileo-cæcal valve; large intestines normal, contained a large quantity of fluid light yellow fæces. Liver, smooth surface, purple color, 1,640 grams, lobules distinct. Kidneys, left 175 grams, right 170 grams; capsules not adherent; marked congestion. Spleen, 135 grams; dark red; pulp soft. Scalp, skull, and membranes of brain appeared normal; brain weighed 1,240 grams; large amount of fluid blood in sinuses; no marked congestion on surface; normal appearance on section.

S. D. B.
J. B. H.

CASE 5.

J. K.; aged 47 years; nativity, Ireland; admitted to United States Marine Hospital, Boston, Mass., January 29, 1896, suffering from tubercle of lung; died March 20, 1896, at 12 m.

Necropsy (twenty-six hours after death).—Body of white male, considerably above medium height; extremely emaciated; nasal cartilages deflected to right; complexion decidedly sallow. Left lung weighs 1,220 grams; pleura adherent at apex and posteriorly; small quantity of fluid present. Lung crepitates except at apex; nodules throughout; section shows apex to be consolidated and somewhat cheesy; numerous tubercles throughout both lobes. Right lung weighs 1,300 grams; pleura firmly adherent over entire surface, old adhesions; pleura much thickened. Lung does not crepitate; very solid; section shows all lobes to be consolidated and studded with tubercles; upper lobe contains cheesy deposits and several small cavities at apex. Larynx and epiglottis somewhat reddened; edges ulcerated; surface covered by miliary tubercles; internal surface of glottis also covered by miliary tubercles. Pericardium contains about one ounce of straw-colored fluid. Heart weighs 310 grams. Mitral valves contain some old vegetations and are thickened; aortic, pulmonary, and tricuspid, negative. Liver weighs 1,770 grams; firmly bound down by adhesions; capsule very much thickened and liver substance is very hard; gritty on section; section appears pale; lobules have red center and pale periphery. Suprarenal capsules, negative; weight of one, 15 grams; the other, 10 grams. Left kidney weighs 190 grams; capsule strips readily; substance contains a few miliary tubercles; slightly pale, markings distinct; in other respects negative. Right kidney weighs 190 grams; capsule adherent; on section a few miliary tubercles are seen; markings distinct. Spleen weighs 220 grams; very soft and friable. Weight of pancreas, 145 grams; normal in appearance. Urinary bladder contains small cyst on left side near beginning of urethra. Small intestine contains a large number of ulcers from size of quarter dollar down; whole surface much injected; large number of tubercles on peritoneal surface opposite ulcers. Large intestine, negative. Whole surface of peritoneum and omentum thickly studded with miliary tubercles. Brain and spinal cord not examined.

A. R. T.
H. W. A.

CASE 6.

P. A.; aged 24 years; nativity, Norway; admitted to United States Marine Hospital, Boston, Mass., November 21, 1895, suffering from tubercle of lung; died January 13, 1896, at 4.30 p. m.

Necropsy (*nineteen hours after death*).—Body of white male, below medium height; spare build. "P. A. S." marked in india ink on left hand, design of an anchor on right hand. Distal phalanx of index finger and second phalanx of middle finger are wanting. Rigor mortis marked. Pupils dilated. Hypostatic congestion present; arterial blood clot about mouth and nasal orifices. Both lungs bound down everywhere by firm adhesions. Right lung: Cavity at apex the size of an orange; some infiltration of blood in lower lobe and in posterior portion of middle lobe; no marked clot; scattered miliary tubercles throughout entire lung; weight, 980 grams. Left lung: Cavity in apex a little smaller than an orange; small cavities throughout entire upper half of lung; hæmorrhage in lower part of upper lobe; cavity filled with blood; weight, 820 grams. Pericardial sac filled with serous fluid. Heart somewhat hypertrophied; right side contains large antemortem clot; valves, normal; weight, 300 grams. Liver: Gall bladder almost empty; no gallstones; capsule nonadherent; weight, 1,820 grams. Spleen unusually soft; weight, 280 grams. Pancreas normal; weight, 80 grams. Intestines normal. Urinary bladder empty and normal. Left kidney normal; capsule strips normally; weight, 160 grams. Right kidney normal; capsule nonadherent; weight, 145 grams. Brain and spinal cord not examined. Larynx not examined (in order to avoid disfigurement of body; his wife desired body for burial).

E. S.
H. M. A.

CASE 7.

J. B. (colored); aged 33 years; nativity, Pennsylvania; admitted to hospital at Philadelphia November 26, 1895; transferred to Marine Hospital at Baltimore January 14, 1896; died July 6, 1896.

History.—Mother died of consumption. Denies all venereal diseases. Was taken sick three years ago with a "heavy cold," coughing and expectorating a great deal; had night sweats; later on spit up a considerable quantity of blood. Lost flesh and strength. Patient is very much emaciated, and suffers from shortness of breath. Physical examination shows bronchial breathing over both lungs, with amphoric breathing in places. Numerous fine mucous râles are heard here and there. During his stay in Philadelphia patient complained of a great deal of pain in his chest, which received appropriate remedies. The range of temperature was from 36.5° C. in the morning to 38° C. in the afternoon. When patient reached Baltimore he was weak and very much emaciated. He continued to complain of great pain in his chest, which was not relieved by the usual remedies. Morphine was finally resorted to with great relief. Diarrhœa occurred occasionally, but was not persistent. Patient complained of a choking sensation. Dyspnœa became more marked. The temperature ran a very irregular course during the latter stages of his disease. It ranged from 36° C. in the morning to 36.5° C. in the afternoon, occasionally going as high as 38° C. Patient died quietly on the night of July 6, 1896.

Necropsy (*twenty hours after death*).—Emaciation was great, and rigor mortis considerable. Right lung weighed 1,200 grams; pleura strongly adherent. In apex was found a cavity 100 c. c. in size, and containing purulent material. The surface of this cavity was very smooth and lined with thick fibrous material; caseous masses found occasionally throughout entire lung. The lower part of the lung contained a red hæmorragic exudate; left lung weighed 1,380 grams; pleura

very adherent; cavity at apex containing 300 c. c. It was, like the one in the right lung, lined with a thick fibrous material. The cavity contained some cheesy material. Caseous tubercles were found throughout entire lung. Intestines were distended with gas; omentum contained very little fat. Heart weighed 300 grams; both ventricles contained white clots; the edge of mitral valve was somewhat thickened; pancreas was normal in appearance. Left kidney weighed 150 grams; capsule not adherent, but surface presented no abnormal appearances. Right kidney weighed 150 grams; pelvis contained about 2 grams of purulent material. Vermiform appendix was found twisted upon itself. Spleen weighed 140 grams; normal in appearance. Liver weighed 1,300 grams; gall bladder contained very little bile; the cut surface of liver was somewhat mottled in appearance. Brain: A careful examination revealed nothing of pathologic interest.

J. B. G.
G. W. S.

CASE 8.

Carcinoma of stomach and liver.

H. J. O.; aged 48 years; nativity, Sweden; admitted to United States Marine Hospital, Boston, Mass., March 23, 1896, with diagnosis of carcinoma of liver; died April 20, 1896.

History.—The patient gave a history of trouble for at least two years, with symptoms of indigestion and vomiting. Denied ever having vomited blood, and had had very little pain. Two weeks before admission he had noticed a hard nodule just below the right costal arch in nipple line. Examination showed the liver to be much enlarged, extending from nipple above to a hand's breadth below costal arch. Lower border felt hard and nodular. There was no jaundice.

Necropsy (six hours after death).—The body was that of a medium-sized male, much emaciated; rigor mortis not present; pupils moderately dilated; skin pale and waxy. The pleuræ were negative. The right lung had only two lobes. On section there was a cavity the size of a small marble in the apex of lower lobe, and the whole section was studded with miliary tubercles. The left lung had a small cavity at apex and had also numerous miliary tubercles throughout. Pericardium negative. Heart weighed 240 grams; dark clot in right ventricle; left ventricle negative. Peritoneal cavity contained considerable flaky, yellowish fluid. The stomach showed a smooth, indurated, nonulcerated area at lesser curvature, about the size of a silver dollar. Corresponding to this area externally was a mass of glands, some of which were broken down, and discharged through a small opening into the stomach. The liver weighed 4,120 grams. The right lobe was almost entirely taken up by six nodular masses, varying in size from a walnut to an orange, which were sharply defined, firm, and of a yellowish-green color on section. The other lobes contained a few small nodules. The gall bladder small and empty. Kidneys: Left weighed 130 grams; capsule stripped easily; tough on section; markings were indistinct and section generally pale; right weighed 175 grams and was in all respects similar to left kidney. Spleen weighed 265 grams; capsule thickened in places; otherwise negative. Suprarenal capsules weighed 10 grams each; negative. Pancreas weighed 125 grams; negative.

A. R. T.
H. W. A.

CASE 9.

W. S.; aged 28 years; nativity, New York; admitted to the marine ward, Cleveland City Hospital, at Cleveland, Ohio, March 27; died March 30, 1896.

History.—Patient had been in hospital many months under treatment for tubercle of lungs and was discharged March 16, 1896, improved. He returned with a

distinct catarrhal pneumonia superimposed upon the tuberculosis, and died in three days after admission.

Necropsy (thirteen hours after death).—Rigor mortis marked. The pericardial sac contained 125 c. c. of clear serum. The heart weighed 400 grams; normal. Both pleural cavities presented adhesions at the apex. The left lung weighed 1,300 grams, the right 1,160 grams; both contained tubercular cavities at the apex, and the bases presented a characteristic appearance of catarrhal pneumonia. Peritoneum and gastro-intestinal tract normal. The liver weighed 2,250 grams and showed chronic venous congestion; gall bladder and ducts normal. The left kidney weighed 225 grams, the right 220 grams; both normal. Spleen weighed 370 grams; passive congestion. The brain weighed 1,750 grams and was normal, with the exception of congestion of the membranes.

R. M. W.

CASE 10.

W. E. S.; aged 23 years; nativity, Canada; entered the United States Marine Hospital, Cleveland, Ohio, March 3; died May 9, 1896.

History.—The case was one of acute tuberculosis, running a very rapid course, as evidenced by the fact that he worked up to within two days of his admission, and died in slightly more than two months after that time.

Necropsy (eight hours after death).—Rigor mortis slight. Pericardial sac contained 100 c. c. of clear serum. Heart weighed 270 grams; normal. The right pleural cavity contained 1,100 c. c. of muco-purulent material, with flakes of fibrin, the lung being well compressed up toward the apex. This lung was so adherent and so filled with tubercular cavities that it was impossible to remove it, and it was opened in situ. The left pleural cavity contained 100 c. c. of pure serum. This lung weighed 650 grams and showed in a marked degree the ravages of tubercle. A few small calcareous deposits were found. The posterior walls of the larynx were ulcerated. A few small tubercular ulcers were found in the small intestine, and the mesenteric glands were enlarged. The liver weighed 1,700 grams and was of the nutmeg variety; the gall bladder and ducts normal. Pancreas normal. The left kidney weighed 150 grams, the right 155 grams; both normal. Spleen weighed 190 grams; normal. Brain weighed 1,400 grams, and aside from anæmia was normal.

R. M. W.

CASE 11.

J. E.; aged 26 years; nativity, Sweden; admitted to United States Marine Hospital, Mobile, Ala., November 26, 1895; died February 18, 1896.

History.—Patient was first admitted to hospital February 11, 1896. He stated at that time that he had been coughing for several months. Expectoration profuse and purulent, cough especially troublesome at night; has lost 20 pounds in weight within six months; appetite capricious; bowels irregular. Physical examination revealed signs of consolidation at apices of both lungs with commencing softening. There was a syphilitic eruption (rupia) upon both legs. Under treatment the syphilitic manifestations disappeared; but the destructive process in the lungs was not retarded. At his own request he was discharged July 5, 1895.

At time of last admission all the pulmonary symptoms were worse than before. Tubercle bacilli were present in large numbers in the sputa. On the morning of January 20, 1896, patient was found to be suffering from dyspnœa and severe pain in right side. There were present the physical signs of pneumothorax. The pain was controlled by local applications; but with the right lung collapsed and the function of the left considerably impaired the difficulty in breathing did not admit of much improvement. During his last stay in hospital there was no diarrhœa or

hæmoptysis. At 8.30 a. m. February 18 patient was attacked with dyspnœa and died within half an hour.

Necropsy (seven hours after death).—Post-mortem lividity, but no rigidity. Body fairly nourished. Thorax and abdomen distended with gas. Whole body œdematous. The heart was not enlarged, but the pericardial fluid was increased to 100 c. c. Both sides of the heart contained antemortem clots. Right lung completely collapsed, and the pleural cavity of that side contained 1,000 c. c. of turbid serum. Parietal and visceral layers of the pleura coated with fibrin. Left lung studded with tubercles. Pleura apparently normal. There was a small effusion into the peritoneum. The mesenteric glands were enlarged. Stomach and intestines distended with gas. Liver small, gray, and tough under the knife; gall bladder empty. Spleen and kidneys apparently normal. Bladder contained a small quantity of urine. Other organs not examined.

E. K. S.
R. D. M.

CASE 12.

J. W.; aged 28 years; nativity, Finland; admitted to the United States Marine Hospital, San Francisco, Cal., February 6; died April 7, 1896.

History.—Patient came to the hospital complaining of pain and swelling in the right elbow joint, of some months duration. Also complained of severe cough, expectoration of a large quantity of yellowish matter, occasional severe night sweats, and loss of flesh and strength. Had been suffering from cough for several months, and was getting worse. Physical examination showed marked emaciation. On percussion, dullness found over the apices and infraclavicular spaces of both lungs. Auscultation revealed bronchial breathing over upper part of lungs. Moist and harsh râles over the bases of both lungs. The right elbow joint found greatly swollen. Two suppurating sinuses leading into the joint found. A diagnosis of tubercle of the lungs and elbow joint made. The lungs were involved to such a degree, and the general condition in such a low state, that it was thought advisable not to operate on the elbow, and institute general tubercular treatment. March 9 found condition much worse, and a rapid decline was noticed. High fever at night; severe night sweats and loss of strength continued. Severe pain in the chest, combined with pleuritic, scraping sounds, showed the involvement of the pleuræ. Patient rapidly declined, despite everything that could be done, and death occurred April 7, at 3.50 a. m.

Necropsy (seven hours after death).—Body markedly emaciated. Both pleuræ were adherent to the chest wall. The pericardium was adherent to the heart and lungs. The right lung was riddled with cavities and studded with tubercles. A cavity with the capacity of about 75 c. c. found in the apex of the lung. The left lung in about the same condition as the right. Heart and valves normal. Kidneys and spleen normal. Liver congested.

G. S. N.
J. G.

CASE 13.

J. R.; nativity, Ohio; aged 43 years; admitted to United States Marine Hospital at Cincinnati June 14; died July 7, 1895.

History.—Patient was admitted complaining of pain in chest, slight cough and expectoration, weakness, aching pains in right leg, frequent and painful urination, poor appetite, etc. Night sweats occurred. Temperature rose to 39° C., or thereabouts, in the evening, and sometimes did and sometimes did not drop to normal. Percussion and auscultation of chest gave negative information; weakness and emaciation became extreme. Symptomatic treatment was administered. Toward the end respiration became very rapid and superficial.

Necropsy (three hours after death).—Heart was normal. Left lung weighed 1,688 grams, and the right 1,463 grams. Both lungs were enlarged, hardened, and non-crepitant. They barely floated in water; much congested. Scattered promiscuously throughout the lungs were innumerable miliary tubercles. The pleuræ were but slightly abnormal. The serum was slightly increased in quantity. Kidneys weighed 265 grams each. Distributed throughout the renal substance, chiefly in the cortex, were numerous softened areas, which were about the size of a pea. The renal capsules were thickened, and on removal a finely granular surface was exposed. Spleen weighed 270 grams. Numerous small, yellowish, softened areas, scattered promiscuously throughout the splenic pulp, were found.

P. C. K.

CASE 14.

Septicæmia.

J. A.; aged 30 years; nativity, Sweden; admitted to the United States Marine Hospital, San Francisco, Cal., November 6; died December 2, 1895.

History.—On the morning of November 6 patient sustained injury to the right forearm by falling lumber. On examination fracture of both bones of the right forearm about 3 inches above the wrist joint was found. The fractured bones were set and splints applied to the arm. On November 22 patient had a boil develop on the little finger of the left hand. The boil was incised, pus removed, and cavity packed with gauze. On November 24 examination showed that pus had burrowed under the skin some distance; incision made and cavity washed out. On November 26 quite a quantity of pus was found. An opening was made over the metacarpo-phalangeal joint, the cavity flushed and packed with gauze. November 26 patient was taken with a slight chill, followed by high fever, the forearm became swollen, and the glands about the elbow joint became sensitive and enlarged. The fever continued, and the wound was curetted and cleansed. The trouble was then thought to be a carbuncle. December 1 found the patient very weak. The tissues in the arm were œdematous. An incision was made into the œdematous tissues about the elbow, and free bleeding was allowed for several minutes. December 2 found patient's condition worse, the fever high, pulse rapid and weak. The wound looked well, but the tissues about the arm the same. Gradually sank, and died at 1.45 p. m. December 2.

Necropsy (twenty-one hours after death).—Body emaciated; the pleura on the right side adherent to the chest wall; both lungs found in a state of hypostatic congestion. The right lung had a general infiltration of tubercle; a small cavity found in the apex. The apex of the left lung studded with tubercle; the heart and all other organs found normal. Numerous incisions in the affected arm failed to show presence of pus; no callus found between the fractured bones.

G. S. N.
J. G.

CASE 15.

M. McC.; aged 32 years; nativity, Ireland; admitted to the United States Marine Hospital, San Francisco, Cal., December 16, 1895; died February 15, 1896.

History.—Patient had been in the hospital two years before, complaining of tubercle of the lungs. He now returns so weak that he can not sit up in bed. Has had four hæmorrhages from the lungs; the last one, seven days before entering the hospital, was very profuse. Since this hæmorrhage has been in present feeble condition. Examination showed increased motion on the right side of chest and increase in vocal fremitus on the left side. Bronchial breathing heard all over the lung area. Signs of a cavity in the subclavicular region of the left side were found. The first sound of the heart in the ventral area is roughened. General tubercular

involvement of both lungs was the diagnosis. Patient was kept as quiet as possible as locomotion increased cough and nausea. On December 31, 1895, he had a hæmorrhage from the lungs, losing about 250 c. c. of blood. Severe sweating at night quite constant. On January 6, 1896, patient had another hæmorrhage from the lungs, losing about 150 c. c. of blood. From this time on patient rapidly declined, and died February 15, 1896.

Necropsy (nine hours after death).—Body emaciated. The right pleura was adherent to the chest wall. The right lung was riddled with cavities and studded with tubercle. A large cavity was found in the apex. The left pleura was adherent to the chest wall. The left lung was studded with tubercle. A large cavity found in the apex. The kidneys were normal, spleen normal, and heart normal. The liver was large and fatty, weighing 2,000 grams.

G. S. N.
J. G.

CASE 16.

L. S.; aged 55 years; nativity, Germany; admitted to United States Marine Hospital, St. Louis, Mo., April 17; died July 17, 1895.

History.—Father died from tubercle of the lungs. Mother, one brother, and one sister living and in good health. Patient treated in Cairo, Ill., in 1886 for ulcer of leg, and in St. Louis in 1891 for erysipelas and necrosis of temporal bone. Caught cold on March 5, 1895. When admitted he had cough, pain in chest and back, dyspnœa on slight exertion; physical signs of a cavity in the right lung, moist râles over both lungs, and numerous tubercle bacilli were found in the sputum. He had no hæmorrhage from the lungs, and the progress of the case was steadily downward.

Necropsy (twenty-two hours after death).—Body greatly emaciated. Rigor mortis present. Brain not examined. Extensive pleural adhesions in right pleural cavity; not so marked in left and limited to apex of lung; left lung filled with miliary tubercle and numerous small cavities; right lung contained a cavity the size of an orange near the apex, and the rest of the lung had numerous cavities and miliary tubercle scattered through it. Hypostatic congestion present in both lungs. Base of mitral valve slightly thickened and a small patch of atheroma found at base of larger segment. Liver normal; gall bladder much distended; stomach normal, slightly contracted; pancreas small and wasted; spleen small, soft, and semifluid in consistence. Mesenteric glands enlarged, tubercular, and softened. Suprarenal capsules small and wasted. Kidneys: Small retention cyst found on each; capsules slightly adherent, otherwise normal; bladder moderately distended. Weight of viscera: Heart, 120 grams; right lung, 835 grams; left lung, 780 grams; liver, 1,175 grams; spleen, 120 grams; right suprarenal capsule, 10 grams, left, 8 grams; right kidney, 115 grams; left kidney, 120 grams; pancreas, 50 grams.

D. A. C.

CASE 17.

O. M.; aged 23 years; nativity, Japan; admitted to the United States Marine Hospital, San Francisco, Cal., December 28, 1894; died February 21, 1896.

History.—Patient had been complaining of pulmonary difficulties for sometime. Pain in the left side of chest, dyspnœa, fever, and night sweats were among the principal symptoms. Physical examination reveals fine, moist râles distributed over the pulmonary area bilaterally, and much prolonged expiration. Slight flatness over both apices, slightly more pronounced on the left side than on the right. The predominating symptoms were of bronchitis, and the trouble soon began to decrease as the bronchitis disappeared. On April 15 examination showed bronchial breathing in both apices, and prolonged expiration. Severe night sweats

still persisted. Tubercular involvement of both apices was diagnosed. On December 16, 1895, examination showed moist râles in both apices and infraclavicular spaces. Softening of the lung pronounced. On December 23 patient had a hæmorrhage from the lung, which was checked after considerable loss of blood. From this time on he would frequently have hæmorrhages, generally losing about 200 c. c. of blood. Between the date of his first hæmorrhage, December 23, 1895, up to the time of his death, February 21, 1896, about fifteen of these hæmorrhages were recorded. On February 20 patient was markedly feeble and sinking rapidly, but no hæmorrhages had occurred for several days. Death took place on February 21, 1896.

Necropsy (fifteen hours after death.)—Body emaciated. Both pleura adherent to the chest wall and both showed signs of recent inflammation. In the left lung a large cavity found in the apex and one in the posterior part, the latter being filled with organized blood clot. General tubercular involvement found. General involvement of the right lung also found with a cavity in the apex. Heart and kidneys normal. Spleen small and flabby.

G. S. N.
J. G.

CASE 18.

F. M.; aged 31 years; nativity, France; admitted to the United States Marine Hospital, San Francisco, Cal., June 20; died September 27, 1895.

History.—Patient came to the hospital complaining of a severe cough, which he first noticed three weeks before. Had been expectorating blood lately. On examination dry râles could be heard all over the chest, but no dullness on percussion found over the apices. The patient was treated for acute bronchitis, but the bleeding from the lung continued, and patient grew weak from loss of blood. On July 13 patient was reexamined, and a general tubercular infiltration of the left lung and consolidation of the upper lobe of the right lung was found. Night sweats and great weakness shortly after made their appearance. Under the tubercular treatment the hæmorrhages ceased. On September 25 patient lost his reasoning power and declined rapidly. On September 27 patient had a heavy chill followed by profuse perspiration and great weakness, and died at 9.15 p. m.

Necropsy (fourteen hours after death).—Body very much emaciated. The right lung congested and studded with tubercles; contained numerous cavities. The left lung and pleura were adherent to the chest wall at the apex; its weight was double that of a normal lung, and resembled a liver in consistency. On section it was found to be one mass of caseous matter; scarcely any lung tissue visible; contained several large cavities filled with pus. The heart and other organs found normal.

G. S. N.
J. G.

CASE 19.

Aortic aneurism.

C. B.; aged 52 years; nativity, Germany; admitted to the United States Marine Hospital July 8, 1892; died at 3.50 a. m., November 23, 1895.

History.—On admission complained of cough (without expectoration) and "rattling in the chest." Various prescriptions were tried for the above symptoms apparently without effect. On April 17, 1893, bronchial asthma was noted. After May 19, 1893, hæmoptysis occurred at variable intervals. On July 26 of same year signs of a tuberculous deposit in the lungs were found. The case progressed as is usual in tuberculosis, except for the asthma, which was persistent, in spite of drugs, until March 12, 1895, when a systolic bruit was heard in the superior sternal region anteriorly and in a corresponding position posteriorly.

Necropsy (*six hours after death*).—On opening the chest the sternum was fractured about the center by gentle traction. Just beneath this point of fracture was noticed a large brownish-colored tumor, a segment of the outer layers of which was cut away in removing the sternum. The tumor was situated just above the heart and weighed 1,190 grams. The aneurism was situated in the ascending and transverse portions of the arch of the aorta. There were many layers of organized clot contained in the aneurismal sac. No evidence of a rupture was found. The pericardium was thickened. There was concentric hypertrophy of the ventricles of the heart. The pleuræ of the lungs were adherent; both lungs were slightly emphysematous. The base of the right lung was congested and hard; one section was found studded with small tubercular nodules; in the apex there was a small vomica. Small tubercles were scattered all through the left lung. Liver congested; right lobe slightly more fatty than the left. Kidneys enlarged; congested; cortex thinned; capsule stripped off easily.

J. B. C.
J. G.

CASE 20.

Aneurism thoracic aorta.

M. C.; aged 51 years; nativity, Greece; admitted to the United States Marine Hospital, San Francisco, Cal., June 10; died October 13, 1895.

History.—Patient came to the hospital complaining of cough, wheezing, dyspnœa, and pain in the chest. First noticed trouble two months before. On examination a barrel-shaped chest was observed. Sibilant and moist râles heard all over the chest. Tympanitic sounds on percussion over chest. A bruit heard in the left supraclavicular space, not connected with valvular sounds, and aneurism suspected. This anuerism quoted as probable cause of the asthma. Under asthmatic treatment, patient improved markedly. A small amount of tenacious, purulent matter expectorated. On September 3, after exposure, patient taken with a severe chill, followed by fever. Pain on the left side of chest in the axillary region was soon noted, and pleuritis was suspected. Cough and expectoration became more marked. On September 14, after careful examination, it was decided that pus was present in the pleural cavity on the left side. Exploration with hypodermic needle revealed a small amount of thick pus. Exploration was repeated the following day, and a creamy pus again found. Under chloroform, on September 18, an incision made over the eighth rib and about 2.5 cm. of bone removed. Opening into the pleural cavity was made, but no pus could be found, and it was decided that the pus aspirated was from the lung. Firm adhesions of the pleura found. Wound was sutured, but stitches removed from external opening the next day on account of extensive emphysema. Emphysema gradually disappeared and wound healed. On September 25 the condition of the patient was not improved, and asthmatic attacks persisted. Sputum was examined and the presence of tubercle bacilli was demonstrated. Left lung at the apex was partly consolidated. A few mixed râles heard in both lungs. On October 13, at 7 a. m., patient had a hemorrhage, presumably from the lung, and died shortly afterward.

Necropsy (*thirty hours after death*).—Body emaciated. Organized adhesions between layers of the pleura on the left side. The mitral valve of the heart found incompetent. The right lung found in a state of hypostatic congestion, which was more marked toward base of the lung. The left lung was studded with tubercles and riddled with cavities; the base was most extensively diseased and broken down; the bronchial glands were enlarged. At the junction of the transverse and ascending portion of the arch of the aorta a sacculated aneurism was found; a laminated clot lined the aneurism. About the middle of the posterior wall of the aneurism an opening, leading into the trachea above the bifurcation,

was found. The trachea contained clotted blood. Liver normal. Spleen normal. The capsule of the right kidney stripped off too readily. The cortex thin and congested. The left kidney badly congested. Stomach contained unaltered blood.

G. S. N.
J. G.

CASE 21.

W. S.; aged 25 years; nativity, Virginia; admitted to the United States Marine Hospital, Cincinnati, Ohio, March 31; died June 20, 1896.

History.—Patient came into hospital complaining of headache, general aching in his limbs and back, cough, and constipation. He had been sick for three days before entering hospital. Tongue coated. Chest, slight dullness over left apex upon percussion. Mucous râles were heard over left lung; bronchial cough; expectoration free and mucoid in character; temperature 39.8° C. He was treated for influenza for several days and his general condition improved, but his bronchial trouble continued and grew worse and both lungs soon showed signs of tubercular infection, and he gradually grew weaker and died suddenly June 20, 1896.

Necropsy (three hours after death).—Body very much emaciated. Rigor mortis slight. Small amount of fluid in pericardium. Heart normal; weight 354 grams. Lungs and pleuræ were adherent throughout; both lungs were riddled with cavities, with little normal lung tissue in either. Left lung weighed 1,080 grams; right lung weighed 1,063 grams. Liver enlarged; weight 2,030 grams. Small intestines presented several tubercular ulcers. The mesenteric glands were very much enlarged and tubercular. Spleen was lobulated and nodular on section; weight 300 grams. Kidneys slightly enlarged; capsules not adherent. Brain not examined.

J. W. S.
J. O. C.

CASE 22.

Kidneys—Empyema.

G. M.; aged 28 years; nativity, Finland; admitted to marine ward of the German Hospital, Philadelphia, Pa., April 27; died May 16, 1896.

History.—No family history of consumption. Patient was taken sick three months before with fever, severe cough, and expectoration of lumps of mucus (no blood), night sweats, shortness of breath, emaciation, and pain in left side. About a month before the left side began to swell. On admission patient had the appearance of one in the last stages of consumption. Tubercle bacilli were found abundantly in the sputum. The heart impulse was felt only on the right side, between the third and fourth ribs, 1 cm. above the right nipple. The left side of the thorax was distended with fluid; it measured 2½ cm. more than the right and a succussion splash was easily obtained. About 5,000 c. c. of turbid fluid were aspirated from the left side of thorax on April 28, with no perceptible benefit. The impulse of the heart could not be felt as before, but was not distinctly perceptible on either side.

May 15.—It was evident that empyema was present, and with the aid of cocaine an incision was made in the left side, evacuating about 1,500 c. c. of offensive pus. Patient died next day.

Necropsy (three hours after death).—No rigor mortis. Body emaciated; pupils dilated. On opening the chest the heart and pericardium were found just in their normal position and not pushed to the right, as was expected. Pericardium contained about 400 c. c. of straw-colored fluid. Heart was small, fatty, in diastole, and contained no clots. Valves normal and competent. Lungs: Very little was

found of the left—only a small tubercular mass about the size of an orange was seen in the upper back part of the pleural cavity; the latter contained some offensive pus; the serous membranes were thickened and covered with flakes of lymph. The right lung was large and heavy, congested posteriorly, and studded with tubercle. A few small cavities existed; capacity about 5 c. c. A few adhesions existed in right pleural cavity. Kidneys: Both smaller than normal; seemed to be affected with interstitial inflammation. Tuberculous deposits found in numerous places on surface and interior of kidneys. Spleen slightly enlarged. Other organs seemed normal.

G. T. V.

CASE 23.

F. C.; aged 45 years; nativity, Texas; admitted to the United States Marine Hospital, San Francisco, Cal., August 9; died at 12.10 a. m. on November 30, 1895.

History.—On admission he complained of cough, night sweats, loss of appetite, and emaciation of four months' duration. Physical examination revealed equal expansion on both sides of chest, slight dullness of both apices, extending into the infra-clavicular region on the left side. There was pleuritic thickening over the outer half of the right lung. A friction sound was heard in the same region. Treatment was instituted for night sweats, cough, and occasionally for constipation. As the disease progressed hæmorrhages occurred—first from the nose, then from the lungs. Hæmoptysis became so frequent and so profuse that on November 29 the patient sank rapidly and died early the next morning.

Necropsy (ten hours after death).—Heart normal. Pleuritic adhesions on the left side. The left lung was in a state of tuberculous consolidation, except for the occurrence of cavities at the apex and near the center. The lung floated in water. Apex of the right lung filled with tubercle; the base was slightly infected. Small quantity of fluid in the peritoneal cavity. Liver enlarged and of nutmeg appearance. Kidneys normal.

J. B. C.
J. G.

CASE 24.

S. Y.; aged 42 years; nativity, Norway; admitted to United States Marine Hospital, Chicago, Ill., September 4, 1894; died August 24, 1895.

History.—One sister died of consumption; two sisters, older than patient, living and well. At 25 years of age he was supposed to have consumption, was confined to bed many months (in Norway), but recovered and has been at his work ever since. He has had cough throughout many winters since. He was in this hospital July 17 to August 4, 1894; requested his discharge, but was obliged to return. There had been night sweats, slight hæmoptysis, progressive loss of weight and strength. Left chest contracted, and its movements in respiration limited. Dullness over whole left chest, some mucous and sibilant râles; prolonged expiration; tubular respiration. Subcrepitant râles at right apex. Slight pulmonary hœmorrhage in June, 1895.

Necropsy.—Pericardial sac contained 50 c. c. fluid. Heart weighed 280 grams; apparently normal. Left pleural cavity obliterated by strong adhesions; right contained adhesions at apex, and posteriorly. Left lung, 610 grams; right, 880 grams. Several vomicæ were ruptured in removing left lung, which was nowhere crepitant, but consisted entirely of vomicæ and masses of tubercle. Right lung was crepitant; contained one cavity at apex, and miliary tubercle throughout. Liver weighed 830 grams and appeared normal. Kidneys: Left, 180 grams; right, 160 grams; presented nothing abnormal. Spleen, 250 grams; normal. Other organs not examined.

S. D. B.
J. B. H.

CASE 25.

T. O.; aged 36 years; nativity, Norway; admitted to the United States Marine Hospital, San Francisco, Cal., March 27; died, July 25, 1895.

History.—Patient complained of cough, dyspnœa, pain in chest, night sweats, loss of appetite, and emaciation. His trouble began in July of last year as a sequence to a cold, and had been getting worse ever since. On examination, body was found emaciated, respiration rapid, chest flat, with expansion decreased, but equal on both sides. Bronchial breathing was heard over the greater part of right lung. Coarse moist râles were heard in the left infra-clavicular and axillary spaces. Diagnosis was made of tuberculosis of both lungs, more advanced in the left. Creosote was given him in advancing doses, and for a time he improved. Patient was troubled with diarrhœa at times. Night sweats and chills continued, the patient growing gradually worse. Bronchial breathing extended all over chest, accompanied by moist râles. Dyspnœa increased, heart grew rapid and feeble. Patient died July 25, 5.20 a. m.

Necropsy (nine hours after death).—Body found emaciated. Heart was small, but both the aortic and mitral valves competent. The right pleura and lung were adherent to the chest wall. The left pleura and lung also adherent to chest wall. Both lungs were studded with tubercle, and contained many small cavities. Liver was normal in size, but fatty. The mesenteric and retroperitoneal glands were enlarged and indurated. Both kidneys were small and pale. The cortex was equally thin in both.

G. S. N.
J. G.

CASE 26.

Kidneys.

E. M.; aged 34; nativity, Ireland; admitted to the marine ward, Cleveland City Hospital, Cleveland, Ohio, August 27; died November 11, 1895.

History.—Patient entered hospital complaining of pains in the loins; and albumen was found in the urine. He coughed scarcely any, but physical signs pointed to disease of the lungs, and after repeated examinations tubercle bacilli were found in the sputum. He was treated with the ordinary remedies.

Necropsy (twenty hours after death).—Rigor mortis absent. Emaciation extreme. The pericardium contained 10 c. c. of clear serum; no pericardial adhesions. The heart weighed 330 grams, and showed a relative hypertrophy of the left ventricle; the valves appeared normal. The right pleural cavity was entirely obliterated by old adhesions, these being so strong at the apex that the lung was torn at this point in removal. The right lung weighed 640 grams, the left weighed 920 grams. The right lung contained a tubercular cavity at the apex about the size of a walnut, and was filled with a tubercular deposit throughout its upper two-thirds. There was much new fibrous tissue, which creaked under the knife, showing the chronic character of the disease. The base of this lung was œdematous. The left lung was surrounded by adhesions also, but not to the same extent as the right. This lung showed much the same condition as the other, though not as far advanced. The liver weighed 1,470 grams, and was of the "nutmeg" variety, showing chronic, venous congestion. The spleen weighed 260 grams, and while somewhat congested was not strikingly abnormal. The left kidney weighed 210 grams, and it was considerably congested in the pyramids, but paler between them and in the cortex. One small spot of tubercular disease was found. The right kidney weighed 440 grams; its capsule was entirely destroyed, and it was almost black on the surface. Upon section, the entire kidney was found to be disorganized by tubercular deposit of a cheesy nature, and very little kidney tissue could

be discerned. The suprarenal capsule was very large. Both ureters were enormously dilated, filled with purulent material, and at places almost blocked with a calcareous substance. The bladder walls were greatly thickened, and the same purulent contents were found. The brain weighed 1,225 grams, and was normal with the exception of a few slight adhesions on the surface.

R. M. W.

CASE 27.

Intestines—Peritonitis.

T. C.; aged 45 years; nativity, Ireland; admitted to United States Marine Hospital, Chicago, Ill., August 9; died November 11, 1895.

History.—He was also under treatment at this hospital from December 5, 1894, to July 22, 1895. At the outset there was apparently an attack of pneumonia, affecting the left upper lobe. There was the characteristic sharp fall of temperature, diminution of respiration, and improvement in general condition, but the consolidation remained. Later, symptoms suggestive of tuberculosis gradually made their appearance. The sputum was frequently examined, but tubercle bacilli were not found until January 22, 1895. The last three weeks of life the disease extended into larynx and pharynx, and two days before death signs of peritonitis were manifest.

Necropsy.—Pericardial sac contained 15 c. c. clear fluid. Heart apparently normal; weight, 240 grams. Slight evidence of atheroma in thoracic aorta. Fine ulcerations throughout larynx and trachea. Left pleural cavity obliterated by strong adhesions; lung torn in removal. Right pleural cavity, adhesions over upper lobe. In left lung there was crepitation only at margins of lower lobe; upper lobe a mass of vomicæ; lower lobe solid with tubercle. Upper lobe on right also solid with tubercle, middle and lower lobes crepitant, but contained scattered tubercle; weight of left lung, 830 grams; right, 800 grams. Abdomen contained 700 c. c. turbid yellow fluid. General peritonitis, slight adhesions all through abdomen, a fibrinous layer over whole peritoneum. Several deep red areas on intestines as if perforation imminent. Stomach normal. In small intestines, very many deep, usually transverse, ulcers, a few on the verge of perforation. Large intestine and rectum normal. Liver fatty; reddish gray color; weight, 2,120 grams. Kidneys normal; left, 160 grams; right, 150 grams. Spleen normal appearance, 370 grams.

S. D. B.
J. B. H.

CASE 28.

G. V. B.; aged 46; nativity, South Carolina; ordinary seaman; admitted to marine ward, St. Francis Xavier Infirmary, Charleston, S. C., May 19; died June 13, 1896.

History.—Mother died of phthisis. The patient was ill six months prior to admission to hospital, the symptoms being cough, loss of flesh and appetite. During the last two months his cough has been more troublesome and he has shown the usual symptoms of acute tuberculosis, rapid wasting, fever, insomnia, loss of appetite, and cough. There was considerable dyspnœa on exertion. No hæmoptysis. Slight dullness was noticed on percussion at the apex of each lung. Other portions of the lungs were hyperresonant. Heart sounds weak, otherwise normal. The temperature ranged from 38° C. to 40° C.

Necropsy.—The body was emaciated, showing marked depressions over the clavicles. Heart small and flabby; no pathological appearances. Cavities at apices of lungs size of hen's egg, and in these portions of the lungs cheesy and fibroid changes, showing the chronic character of the original disease. Throughout other

portions of the lungs miliary tubercles more thickly distributed. There was considerable redness throughout the lung tissue from congestion. The other organs presented a normal appearance. There was a diverticulum with bifurcated extremity extending from the side of the ileum.

P. C. K.

CASE 29.

T. C.; aged 45 years; nativity, England; admitted to the marine ward, Cleveland City Hospital, Cleveland, Ohio, December 7; died December 10, 1895.

History.—Patient was only in hospital three days, and was delirious a good part of that time, so that the history was indefinite. He claimed, however, to have worked up to the day before entering hospital. There was very little cough, and no expectoration. The physical signs were of no particular significance. The patient was fed and stimulated, at first by the mouth, later on by the rectum.

Necropsy (twenty hours after death).—Rigor mortis slight. The heart weighed 250 grams, showing general atrophy. The valves were normal. The pericardium was obliterated by recent adhesions, most marked on the anterior surface; at one point there was a small calcareous patch. The left lung weighed 750 grams. It was very dark and congested, and the bronchi were filled with mucus. There were several small isolated spots of a cheesy character, evidently tubercular. The left pleural cavity contained a few adhesions at the apex. The right lung weighed 550 grams and was of much the same character as the left, but contained no cheesy spots. The right pleural cavity contained no adhesions and had 5 c. c. of clear serum in it. The liver weighed 1,050 grams, and, aside from slight congestion, was normal. The spleen weighed 275 grams; normal. The left kidney weighed 140 grams, the right 130 grams; both normal. The bladder contained about 25 c. c. urine; normal. There was nothing abnormal about the stomach, intestines, or pancreas. The membranes of the brain showed a number of slight recent adhesions, and their vessels were very much engorged, indicating meningitis, which caused the delirium during the last few days of his illness. There was a large amount of fluid in the cranial cavity and in the ventricles; and the punctæ hæmorrhagicæ were unduly prominent. The brain weighed 1,210 grams. Altogether there was little found to account for his physical condition when he entered hospital, which indicated a wasting disease of an essentially chronic nature.

R. M. W.

CASE 30.

J. J.; aged 21 years; nativity, Canada; admitted to the United States Marine Hospital at Chicago, Ill., March 11; died May 25, 1896, at 11.45 p. m.

History.—Had been sick for about two years, with the usual symptoms of pulmonary tuberculosis. Had no digestive disturbance nor symptoms of renal disease. Physical examination of chest showed both lungs to be involved, the condition of the left being worse than the right. Indications of considerable excavation near the apex in upper lobe. Disease made rapid progress, and patient grew weaker, notwithstanding generous diet and stimulative measures. Was only confined to bed for a few hours before death.

Necropsy (twelve hours after death).—Body much emaciated and exsanguinated. Both lungs riddled with tuberculous cavities; several comparatively large ones in upper left lobe. Entire left lung and upper lobes of right lung carnified; lower lobe of right lung the seat of hypostatic congestion; left pleural cavity obliterated by organized adhesions, and numerous adhesions of layers of right pleura, the cavity of which contained a small amount of turbid (nonpurulent) fluid. Kidneys large and corticle substance thin. Hypostatic congestion of liver. Other organs examined were found normal in appearance.

C. H. G.
J. B. H.

CASE 31.

E. M.; aged 32 years; nativity, Norway; admitted to the United States Marine Hospital, San Francisco, Cal., November 14, 1895; died January 19, 1896.

History.—Patient readmitted November 14. Had been in the hospital twice before under a diagnosis of tubercle of lung. He returned to the hospital complaining of failing condition of health. Physical examination showed a fairly well-nourished body. On auscultation, broncho-vesicular breathing over both apices and infraclavicular spaces, probably more marked on the left side. Diffused broncho-vesicular breathing over both lungs. Marked dullness over both apices and infraclavicular spaces and slight decrease in resonance over the left lung. Chest moved about the same on both sides. Vocal fremitus increased on both sides. Stomach weak and bowels not regular. The diagnosis of general tubercular involvement of both lungs was made. Patient improved for some time and then rapidly sank and died January 19, 1896.

Necropsy (twenty-two hours after death).—Body emaciated. The left lung and pleura were adherent to the chest wall at the apex. The left lung weighed 1,370 grams and was studded with tubercle and riddled with cavities. The right pleura and lung were adherent to chest wall anteriorly and posteriorly. The right lung weighed 1,350 grams and was similar in condition to the left. The pericardium contained about 100 c. c. of fluid. The heart flabby and right ventricle dilated. Valves normal. The liver was enlarged and congested, weighing 2,560 grams. The spleen was enlarged, weighing 600 grams. The suprarenal capsules were enlarged and hardened. Both kidneys were small and contracted.

G. S. N.
J. G.

CASE 32.

H. W.; aged 26 years; nativity, Germany; admitted to the United States Marine Hospital, San Francisco, Cal., April 2, 1895; died January 18, 1896.

History.—Patient came to the hospital complaining of cough, pain in chest, emaciation and frequent hæmorrhages from the lungs. Examination showed less expansion of left chest. On palpation found that vocal fremitus increased on the left side. On percussion found dullness uniformly over the left lung from apex to base. On auscultation found moist râles over apex of right lung; harsh breathing sounds all over the right lung; on left side normal breathing sounds were absent. The diagnosis of tubercular involvement of both lungs was made. On April 20, 1895, patient had a hæmorrhage from the lung. Constant pain in the left breast was present throughout his sickness. The heart would at times get very weak, accompanied by moderate degree of fever. He gradually declined and died January 18, 1896.

Necropsy (nine hours after death).—Body emaciated. The left pleura was adherent to the chest wall anteriorly. The left lung was small and fibroid, and only a vestige left, about 7 cm. in diameter, attached to the vertebræ posteriorly. The right pleura adherent to the chest wall anteriorly. The right lung contained several small cavities in its apex, and several in posterior part of lung. Both kidneys were congested. Spleen normal. The heart muscles thin and the right side dilated. Valves normal. Liver congested and fatty.

G. S. N
J. G.

CASE 33.

C. B.; aged 43 years; nativity, Finland; admitted to the United States Marine Hospital, San Francisco, April 11, died November 11, 1895.

History.—Patient had been sick for four months, during which time had suffered from cough, dyspnœa, emaciation, fever, and night sweats. Examination

showed an emaciated body, with depressions in supraclavicular fossæ. Expansion of chest about equal on both sides. Percussion showed dullness at both apices and in the right infraclavicular region. Auscultation showed bronchial breathing over apices and right infraclavicular fossa. Sibilant râles, after coughing, over apices. Harsh breathing over greater part of left lung; slight tubercular deposit in both lungs was evidently the trouble. Would complain of chills at night, which were favorably influenced by quinine sulphate. June 20 found the patient's general health improved. The right lung was somewhat more impaired. Lesion in lung did not seem to pass beyond stage of infiltration. Breath note on right side of upper lobe feeble. On September 18 patient was taken with diarrhœa, which was not improved with ordinary drugs. Tubercular ulcers of intestines suspected. Had pain in abdomen, accompanied by flatulence. Patient grew rapidly weaker, and died November 11, at 12.50 a. m.

Necropsy (eleven hours after death).—Body emaciated. The right lung and pleura were adherent to the chest wall at the apex posteriorly. The left lung and pleura were adherent to the chest wall in their entire extent. The right lung was in a state of general tubercular infiltration, and contained two large cavities. The left lung contained three large cavities; the larger, situated at the apex, had a capacity of about 150 c. c. The lung was in a state of tubercular consolidation at the base, and infiltrated with tubercles. The heart was normal. The right kidney occupied a position over the fifth lumbar vertebræ anteriorly, the hilum pointing to the right iliac fossa. The kidney was indented by vertebræ and was shorter and thicker than normal. The renal artery was given off near the bifurcation of the internal iliac artery, and was its first branch. The left common iliac artery lay under the fundus of the kidney. The right common iliac artery lay superficial to the kidney. The kidney structure was pale and fatty; the capsule not adherent. The left kidney larger than normal, and had same appearance on section as the right. The descending colon ulcerated, and there were numerous ulcers, with undermined edges. Found other organs normal.

G. S. N.
J. G.

CASE 34.

J. K.; aged 49 years; nativity, Ireland; admitted to the United States Marine Hospital, San Francisco, Cal., October 15, 1894; died July 14, 1895.

History.—Three days before entrance to the hospital patient received a fall; the right groin and testicle were struck against the sharp edge of a board. On examination right testicle found to be three times as large as normal, very painful, and reddened; also considerable swelling extending along the cord, attended with severe pain; no hernia found; slight fever present; no history of gonorrhœa obtained. The patient was put to bed and the usual treatment given, the testicle increasing in size for a few days, then gradually decreasing until on November 6 the swelling and pain had so far decreased that he was allowed to be up during the day. On November 27 a small fluctuating tumor was noticed on the right side of the scrotum. Incision into the cavity was made, pus removed, and the cavity packed with gauze. Pus continued to escape, and wound was kept open and drained. On January 31 a small accumulation of clear fluid in the tunica vaginalis was evacuated with trocar. Old wound still continued to discharge pus. On February 9 patient had fever and pain on left side under the shoulder blade, but no cough. Fever continued and was intermittent in type, but pain on left side disappeared. Some enlargement of the liver present, but no tenderness. Testicle at this time was soft and the two sinuses still discharging a thin pus. The lungs were examined, and fine crepitant râles over the right apex found, but no cough. On February 19 patient's lower extremities were œdematous, heart beat feeble, but no adventitious heart sounds. Shortly after patient became feverish, weak,

and perspired freely, appetite poor, tongue coated and flabby. On February 25 patient decided to submit to the removal of diseased testicle. General condition unaltered. Under chloroform, castration done on right side. Testicle found to be in good condition, but the epididymis diseased and undergoing caseous degeneration. Patient stopped breathing during the operation (when the cord was ligated), restoratives and artificial respiration were resorted to, and the patient came out all right. Cord tied "en bloc." After the operation patient was a little worse, but picked up in a few days. Night sweats stopped, the wound uniting by first intention. Slight drainage was thought to be necessary, and small tube was inserted, but removed in a few days to be replaced by gauze. A small communicating sinus was subsequently opened and packed. Point of tenderness and pain to the left and below the angle of the left scapula. Lungs were again examined and bronchial breathing heard, but still no dullness on percussion. On July 5 chest again examined. Deficient expansion on the right side noticeable. On percussion, impaired resonance over the right lung. Auscultation diminished breathing sounds on right side. Bronchial and vesicular murmur harsh, and small moist râles, giving a suspicion of tuberculosis of the lung. After examination patient went to bed complaining of headache and weakness, no pain anywhere. The next day, July 7, the patient was delirious, heart weak, temperature below normal. Stimulants were given. On the 8th a small needle was pushed into the pleura on the right side and about 2 c. c. of serous fluid withdrawn. Later an attempt made to aspirate, but no fluid could be withdrawn. Patient declined nutriment; speech incoherent and irrational. On the 10th the patient's mind still impaired; fæces and urine passed in bed; pulse very weak. On the 13th patient in same condition; has taken no medicine for some days; nourishment and stimulants had little effect; heart failing rapidly. On July 1 at 1.20 a. m. patient died.

Necropsy (thirty-four hours after death).—Body emaciated; the heart muscles found flabby and soft; the ventricular walls thin and friable; left auricle considerably dilated; all the heart valves were competent. The right pleura had organized adhesions in its entire extent; the right lung found markedly congested and thickly studded with tubercle, and contained numerous small cavities. The left pleura was adherent to the posterior thoracic wall, and lung infiltrated with tubercle, but to a much slighter degree than the right. A small amount of excretion from right lung was preserved and prepared for microscopical examination. Tubercle bacilli found; the spleen was normal; the liver fatty, but of normal size; the cortex of both kidneys very thin; two large calcareous mesentery glands found; the walls of the bladder thick and hard.

G. S. H.
J. G.

CASE 35.

Larynx—Pericarditis.

E. B. (colored); age, 30 years; nativity, Tennessee; admitted to United States Marine Hospital, St. Louis, Mo., November 2; died December 13, 1895.

History.—Patient had had a cough for a number of months; hæmoptysis in August, 1895. On admission there was high temperature, rapid and weak pulse, consolidation of left lung, profuse expectoration, husky voice. Voice soon entirely lost. At 7.15 p. m., December 13, a profuse hæmorrhage from the lungs occurred and he died at once.

Necropsy.—Emaciated; pericardial sac obliterated by adhesions; heart, 255 grams; pale; valves competent; walls thin, and cavities small. Thoracic and abdominal aorta negative; larynx and trachea covered with fine ulcerations; both pleural cavities were the seat of firm, general adhesions; left lung, 1,470 grams;

nowhere crepitant, entirely tubercle and vomicæ; right lung, 430 grams; crepitant; contained miliary tubercle, especially in upper lobe. Abdominal cavity and intestines negative; liver pale, fatty; 1,830 grams; kidneys negative; left, 165 grams; right, 150 grams; spleen, 190 grams; soft.

S. D. B.

CASE 36.

Cirrhosis of liver.

C. W.; aged 63 years; nativity, Finland; admitted to the United States Marine Hospital, San Francisco, Cal., January 20; died April 27, 1896.

History.—Returned to the hospital complaining of dyspnœa, pain in abdomen, loss of appetite, weakness, and headache. Was in the hospital in 1895, having ci rhosis of the liver with ascites and œdema. Physical examination showed an emaciated figure. Heart slow, but fairly good; some increase in area of cardiac dullness. Has some bronchial trouble, and lungs not normal at present time. Liver dullness; normal. On palpation, find great sensitiveness in epigastric region. Tumor about 10 cm. long and 5 cm. wide felt in this region. Pressure on the tumor causes nausea. Some trace of bile found in the urine. Cachexia and history of vomiting of blood points toward a complication of carcinoma of stomach with cirrhosis of liver. On February 9 he was improved, less headache and vomiting, but great weakness still present. Bile in urine more marked. On March 26 about same condition found. On April 20 fluid in the peritoneal cavity was detected. From this time on fluid rapidly accumulated. On April 26 sudden failure of strength noted. Death on April 27, 1896.

Necropsy (sixteen hours after death).—Adhesions of the pleura at the base of the right lung. Hypostatic congestion of both lungs. The apex of the right lung contained a cavity with a capacity of about 15 c. c. Tubercular involvement of the apex of the right lung. The pericardium was filled with fluid. The heart was fatty and small. The liver was small and had a well-marked hobnail appearance. The peritoneum contained a large amount of fluid. The spleen was large and pale. The kidneys were small and cortex thin. The mucous membrane of the stomach markedly congested. The stomach filled with clotted blood.

G. S. N.
J. G.

CASE 37.

S. O.; aged 36 years; nativity, Norway; admitted to the United States Marine Hospital, San Francisco, Cal., April 18; died May 8, 1896, at 4.30 a. m.

History.—On entrance he gave a history of having contracted a severe cold about five months previous. This was followed by cough, profuse expectoration, night sweats, loss of appetite, and a general emaciation. His voice soon became affected and he was unable to speak above a whisper. These symptoms gradually grew more severe until the patient finally died.

Necropsy (six hours after death).—The pericardium contained considerable fluid, and the heart was small and flabby. The valves were not affected. The bronchial glands were enlarged and the lungs presented extensive adhesions. There were large cavities at the apices and a cavity near the base of each lung. The tissue itself was studded with tubercles. The liver was enlarged and greatly congested; the spleen normal. Kidneys: The right weighed 245 grams; was 15 cm. long, 5 cm. wide. It was very soft and pale, and the pelvis was greatly dilated and full of urine, and contained about eight renal calculi. The left kidney was the same size and weight as the right, but its substance was much firmer.

N. M. N.
J. G.

CASE 38.

T. L. (colored); aged 28 years; nativity, Minnesota; admitted to United States Marine Hospital, St. Louis, Mo., May 8; died September 2, 1895.

History.—Father died from alcoholism, mother from consumption. Previous health good. Present illness began about three weeks ago with pains in the chest, cough, expectoration tinged with blood, and shortness of breath on slight exertion. Examination of the chest shows a cavity near the apex of the right lung; dullness on percussion over left apex, and moist râles over both lungs. Tubercle bacilli were found in the sputum. This case was progressive, with rapid emaciation. Severe hemorrhages from the lungs occurred on June 4, 5, July 3, 6, 7, 8, 24, August 15, and September 1, and he died on September 2.

Necropsy (seventeen hours after death).—Rigor mortis present. Body emaciated. Brain not examined. Chest, numerous pleuritic adhesions found on both sides; most marked on right; right lung has a tubercular cavity the size of an orange in the upper lobe near the apex, and scattered throughout the middle and lower lobes are numerous small cavities and deposits of tubercle; left lung small, flattened, fibroid in lower lobe; small cavities and tubercular infiltration in upper lobe; heart medium in size and valves normal. Abdomen: Stomach contracted, otherwise normal; liver large, nutmeg in appearance and upper and posterior surfaces attached to surrounding structures by firm adhesions; gall bladder contracted and ducts patulous; pancreas small and firm in texture; intestines normal; spleen large, congested, and texture softened; mesenteric glands enlarged; omentum wasted; right kidney pale, otherwise normal; left kidney larger than its fellow, capsule adherent and cortical structures increased in volume; bladder normal. Weight of viscera: Right lung, 1,380 grams; left lung, 900; liver, 1,870; spleen, 570; pancreas, 40; heart, 265; right suprarenal capsule, 9; left, 5; right kidney, 180; left kidney, 190.

D. A. C.

CASE 39.

Atheroma.

W. H. H. (colored); aged 50 years; nativity, Missouri; admitted to United States Marine Hospital, St. Louis, Mo., September 30; died October 1, 1895.

History.—Stated he was in good health until six weeks before admission, but admitted a slight cough for five months, loss of flesh, and occasional œdema at ankles, very feeble and emaciated on admission; moderate cough; dullness over upper lobe of left lung, and bronchial respiration; coarse râles over both lungs, posteriorly, heart weak; urine negative.

Necropsy.—Pericardial sac normal; heart, 330 grams; valves, competent; atheromatous plaques along thoracic and abdominal aorta. Left pleural cavity contained very dense, universal adhesions; right, slight adhesions at apex; left lung, 1,995 grams; no crepitation; tubercle everywhere; many vomicæ; right lung, 915 grams; crepitant; limited amount of tubercle, principally in lower lobe; abdominal cavity negative; no ulceration or evidence of tubercle in intestines; liver, 1,320 grams; dark red; lobular markings indistinct from uniformity of color; pancreas, 85 grams; kidneys, left, 170 grams; right, 150 grams; normal appearance; spleen, 132 grams; negative.

S. D. B.

CASE 40.

F. S.; aged 30 years; nativity, Finland; admitted to the United States Marine Hospital, San Francisco, Cal., June 7; died October 29, 1895.

History.—Patient had been complaining of shortness of breath, cough, and night sweats for seven months before entrance to the hospital. Expectoration was scanty

at first, but lately became more copious. There was no pain in the chest. Physical examination shows a scorbutic diathesis. There was an abscess on the left forearm and signs of one on opposite forearm, and another on the right side, just above the crest of the ilium. Deficient expansion on the left side marked. Vocal fremitus marked on both sides, somewhat more on the right. Percussion gave no distinguishing indication, except on the left side, anteriorly, in the third intercostal space, after coughing, the cracked-pot sound was heard, which, however, was not permanent. Mild general tubercular involvement of the right lung in addition to cavernous state of left. Stomach in good condition. Tinkling sound in third intercostal space on left side heard. The abscesses on forearm and near ilium were opened and the cavities evacuated and dressed. On July 11 failed to elicit the cracked-pot sound. Tinkling sound was quite audible by auscultation, and loss of bronchial sounds in upper lobe of right lung and increased toward the base. General state of patient was considerably improved. Cough was persistent during the daytime. On August 3 coughing became very annoying, both day and night. Sweating at night increased. On October 18 he became very weak and began to decline rapidly. October 23 found the patient delirious. While patient was asleep a large quantity of pus ran from the mouth, evidently the emptying of a large cavity. Grew rapidly worse and died October 29 at 11.10 a. m.

Necropsy (twenty-four hours after death).—Body greatly emaciated; the left lung was broken down and filled with pus; scarcely any lung tissue found; the right lung was riddled with cavities and studded with tubercle; the pleura on right side was adherent to the chest wall; the pleura on the left side could not be distinguished; the heart was small and pale; the valves were intact, however; the liver was fatty and kidneys were pale and fatty.

G. S. N.
J. G.

NOTE.—This patient took for some weeks during sickness 72 drops creosote daily without interfering with stomach, and with temporary amelioration of cough and fever.

CASE 41.

C. S.; aged 42 years; nativity, Pennsylvania; admitted to United States Marine Hospital, St. Louis, Mo., November 14, 1894; died August 7, 1895.

History.—Family history negative. He has had malarial fever and syphilis. He contracted a severe cold in April, 1894, and since that time he has been troubled with cough and ill health. Rapid improvement was made for a time under treatment, and at one time it was considered that his recovery was assured. The tubercle bacillus was repeatedly demonstrated in his sputa. After varying periods of improvement and relapse he grew gradually worse and died August 7, 1895.

Necropsy (fourteen hours after death).—Rigor mortis present. Body much emaciated. Brain not examined. Chest: Numerous pleuritic adhesions on both sides; right lung removed with difficulty, owing to dense adhesions; tubercular cavities throughout upper lobe, remainder of lung studded with tubercular deposit and small cavities. Left lung presented several cavities in upper lobe and upper part of lower lobe. Mediastinal glands enlarged and tubercular. Pericardium: Normal amount of fluid in sac; leucomatous patch on visceral side. Heart and aorta: Atheromatous patches at base of mitral valve and in ascending portion of aorta; tricuspid, aortic, and pulmonary valves normal. Abdomen: Liver normal; omentum much wasted; mesenteric glands enlarged and tubercular; stomach normal; mucous membrane of small intestine congested; spleen large, congested, and a peculiar cartilaginous-looking spot the size of a horse-chestnut is noted at its outer border, and a large, thin spot of the same character on the posterior surface, probably old infarcts; pancreas small and wasted; left kidney very large, horseshoe

shaped, congested, but otherwise normal; right kidney very small, filled with cheesy matter (tubercle), and the ureter leading from this kidney is much thickened; bladder dilated, slightly congested at the neck, but otherwise normal. Weight of viscera: Right lung, 730 grams; left lung, 655; heart, 195; liver, 1,470; spleen, 300; pancreas, 65; right kidney, 35; left kidney, 210 grams.

D. A. C.

CASE 42.

Aneurism of thoracic aorta, transverse portion—natural cure.

J. W. R.; aged 33 years; nativity, Pennsylvania; admitted to United States Marine Hospital, St. Louis, Mo., August 14; died August 26, 1895.

History.—Father died from enteric fever; mother from apoplexy. He has had malarial fever and gonorrhœa. Was treated in this hospital for chronic bronchitis from November 23, 1894, to March 16, 1895, and discharged in good condition. In May, 1895, he contracted a severe cold and since then he has had cough, night sweats, loss of flesh, and dyspnœa. He has the physical signs of tubercle of both lungs and tubercle bacilli are found in the sputum. He also has incontinence of urine, and his penis and scrotum are excoriated from the dribbling urine, and examination reveals a tight stricture in the lower part of the penile portion of the urethra. His feet and ankles are œdematous and he has albumen in the urine. He suffers greatly from dyspnœa and expectorates large quantities of a peculiar frothy expectoration. He has never had any hæmorrhage from the lungs. The progress of the case was unfavorable, and he died from exhaustion on August 26.

Necropsy (fifteen hours after death).—Rigor mortis present. Body much emaciated. Scalp normal. Congestion of pia mater and cortex of cerebrum. Chest: Numerous pleuritic adhesions on both sides, most marked on the left; both lungs infiltrated with tubercle and numerous cavities of various sizes found scattered throughout each organ; heart small; mitral valve beady at borders; other valves normal. An aneurism of the transverse portion of the thoracic aorta was discovered which had undergone a natural cure. It was filled by laminated clot, through the center of which ran a central channel or passage for the blood current, of about the diameter of the original or normal aorta. It was 10 cm. long, 17.5 cm. in circumference, and 7.5 cm. in width. The finding of such a specimen is additional evidence in favor of distal ligation for aneurism of the transverse portion of the thoracic aorta. Abdomen: Liver, stomach, intestines, and spleen normal; right kidney was very large, capsule adherent, and scattered throughout the cortical and pyramidal portions were numerous deposits of tubercle, which in some places had softened and formed minute abscesses. The pelvis of this kidney was the seat of a tubercular pyelitis; left kidney small, wasted, and gave no evidence of tubercular deposit; bladder large, walls thickened and mucous membrane showed chronic cystitis. Weight of viscera: Brain, 1,420 grams; heart, 200; left lung, 990; right lung, 535; liver, 1,500; spleen, 165; pancreas, 40; right suprarenal capsule, 12; left, 14; right kidney, 282; left kidney, 84. The weight of the aneurism was 345 grams.

D. A. C.

CASE 43.

A. C. (colored); aged 36 years; nativity, Virginia; admitted to the United States Marine Hospital, Baltimore, Md., October 26, 1895; died February 6, 1896.

History.—Patient received an injury about ten days before he was admitted to hospital; says he fell about 4 feet, striking on back and shoulders, after which he expectorated some blood for a few days, also passed blood from urethra twice. He now has pain in abdomen constantly and coughs considerably; duration of

latter about three weeks. About the middle of November patient complained of pain in side, and had slight fever; temperature, 38.6° C.; pulse, 100. From this time on he had daily exacerbations of temperature. November 28 the following note was made: Heart apparently normal; dullness at apex of right lung, increased posteriorly; vocal fremitus increased; tubal breathing; respiratory murmur diminished and of a blowing character; rough breathing at apex of left lung; frequent spells of nausea and vomiting; severe cough, especially marked at night and early morning.

January 19, profuse hæmoptysis occurred, and from that time patient rapidly grew weaker, and died February 6, 1896, at 2 p. m.

Necropsy (twenty hours after death).—Rigor mortis marked. Body very much emaciated. Right lung: Weight, 1,440 grams; pleura adherent to sternum and extremely thickened at apex; when lung substance was incised a large cavity was found at apex; the walls of the cavity were formed of yellow, cheesy, broken-down masses, and presented small, hard, grayish stumps of ulcerated and obliterated pulmonary vessels projecting from the walls, and a small arterial branch was stretched across the cavity, apparently pervious to the blood streams. In other parts of the lung were found small cavities filled with a yellow, cheesy substance, and in some places communicating with the bronchi. Left lung: At apex pleura thickened; weight, 690 grams; when incised small, rounded nodules were found in its substance. In upper part of lung they were packed closely together, but at base they had between them highly vascular areas of lung tissue; these nodules were hard and firm to the touch, and of a bluish-gray color; in some places the center of the nodule instead of being hard was found softened and of a yellowish color (semifluid). Heart: Weight, 480 grams; walls somewhat hypertrophied, otherwise normal. Liver: Weight, 2,160 grams; apparently normal. Kidney: Right, weight, 150 grams; left, weight, 180 grams. Spleen: Weight, 120 grams.

J. F. A.
G. W. S.

CASE 44.

T. W. (colored); nativity, Virginia; aged 36 years; transferred from Philadelphia and admitted to the United States Marine Hospital, Baltimore, Md., March 14; died April 28, 1896.

History.—On admission to the Marine Hospital at Philadelphia the following history was taken: Family history, negative. Has had measles, rheumatism, gonorrhœa, and chancres. Present illness began two months before admission, when he "caught cold." Has had shortness of breath. No night sweats. Cough worse in the morning. Six weeks ago had a hæmorrhage from his lungs. Appetite poor; bowels irregular; bronchial breathing at right apex, with prolonged expiration. On admission to Marine Hospital at Baltimore patient was very much emaciated, cough severe, and night sweats very persistent. While in the hospital his temperature ranged from 36.5° C. in the morning to 39.5° C. in the afternoon. His pulse was at times 140.

April 26, two days before death, patient's temperature was frequently below normal. Feet and ankles became œdematous. On the evening of the 28th patient expectorated about 75 c. c. of blood. His pulse became weaker and death followed at about 6.35 p. m.

Necropsy (thirteen hours after death).—Rigor mortis marked. Emaciation considerable. Left lung weighed 1,380 grams; its appearance was fairly normal. At different parts of the lung an occasional tuberculous mass was felt. Right lung: Pleura was very much thickened and adherent. In the apex on section, a cavity, 350 c. c. in size, was noticed. It contained a small blood clot. This large cavity seemed to open into several smaller cavities which were filled with muco-purulent material. The wall of the large cavity seemed to be of hard, fibrous

tissue. Projecting from the wall were a number of fibrous bands, which, on examination, proved to be partially obliterated blood vessels and bronchi. The remainder of the lung was filled with an exudate. Heart: Weight, 240 grams; valves normal. Liver: Weight, 1,380 grams; surface pale and rough, a so-called "hobnailed liver." It was very resistant to the cut of the knife. Spleen: Weight, 120 grams; very dark in color. Left kidney: Weight, 180 grams; capsule not adherent; surface on section rather pale. Right kidney, same as left.

J. B. G.
G. W. S.

CASE 45.

T. S. (colored); aged 27 years; nativity, Virginia; admitted to hospital at Norfolk November 29, 1895; transferred to Marine Hospital at Baltimore January 16; died April 18, 1896.

History.—Family history, negative. When patient entered the hospital at Norfolk he had the symptoms and physical signs of pulmonary tuberculosis. Tubercle bacilli were found in sputum. Temperature ranged from 38.5° C. in the morning to 40° C. in the afternoon. Numerous small râles were heard over left chest. For some days patient suffered from nausea and vomiting. On admission to the Marine Hospital at Baltimore patient had well-developed physical signs of a cavity in the region of the left apex. Temperature ranged from normal in the morning to 39° C. in the afternoon. Cough persisted and very troublesome. Later his appetite failed and his bowels became loose. Also had night sweats. On the evening of patient's death there was no complaint at sick call and he was feeling as well as usual. One hour later patient coughed up a large quantity of blood. Death followed in about fifteen minutes.

Necropsy (thirteen hours after death).—Rigor mortis fairly well marked. Emaciation slight. Pericardial sac contained 100 c. c. clear straw-colored fluid. Heart: Weight, 240 grams; valves normal. Left lung: Weight, 780 grams; pleuritic adhesions very extensive in the region of left apex. In the apex an irregular cavity, 250 c. c. in size, was found. It was lined with pus and contained several blood clots. Several trabeculæ were seen traversing the cavity. Numerous caseous masses were observed throughout the entire lung. Right lung: Weight, 720 grams; the anterior border was found to be emphysematous. An occasional tubercle was found throughout the left lung. Spleen: Weight, 120 grams; color, dark. Right kidney: Weight, 120 grams; on section pale in color; capsule not adherent.

J. B. G.
G. W. S.

CASE 46.

J. F. (colored); aged 28 years; male; nativity, West Indies; admitted to United States Marine Hospital, Baltimore, Md., December 26, 1895; died March 5, 1896.

History.—On admission no intelligent family or previous history could be obtained. Patient has recently been shipwrecked, where the exposure was very great. Says his sickness dates from July, 1895, when he "caught cold." Recently he has lost much flesh, and has had shortness of breath, with occasional night sweats; has never spit up blood. Physical examination shows involvement of the apices of both lungs, the right more than the left. During the course of the disease the temperature ranged from 37° C. in the morning to 39° C. in the afternoon. Toward the termination the remissions were less marked. Diarrhœa finally set in, which hastened the end.

Necropsy (ten hours after death).—Rigor mortis not marked; emaciation great. Muscles on being cut appear of a dark-red color; very little adipose tissue seen. Pericardium apparently normal; sac contains a normal quantity of fluid. Heart

weighs 420 grams; valves normal. Lungs: Left pleura adherent; weighs 720 grams; partly consolidated; numerous caseous masses found here and there, especially in the apex. Right lung weighs 960 grams; pleura very adherent; extensive hæmorrhagic exudate found; caseous masses found also; in the apex a cavity the size of a walnut was found. Liver weighs 1,920 grams; consists practically of one lobe, as the left would not weigh exceeding 50 grams; extends considerably below the costal margin. Spleen weighs 240 grams. Kidneys weigh each 120 grams; capsule not adherent. Intestines apparently normal.

J. B. G.
G. W. S.

GENERAL TUBERCULOSIS.

Case 1.

F. J.; aged 33 years; nativity, Norway; admitted to marine ward of the German Hospital, Philadelphia, Pa., June 19; died September 12, 1895.

History.—Mother died of consumption. Patient had good health till twelve years ago, when he suffered for six months from dysentery, contracted on the coast of Africa. Since then he was well until three months ago, when he "took cold," and has had a cough since. Denies venereal disease. Cough is worse at night, but not very annoying, and he expectorates a little thin mucus; no nummular sputum; no blood; no night sweats; little or no loss in weight. Complains of pain in swallowing, and will only eat soft or liquid food. Patient was anæmic in appearance, but there were no signs of tuberculosis of the lungs on physical examination. A laryngoscopical examination showed inflammation of the larynx, with two or three tubercular swellings; also swelling of the tissues about the vocal cords. Treatment: Cod-liver oil and whisky, inhalation of alcohol, creosote, and chloroform, Fowler's solution of arsenic, and an occasional laxative for the constipation from which he suffered. This condition is noteworthy in the light of the necropsy. Patient did not improve, but began to lose flesh rapidly. Temperature ranged from 36.1° C. to 38° C., being almost always above normal in the evening. A week before death he complained of headache and inability to sleep. Phenacetin relieved it at first, but after a day or two it failed to do so; the pain was agonizing; the temperature reached 39° C.+; the patient became delirious, and during the last forty-eight hours of life was in a comatose condition, passing urine involuntarily.

Necropsy (eight hours after death).—Cadaveric rigidity moderate. General nourishment fair; pupils slightly dilated. Heart normal in appearance, except miliary tubercles on visceral layer of pericardium. Larynx swollen, inflamed; both ventricles filled with pus. Ulceration exposing upper part of thyroid cartilage. Epiglottis and left vocal cord also ulcerated. Mucous membrane studded with miliary tubercles, extending into the trachea. Lungs: Both pleural cavities obliterated by recent adhesions, and both lungs infiltrated with miliary tubercle; no consolidation nor cavities. Peritoneum: Several tubercular swellings on parietal layer, and smaller ones on intestines; no excess of fluid in peritoneal cavity. Intestines: Nine large ulcers in the lower part of the ileum, separated from one another by intervals varying from 5 cm. to 25 cm., were noticed, in size from 3 to 5 cm. in diameter, the long diameter being transverse to the axis of the gut, and situated opposite the attachment of the mesentery. Only the mucous membrane was destroyed. The margins of the ulcers were thick, and sometimes undermined. Two ulcers in the cæcum. These ulcers were all apparent before opening the intestines, showing from without as dark, thickened, tubercle-infiltrated patches. Small tubercles were seen in the capsules of the liver, kidneys, and spleen. Kidneys: Both congested; pelvis of right inflamed, and contained pus. Bladder dilated, but contained no tubercles apparent to the naked eye. Brain: Membranes

intensely congested; dura mater adherent to brain for about 5 cm. on each side of the longitudinal fissure, posterior to the center, due to tubercular infiltration. All the ventricles of the brain were distended with fluid, amounting to about 250 c. c. Membranes thickly studded with miliary tubercle.

G. T. V.

CASE 2.

Abscess of prostate gland.

C. H.; aged 24 years; nativity, Sweden; admitted to the United States Marine Hospital, Boston, Mass., October 21, 1895; died June 11, 1896.

History.—He contracted gonorrhœa in May, 1895. By the end of June he thought he was cured. In August discharge commenced again. In September he began to have great pain in bladder on urination, pain continuing for one or two hours afterwards. Patient appeared to improve for a time on tincture of belladonna and fluid extract of uva ursi. About October 20 he began to complain of localized pain at prostate gland; suppuration of the prostate was diagnosed; a perineal incision was made, and the suppurating gland was drained through the perineal opening, a drainage tube being introduced, reaching into the bladder; gland and bladder were then washed out daily with boric-acid solution. His general health grew gradually worse, there was a steady reduction in flesh and a slight cough, but examination of chest and sputum gave negative results. Early in December a recto-urethral fistula was made out. On the 22d of December there was a rise of temperature to 39° C.; there were pain and marked tympany over entire abdomen; several times vomited matter having appearance of bile; passed gas by perineal opening and urine by bowel; had a free action of bowels at 6.30 a. m., December 22, which gave relief for a time; repeated hypodermics of morphine were given to relieve severe abdominal pain during December 22, 23, and 24; symptoms of peritonitis partially subsided within a week; there yet remained some pain and tenderness over abdomen.

On March 3, 1896, an abscess apparently between left oblique and transversalis muscles was evacuated, properly drained, and dressed. Abscess cavity closed after several weeks. Patient continued to grow more emaciated; slight cough continued; dullness became marked over upper lobe of left lung; moist râles were heard more or less all over both lungs. On May 10 numerous tubercle bacilli were found in sputum; decline continued constant and gradual; yet he continued to take a moderate amount of nourishment. Died at 5 a. m., June 11, 1896.

Necropsy (six hours after death).—Body of medium-sized male, very much emaciated. Rigor mortis slight. Pupils dilated. Both pleuræ entirely obliterated by adhesions. Lungs: Left weighed 1,270 grams; on section completely solidified; studded with caseous masses and cavities of various sizes; upper lobe contained one cavity about the size of a small hulled walnut. Right lung weighed 885 grams; solid except in lower portion of lower lobe; upper and middle, nodular surface; on section nodular, numerous caseous masses, some broken down; lower lobe contained numerous miliary tubercles at upper portion, lower portion apparently normal. Pericardium contained 150 c. c. of clear fluid, with some flakes of lymph. Heart weighed 305 grams; mitral and aortic valves contained a few areas of atheromatous thickening; tricuspid and pulmonary negative. Peritoneal cavity empty; peritoneum was studded with numerous miliary tubercular deposits; stomach negative; small intestine contained a few miliary tubercles, and there were numerous adhesions between the loops of the intestine in the pelvis; large intestine contained a few ulcers extending transversely. Liver weighed 1,550 grams; surface studded with numerous miliary tubercles; on section it cut moderately firm; dark brownish red in color; contained some light areas. Pancreas weighed 65 grams; negative. Spleen weighed 195 grams;

capsule normal; on section brownish red, moderately firm. Kidneys: Right weighed 160 grams; capsule stripped readily; surface smooth and mottled. Section: Upper internal portion contained caseous masses the size of a hazelnut, communicating with pelvis of kidney; surface of section had numerous yellowish areas; markings distinct. Left kidney weighed 145 grams; capsule did not strip easily; appeared congested; otherwise normal. Suprarenal capsules; each weighed 10 grams; negative. Pelvic viscera were much matted together by adhesions. One loop of small intestines was bound to the right side of bladder, and a small abscess cavity containing fæcal pus existed between the gut and bladder, communicating with the former through a ruptured ulcer. On the left the sigmoid was bound to the bladder and pelvic wall, forming a second fæcal abscess, which also communicated with the gut, and was probably the source of the abscess on the abdominal wall. The bladder had enormously thickened walls, and the surface of mucous membrane was very soft and spongy. The perineal fistula opened into an irregular cavity in the prostate, and then via urethra into the bladder. On the anterior surface of rectum, 3 cm. above anus, was a fistulous opening into the prostatic abscess cavity.

A. R. Y.
H. W. A.

CASE 3.

J. B.; aged 45 years; nativity, Buenos Ayres; admitted to United States Marine Hospital, Mobile, Ala., January 1; died May 14, 1896.

History.—Patient had enjoyed good health until December 27, 1895, when he had a severe chill, followed by fever, cough, with bloody expectoration, pain in left side of chest and dyspnœa. He was very much prostrated, having traveled about 50 miles to reach the hospital. Physical examination revealed signs of consolidation of the lower lobe of left lung. There was a systolic murmur apparently connected with the mitral valve. Sputa contained considerable blood. Cough very severe. The fever began to subside on the 4th instant, and for a short time there was a gradual improvement. The consolidation, however, did not disappear and the cough did not diminish in severity. Expectoration continued profuse and bloody. Several examinations were made for tubercle bacilli, but none were found. It was thought that the circulatory disturbance kept up a congestion of the pulmonary and bronchial circulation, which accounted for the persistence of the consolidation, cough, and bloody sputa. His condition gradually grew worse, no treatment giving more than temporary relief, evening rises of temperature supervened, and death occurred on the date above mentioned.

Necropsy (nine hours after death).—Body emaciated. Slight post-mortem lividity and rigidity. Brain anæmic, but otherwise apparently normal. Upon opening the thorax the right lung was seen to be coated anteriorly with fibrin and there were firm adhesions at the apex and posteriorly. The entire lung appeared to be solidified, although there were several small crepitant areas. On section it was found to be in a state of gray hepatization and studded with miliary tubercles. The left lung was firmly adherent at all points, and in its removal was considerably lacerated. Its condition differed from that of its fellow in that it was somewhat more congested and contained more miliary tubercles. There were no cavities in either. The bronchial glands were enlarged and black as coal. The pericardium and heart were apparently normal. The liver was enlarged, dark colored, and contained numerous caseous masses about the size of peas. The mesenteric glands were enlarged and some of them were caseous. Stomach, intestines, spleen, and pancreas apparently normal.

The question naturally arises, "What was the source of the tuberculous infection?" He gave no history of illness previous to the attack of pneumonia, but from the enlarged and blackened bronchial glands it is evident that tubercle bacilli

were present in his system before the acute illness, and in all probability the conditions were then made favorable for the rapid development of miliary tubercu losis, which caused his death. That the tubercles in the lungs had not broken down may account for the failure to find the bacilli.

E. K. S.
R. D. M.

CASE 4.

H. S. (colored); aged 20 years; nativity, Mississippi; admitted to United States Marine Hospital, Evansville, Ind., February 28, 1896, with a double lobar pneumonia of six or seven days' standing and a history of not having felt well for several weeks.

Pleurisy, with effusion of moderate amount, set in as a complication on both sides, and no distinct crisis appeared. His temperature was very irregular and profuse perspiration occurred almost daily. Slight pulmonary hæmorrhages finally occurred, his cough became more troublesome, and his condition grew worse until his death, April 28, 1896.

Necropsy (fourteen hours after death).—Rigor mortis marked. General nourishment poor. Pupils equally dilated. Heart and pericardium normal. The left pleura was firmly adherent throughout its whole extent by means of a thick, white, fibrino-tuberculous membrane. Bronchial glands much enlarged and cheesy. Examination of abdominal contents shows intestines, omentum, and peritoneum firmly matted together and studded with numerous tubercles. Mesenteric glands much enlarged and cheesy. Lungs: Left lung weighed 517 grams, right 540 grams; both were deeply congested, with numerous miliary tubercles throughout their whole extent; no cavities or softened tubercles were found and the process seemed to be comparatively recent. The right pleura contained about 1½ pints of clear serum and closely adherent to the lung throughout the rest of its extent. Liver weighed 1,285 grams, apparently normal. Spleen weighed 367 grams, showing considerable enlargement and studded with numerous tubercles throughout its whole extent. Kidneys: Left weighed 153 grams, right 136 grams; both normal in appearance. Other organs not examined.

E. P.

CASE 5.

G. L.; aged 43 years; nativity, Kentucky; admitted to United States Marine Hospital, St. Louis, Mo., August 9; died September 8, 1895.

History.—Family history negative. He has had malarial fever, rheumatism, and gonorrhœa. Present illness began two weeks ago with a chill, followed by fever and severe headache. When admitted his temperature was 38.6° C., bowels constipated, tongue coated, and complained of pain over abdomen in right lumbar region. He had no cough or lung symptoms, and examination of the urine was negative. During the rest of August he did fairly well, the temperature pursuing a characteristic tubercular range, and about September 1 he became delirious. On September 6 his temperature was subnormal, left eyelid affected by ptosis, urine and fæces passed involuntarily, low, muttering delirium, offensive breath, and it was difficult to arouse him. His condition grew worse, and he died on September 8.

Necropsy (fifteen hours after death).—Rigor mortis present. Body emaciated. Head: Scalp pale. Brain: Meninges congested and cerebral cortex somewhat softer than normal; two spots of softening (evidently tubercular) were found, one in the floor of the fourth ventricle and one on the posterior surface of the cerebellar cortex, near the median fissure. Chest: Numerous pleuritic adhesions on right side; none on left. Lungs of medium size, greatly congested, and studded with tubercle; no cavities were found in either lung. Heart normal in size; base of mitral valve beady, and other valves normal. Abdomen: Stomach large, and

about the center of the greater curvature there was a thickened spot in the wall, and the mucous membrane opposite this was congested and thickened. Cardiac and pyloric orifices normal. Liver small and numerous leucomatous patches seen on the posterior surface of right lobe, and a large cicatrix on the upper border of the same lobe. The left lobe was very flat and broad, and the junction to the rest of the liver was by a very thin band of hepatic tissue. Pancreas small, but normal. Large intestine congested, most marked at cæcum; small intestine slightly congested; omentum wasted; mesenteric glands enlarged and infiltrated with tubercle. Spleen large, congested, and substance very friable. Kidneys congested, cortical substance small in amount, and tubercular deposit throughout. Bladder much contracted and walls thickened. Weight of viscera: Brain, 1,265 grams; right lung, 970; left lung, 965; heart, 250; liver, 1,850; spleen, 325; pancreas, 45; right suprarenal capsule, 10; left, 5; right kidney, 135; left, 150.

D. A. C.

ULCER OF STOMACH—ACUTE NEPHRITIS.

A. R.; aged 39 years; nativity, Sweden; admitted to St. Francis Xavier Infirmary, Charleston, S. C., June 5; died June 24, 1896.

History.—This patient was taken ill, a few days before entering the hospital, with severe epigastric pain and vomiting. On several occasions the vomited matter contained bood. There was considerable tenderness over the stomach, but no tumor could be felt. The feeling of distress after eating continued, though to much less extent after the diet was restricted. This sensation was most troublesome at night, often interfering with sleep. Two days before death the feet became swollen, the abdomen somewhat distended with fluid, and the urine contained blood.

Necropsy.—Post-mortem rigidity well marked. Slight œdema of feet and legs. Subject fairly well nourished. The heart presented nothing abnormal. The lungs were adherent to chest wall and diaphragm, the adhesions being old. In apex of left lung a few small tubercles were found. The abdominal cavity contained a large quantity of serous fluid. The kidneys were congested and the calices contained clotted blood. These organs were somewhat larger than normal. The capsules were adherent. The liver and spleen were normal in appearance. The pancreas was enlarged and quite firm on section. It was adherent to the surrounding intestines. The stomach was contracted, walls thickened, and presented at the lesser curvature a large, irregular ulcer.

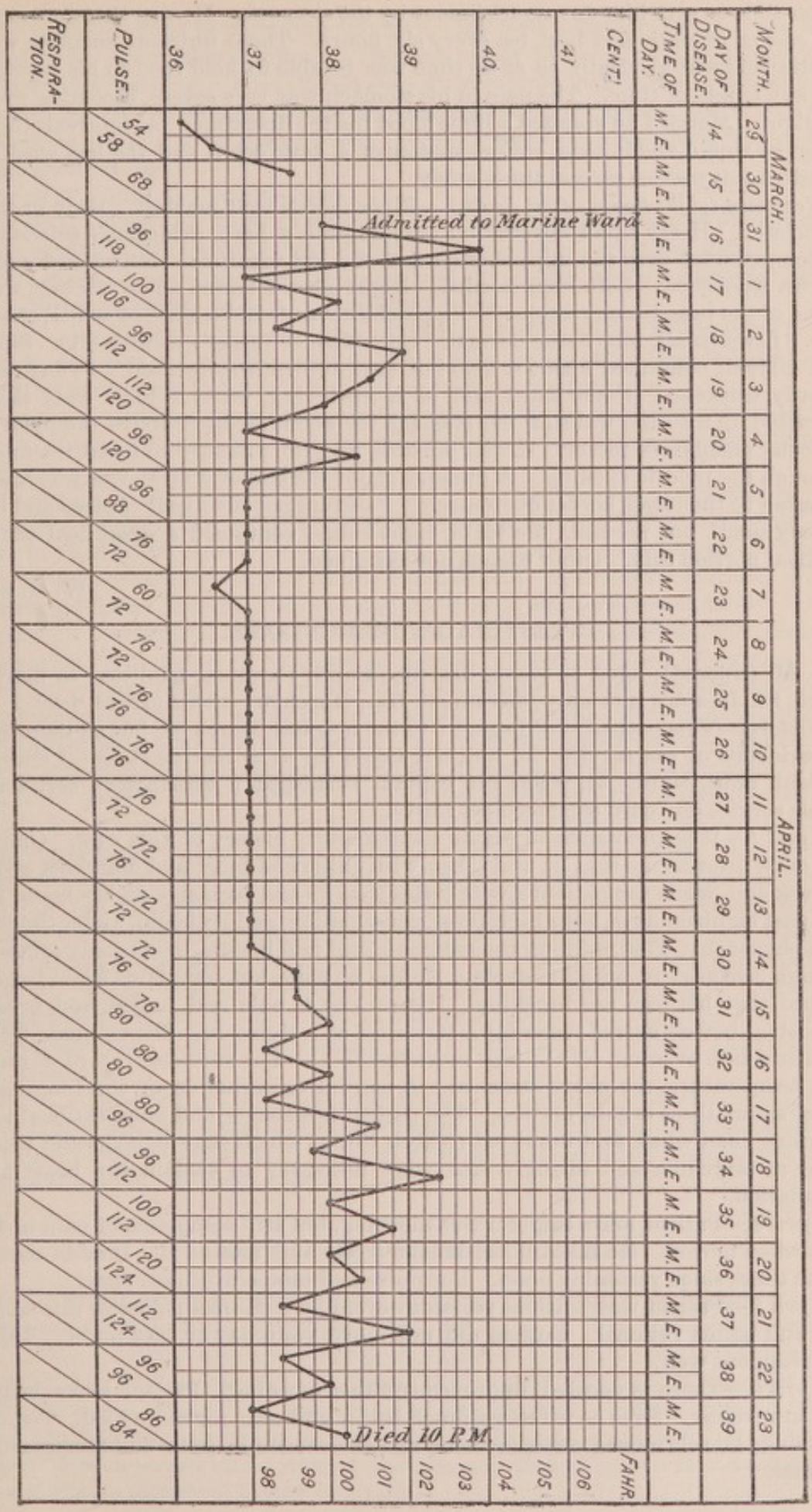
P. C. K.

STENOSIS OF PYLORUS AND ABSCESS OF LUNG.

J. L.; aged 62 years; nativity, Sweden; admitted to the United States Marine Hospital, Port Townsend, Wash., January 24; died June 5, 1896.

History.—The patient stated upon admission to the hospital that he had suffered for the past year from pains in his stomach, nausea, vomiting, and constipation. He has also had severe pain in his chest over his right lung. He had a sore on his penis forty years ago. This sore was not followed by an enlargement of the glands of the groin nor by any secondary symptoms as far as he could remember.

Physical examination.—Body not well nourished. Slight swelling noticeable over base of right lung. Dullness on percussion over right lung. Rough friction sounds heard over base of right lung. Respiratory sounds very feeble over rest of right lung. Left lung normal. Heart sounds faint. No abnormal murmurs heard over the cardiac region. Stomach dilated. Abdomen flat. No evidence of tumor, but tenderness on pressure over region of gall bladder. Tongue coated. In the second week of March the patient vomited continually, so that it was found


Month.
March.
April.
Day of Disease.
Time of Day.
Cent.
Fahr.
Respiration.
Pulse.
Admitted to Marine Ward.
Died 10 P.M.

impossible to give him any nourishment by the stomach. He was therefore given an enema of milk and beef tea every six hours. These nutrient enemeta were continued until his death, as at no time was he able to hold food in his stomach for any length of time. The pain in his stomach was very severe, becoming worse at night. March 1 he vomited a little blood for the first time. At intervals thereafter he would vomit thin, watery matter of a dark color, and the last week he vomited this matter several times a day.

Necropsy (eight hours after death).—Rigor mortis well marked. Body greatly emaciated. Heart small, covered on outside with a hard, gelatinous substance, which extended over the upper border and the left ventricle. Mitral and aortic valves thickened. Left lung normal. Right pleura bound down to chest wall. None of the lung tissue remained. In its place was found a mass of white, cheesy pus. Liver small, but tissue normal. Gall bladder full of greenish bile. Stomach dilated; contained about a quart of dark-brown, watery fluid. Pyloric end greatly thickened; tissue hard and of a glistening, white color. This tissue extended up into the walls of the stomach for about an inch above the pylorus. Mucous membrane intact. It was possible by firm pressure to force the finger through the pyloric opening. A gumma about the size of a bird's egg was found hanging to the lower border of stomach. Pancreas not involved. Spleen and left kidney small, but normal. Pelvis of right kidney contained a great deal of fat; cortical portion thin. Other organs not examined.

W. G. S.

INTESTINAL TUBERCULOSIS.

L. M. (colored); aged 32 years; nativity, South Carolina; admitted to marine ward, St. Joseph's Infirmary, Savannah, Ga., March 31; died April 23, 1896.

History.—This patient was brought to the hospital March 28, but as there was no evidence of sea service, he was not taken up as a Marine-Hospital Service patient until March 31, when his captain furnished a satisfactory certificate of his service on board steamer *Levi Davis.*

April 1.—It is impossible to obtain a satisfactory history of this case. One of the crew informs me that he was taken with chills and fever and diarrhœa about a week ago, while the patient's wife states that he had been sick at his home for the past eighteen days, with high fever, constipation, and delirium, under the care of a physician. This morning the patient is dull and listless, but is easily aroused, though confused in his statements. He has no pain, but complains when turned in bed that his legs are breaking. His tongue is pale and furred, and breath offensive; bowels moved yesterday after castor oil. Pulse, 100; fair volume. Temperature last evening, 40° C.; this morning, 37° C. For previous record of pulse and temperature, see chart attached. A careful examination of the lungs and heart shows these organs normal. The patient is stronger and more rational this morning than when first admitted (March 28), at which time hypodermic injections of strychnia and nitroglycerin were necessary to sustain the heart and circulation.

April 2.—Patient looks brighter this morning, but still complains of pain in his legs when moved. He takes nourishment freely and retains it. Bowels moved three times since yesterday noon. For pulse and temperature see chart.

April 3.—Patient was delirious yesterday evening, but is feeling better this morning and seems rational. Bowels did not move yesterday or last night. Takes nourishment well.

April 6.—There is decided improvement this morning. Patient looks bright and mind clear. Says he is feeling much better and asks for more food. Tongue cleaning; bowels moved yesterday noon and this morning; pulse and temperature normal.

April 10.—Patient continues to improve. He feels stronger, has no pain, and sleeps well. Complains of hunger. Bowels rather loose—three stools yesterday and two this morning. A small bed sore over sacrum was treated with diluted alcohol, but this morning a slough appears, which I have removed with forceps, leaving an ulcer size of pigeon's egg. Ulcer dressed with iodoform and gauze. Pulse good; no fever.

April 12.—Bowels continue loose.

April 15.—There has been no fever since last record, except two-fifths of a degree this morning. His tongue is furred and he complains of occasional griping pains in the stomach, and has from five to seven stools of thin, watery character daily. He vomited yesterday and has no appetite to-day.

April 17.—Patient not so well this morning; his tongue is thickly furred; has nausea, and vomited several times during night; no appetite; bowels very loose; five stools yesterday and five last night; one degree temperature.

April 20.—Patient growing weaker; fever continues; temperature last night, 39° C.; this morning, 38.2° C. Pulse weak and frequent—120 per minute. Bowels very loose, and moved involuntarily.

April 23.—Patient very feeble this morning; pulse frequent and almost imperceptible at wrist. The pulse, at first, improved somewhat under treatment, but later in the day the remedy was of no avail, and he quietly passed away at 10 p. m.

Necropsy (twenty hours after death).—Emaciated; rigor mortis marked; pupils contracted; heart (weight after opening), 380 grams; walls somewhat flabby; valves competent; pericardial sac and fluid normal. The lungs showed slight hypostatic congestion, but apparently otherwise normal. Right weighed 695 grams; left lung 630 grams. Both lungs were of dark slate color, floated in water, and crepitated when handled. The pleuræ were normal. Omentum somewhat congested, with slight adhesions here and there. The stomach showed catarrhal inflammation. Small intestines: The upper portion shows catarrhal inflammation, while the lower portion shows tubercular infiltration, with ulcers in the solitary follicles and in Peyer's patches. The larger ulcers were irregular in form, but in others the long diameter was transversely and characteristic of tuberculosis. Tubercular ulcers were also situated in the vicinity of the ileocæcal valve, but none were found in the large intestine. Besides the intestinal tuberculosis, there were infiltration and marked enlargement of the mesenteric lymph glands. Liver weighed 1,670 grams; increased in size, firm, and of yellow color, both externally and on section. Spleen weighed 270 grams, was enlarged, resistant, and of a grayish-brown color, not unlike the spleen in malarial fevers. The kidneys were somewhat congested. Right kidney weighed 120 grams; left, 121 grams. Other organs not examined.

NOTE.—This case had its origin, apparently, in the small intestines and mesenteric lymph glands; hence a primary disease and the source of further extension of tuberculosis over the body; not, as in most cases, a secondary disease, or a local manifestation of a general state.

J. B. S.

HÆMORRHAGE FROM LIVER.

L. C. McM.; aged 55 years; nativity, Scotland; admitted to the marine ward in Cleveland City Hospital, Cleveland, Ohio, November 3; died November 3, 1895.

History.—Patient had been feeling ill for about a month. While on the boat coming from Buffalo one night he was suddenly seized with pain in the right side, over the region of the liver, and compelled to quit work. Upon arrival in Cleveland the following morning he was transferred by ambulance to the hospital, where he soon passed into a state of collapse, and died at 5 p. m. of the same day. There was no history of injury or strain.

Necropsy (*sixteen hours after death*).—Rigor mortis very marked. Pericardial sac contained 40 c. c. clear serum. The heart weighed 360 grams and appeared normal in all respects. The pleural cavities each contained about 25 c. c. of clear serum. The lungs were œdematous at the bases, otherwise normal, the left weighing 520 grams, the right 515 grams. The peritoneal cavity contained about 500 c. c. of semiclotted venous blood. There was no sign of peritonitis. The liver was very large, weighing 4,200 grams; it had undergone fatty degeneration and infiltration to a remarkable degree, being pale and very friable. On the under surface of the right lobe, at about its center, was an oval-shaped, cupped depression about 2½ inches long by 1¼ inches broad, containing a firm clot of blood, apparently several days old. Starting near this point, a hæmorrhage had dissected its way beneath the peritoneal coat of the liver, over its anterior margin, and onto its upper surface, where it had ruptured into the peritoneal cavity. The amount of blood between the peritoneal coat and the substance of the liver was 300 or 400 c. c. The liver showed no amyloid change. The hæmorrhage did not appear to be connected with the large portal vessels, but came from the solid substance of the liver itself. It would seem from the conditions found that the blood vessels had suffered in the general degeneration of the organ, and that one of these had given way; the peritoneal coat of the liver had confined the blood so as to cause a clotting and spontaneous arrest of the hæmorrhage. After a time the bleeding must have begun again and dissected its way to the upper surface of the liver; the pressure now becoming too great, the peritoneal coat gave way, permitting the blood to enter the peritoneal cavity. The gall bladder was very small and almost empty. The spleen weighed 194 grams, and appeared normal in color and consistency. The left kidney weighed 175 grams, the right 170 grams. They had the appearance of the large white kidney and each one contained numerous cysts, varying in size from that of a hazelnut to that of a walnut, some being situated in the substance of the kidney, others beneath its capsule. They were filled with urine. The stomach and intestines were normal. The brain weighed 1,320 grams, and aside from a few recent adhesions was normal. The bladder was empty.

R. M. W.

ABSCESS OF LIVER.

K. H.; aged 33; nativity, Norway; admitted to marine ward of St. Mary's Infirmary, Galveston, Tex., March 9, 1896; died April 16, 1896.

History.—For six weeks prior to admission to hospital he had suffered from loss of appetite and strength, with occasional vomiting and progressive emaciation. On admission he was pale and anæmic, somewhat emaciated, raw-beef tongue with irregular furred patches over its surface, conjunctivæ slightly yellow. He complained of loss of appetite, sleeplessness, occasional vomiting, and sometimes slight pain over the region of the right kidney. He had no fever, and an examination of the urine showed no kidney involvement. He was treated for chronic gastric catarrh without benefit until April 4, when a sudden elevation of temperature and an increased pain in the back led to a closer examination of the liver and an aspirating needle brought out pus. On the next day the patient was chloroformed, about 2 inches of the tenth rib was removed about the posterior axillary line, the periosteum being preserved. No adhesions being formed between the thoracic wall and the underlying structures, the bottom of the wound was stitched to the liver, the sutures passing through the diaphragm. On the next day, adhesion having formed, the abscess was opened, a large amount of pus (about 200 c. c.) evacuated, and the cavity washed out, and a drainage tube inserted. The operation had only a temporary effect on the temperature, which from this time till death varied from 38.3° C. to 39.4° C.

Necropsy (*thirty hours after death*).—Body much emaciated. Liver showed a

large abscess on the under surface of right lobe posteriorly, into which the drainage tube from the incision in the side entered for a distance of 4 inches. The lower wall of this abscess was thin and was adherent to upper front aspect of right kidney and to hepatic flexure of colon. Six other abscesses, varying in size from a hen's egg to a hazelnut, were also found in the right lobe. Remaining organs normal.

G. M. M.

CIRRHOSIS OF LIVER.

Cirrhosis of kidney—Hypertrophy of heart.

Case 1.

P. H.; aged 38 years; nativity, South Carolina; admitted to St. Francis Xavier Infirmary, Charleston, S. C., March 7; died June 18, 1896.

History.—Gives a history of chronic alcohol drinking. During the early part of his residence in the hospital he suffered chiefly from dyspnœa, apparently of cardiac origin. The heart sounds were feeble, and apex beat slightly to left of nipple line. There were valvular murmurs to be heard over the mitral and aortic areas. During the month of April œdema of the ankles appeared, being followed by ascites and œdema of external genitals. The area of dullness over the liver was found to be very deficient as compared with normal. The ascitic fluid was aspirated several times and bandages applied to the lower extremities, with the result of lessening the swelling.

Necropsy.—The body was much emaciated. There was general œdema as described above. Heart: Enlarged; hypertrophy of left ventricle quite marked, with some dilatation of cavities. The mitral and aortic valves were somewhat thickened; these conditions apparently secondary and depending upon condition of liver and kidneys. There was a small amount of fluid in the pericardial sac. The wall of the ascending aorta was thick from atheroma. Lungs œdematous over entire surface; old adhesions at apices, with small cicatrices in these portions. Liver about one-half normal size; cut surface presented typical nutmeg appearance; color, yellowish brown; consistence very firm. Kidneys small, with narrowed cortex; very firm from cirrhotic change.

P. C. K.

Case 2.

W. M.; aged 47 years; nativity, Rhode Island; admitted to the United States Marine Hospital, San Francisco, Cal., September 6, 1895; died October 10, 1895, at 1.10 p. m.

History.—Three weeks before admission, after a spree, patient noticed enlargement of the abdomen. At time of admission abdomen was enormously enlarged and tense. Lungs and heart were found normal. Condition of liver could not be determined on account of enlarged and tense abdomen. Urine contained no albumen and no bile. Treatment: Heart stimulants, purgatives, and diuretics; tincture of iodine applied to skin over abdomen; dry cups over liver. On October 2 abdomen was tapped and 11,000 c. c. of fluid were withdrawn; abdomen rapidly refilled; purgatives in large doses had no effect. Appetite poor. On October 8 his mind began to wander. The pulse was weak. Stimulants ordered. Patient sank slowly until the 10th, at 1.10 p. m., when he died.

Necropsy (twenty-three hours after death).—Ulcer over external malleolus of left leg; scars of previous ulcers on both legs; ecchymosis around paracentesis puncture in subcutaneous tissue of abdominal wall; pleuritic adhesions at the right apex; hypostatic congestion of the posterior part of both lungs. Heart small and fatty; aortic valve competent; mitral valve competent; vegetations on tricuspid

valve. Peritoneal cavity filled with fluid; peritoneum congested. Liver small, external surface typically hobnailed, and substance creaked when cut; cut surface presented characteristic appearance of cirrhosis. Kidneys intensely congested; capsule stripped off readily. Spleen normal in size and consistency, but pale in color.

J. B. C.
J. G.

CASE 3.

C. J.; aged 65 years; nativity, Sweden; admitted to marine ward of St. Mary's Infirmary, Galveston, Tex., October 23; died December 13, 1895.

History.—Patient had been a hard drinker all his life. On admission, abdomen much distended from ascites, causing dyspnœa and occasional vomiting, and shortly before death there was hæmorrhage into the stomach. After tapping, the uneven surface of the liver could be felt. History of an old syphilis.

Necropsy (twelve hours after death).—Body of greatly emaciated man about 45 years old. Rigor mortis and post-mortem lividity marked. Heart: Small amount of fluid in pericardium; fatty degeneration; aortic valves thickened and infiltrated with lime salts and incompetent; other valves sclerotic, but competent. Lungs: Hypostatic congestion; no adhesions; thickened vessels (arteries) standing out on visceral pleura of right lung; several ounces of fluid in both pleural cavities, but left lung normal. Abdomen: Walls of abdomen thin, peritoneal cavity contained about 1,000 c. c. fluid. Liver small, hobnail, with one large stellate scar on right lobe. Spleen enlarged, slaty, and indurated. Kidneys contracted, with fatty infiltration of pelvis. Stomach: Chronic inflammation of mucous membrane, with ecchymotic spots; contained some partially digested blood.

W. G.

CASE 4.

Heart disease (valvular).

T. H.; aged 27 years; nativity, Ireland; admitted to the United States Marine Hospital, San Francisco, Cal., June 15; died July 4, 1895, at 5.30 p. m.

History.—Six months ago the patient noticed a swelling on the right side of the abdomen, and about the same time œdema of the ankles appeared. This œdema gradually extended over the whole body. Dyspnœa and cyanosis were distressing symptoms. At the time of admission there was general anasarca, and effusions were present in all the serous cavities. The usual remedies were used, with no effect. Occasional collapse was treated with restoratives. June 20 œdema of the lungs was first detected. Anasarca was intense; cyanosis, particularly about face and extremities. Urine was examined and found normal. Paracentesis of the abdomen was performed twice, at intervals of five days, and a small quantity of fluid was removed each time. The peritoneal cavity quickly refilled. July 4 the pericardial cavity was aspirated at about the fourth interspace and 8 c. c. of fluid was removed. The patient was in a moribund condition before this was done, and it was performed only as a last resource. Patient died suddenly at 5.30 p. m.

Necropsy (twenty hours after death).—General anasarca present. Cyanosis of face and head marked. Pericardium dilated with a large amount of sero-sanguineous fluid. There was a layer of organized fibrin covering over the visceral and parietal layers of the pericardium. Heart enlarged until it was about twice its normal size. Aortic valve incompetent. Muscular substance in good condition. Mitral valve competent. There was a small lacerated wound of the heart muscle over the upper part of the right ventricle. No blood vessel of importance was wounded. Weight of the heart was 710 grams. Left lung was held by pleuritic adhesions at the posterior part; of small size, crepitant, congested, but not markedly œdematous. In the right lung the same conditions prevailed as in the left,

except that the œdema was greater. Liver was cirrhotic throughout. The spleen was congested and firmer than normal. Kidneys were hard, congested, and capsule stripped off easily.

J. B. C.
J. G.

ABSCESS VERMIFORM APPENDIX—PERITONITIS.

R. A.; aged 26 years; nativity, Norway; admitted to the United States Marine Hospital, Chicago, Ill., January 21; died February 5, 1896, at 3.20 p. m.

History.—Patient had been having trouble with his stomach and bowels. Bowels had been very loose, having as many as three stools a day; could not retain anything on his stomach; appetite very poor. Was in hospital during December, 1895, and was operated on for hemorrhoids. There was occasionally blood passed in the stools, the blood being passed after the stool. Upon examination a distinct tumor was found in the region of the appendix vermiformis. Temperature, 39.6° C., and pulse full and strong. Abdomen very tender, painful to the touch, and considerable tympanitis. Hot fomentations of acetate of aluminium applied during the night. Next morning was operated upon. Incision made over the cæcum about 2 inches long. Peritoneum was found much inflamed. End of the colon was ulcerated and much swollen. Tumor felt behind cæcum and was drawn to one side, which was followed by a gush of foul-smelling pus. Appendix had sloughed almost entirely away. A large number of adhesions were found and broken down, except those which shut off the abdominal cavity from the abscess cavity. Wound was then flushed out with hot water and the appendix tied close up to the gut with a catgut ligature. End of appendix was then cut off. Four silkworm "secondary" sutures were inserted through the integument, fascia, muscles, and peritoneum, and the ends tied, to be drawn together later. Wound packed with iodoform gauze and dressing of same applied on outside. Patient put to bed. Vomited several times during the day; could retain nothing in his stomach; complained of much pain all over abdomen. Tympanitis marked. Tongue dry and great thirst; vomited again about midnight; some bile mixed with vomited matter.

January 23.—Patient much emaciated; still great pain all over abdomen, and tympanitis; drinks considerable water and some milk. Diet restricted. Dressed wound; looked very well; slight fecal discharge. Repacked with iodoform gauze after flushing with hot water. Temperature dropped slightly. Moved bowels with an enema.

January 24.—Patient about the same; dressed wound and found it about the same. Throws up everything taken into stomach except water; solution carbolic acid every three hours; vomited first three doses, but retained all after that. Bowels again moved by enema.

January 25.—Temperature, 37° C. Vomiting ceased; can retain little milk. Wound dressed, and looked well. Still complains of much pain in abdomen; not much tympanitis.

January 26.—No change for the better. Vomited some. Bowels moved spontaneously. Takes a little nourishment of milk and soup. Much pain in abdomen, extending up to nipples. Applied hot clothes to abdomen. Wound dressed in usual manner, and looks very well.

January 27.—Patient about same; no vomiting.

January 28.—Emulsion of turpentine given, but could not retain it; produced protracted vomiting; vomit mixed with bile. Wound same as yesterday; bowels very loose; move about every fifteen minutes. Gave pil. opii, one every two hours. Hypodermic of morphine to relieve pain.

January 29.—Tympanitis increased, apparently caused by opiates; stopped them

and applied cold-water coil over abdomen, and gave codeine, hypodermatically. This relieved the pain to a considerable extent. Gave powder of phenacetin and sulphonal to produce sleep, but he slept very little; in great pain all night. Takes but little nourishment, mostly milk and broth. Wound dressed. There appeared to be a fœcal fistula, which is discharging. Gauze packing is stained with fœcal matter. Feels better after being dressed.

January 30.—Patient seems a little better to-day. Wound looks well.

January 31.—But little change; gave whisky and milk, but will take only a small quantity.

February 1.—Patient delirious most of the time; bowels very loose, and still much pain. Hypodermics of codeine given quite frequently during the day and night, with little effect.

February 2.—No change for the better.

February 3.—About the same.

February 4.—Patient more delirious. Glands in neck and front of ear on right side commenced to swell, indicating septicæmia. Patient surrounded by hot-water bags. Hot poultices applied to face and neck.

February 5.—Patient very delirious; began to sink last night about 9 p. m.; gave hypodermics of brandy, and patient rallied. Took some nourishment by mouth, and enemas of beef tea and brandy given. Patient died at 3.20 p. m.

Necropsy (twenty hours after death).—Rigor mortis well marked. Body emaciated. Wound in right inguinal region explored. Coils of ileum matted together about the ileo-cæcal valve. Both large and small intestines in this region infiltrated and thickened and signs of local peritonitis. Perforation of small intestines near valve, and tissue of same much thickened and friable. Retroperitoneal tissues involved very slightly, but no large cavity found. Right kidney showed slight pyelitis, but parenchyma appeared normal. Other organs not examined.

C. H. G.
J. B. H.

PERITONITIS PURULENT.

A. H.; aged 25 years; nativity, Finland; admitted to marine ward, St. Vincent Hospital, Portland, Oreg., January 21; died January 22, 1896.

History.—Thirty-six hours previous to his admission the patient, while engaged in loading lumber, was struck on the abdomen by a large board. He immediately experienced severe pain, and was faint and weak; however, he did not call a physician, but laid in his bunk, resting comparatively easy, until nine hours had elapsed. At this time he began to vomit, and the pain increased in severity. As he was continually growing worse, the captain sent him to the hospital. I saw him immediately, and at once recognized that he was practically dying. A diagnosis of suppurative peritonitis, due to a ruptured viscus, was made, and a laparatomy was performed. When the abdomen was opened a large quantity of purulent fluid escaped, and a hurried examination of the intestines revealed a large rupture in the jejunum, 60 mm. from the duodenum, and another small rupture 1 meter from the first. As the patient was about to die on the table, the operation was hurriedly finished and the patient placed in bed. Everything, however, was unavailing, and he died twelve hours later.

Necropsy (ten hours after death).—External appearances: Body muscular and well developed; post-mortem rigidity marked. Thoracic cavity: All the viscera were normal. Abdominal cavity: The peritoneum was much injected, thickened, and œdematous. The peritoneal cavity contained about a liter of purulent fluid, and the intestines were covered with flakes of recently formed lymph. The two ruptures in the small intestine, described above in the history, were found, and no other injury to the viscera due to the blow could be detected. Liver, spleen, pancreas, and kidneys were normal. Brain not examined.

J. C. P.

GOITRE—OPERATION—SECONDARY HÆMORRHAGE.

C. H. B.; aged 20 years; nativity, Michigan; admitted to the United States Marine Hospital, Chicago, Ill., December 31, 1895; died January 13, 1896.

History.—Patient had an enlarged thyroid gland, which increased in size during the year previous to his admission to hospital. There was slight disturbance of vision and also of cardiac action; otherwise seemed perfectly healthy. On January 5 patient was anæsthetized and right lobe of thyroid removed. Nearly all tissues about the gland divided between ligatures. Adhesions were very firm to all surrounding tissues and were separated with much difficulty. Pedicle was ligated with several silk ligatures and gland removed. Profuse hæmorrhage took place from bottom of wound and several hæmostatic forceps were placed on bleeding points. Moderate hæmorrhage continued in spite of pressure and packing, and next day patient again anæsthetized and sterno-mastoid artery was tied. Hæmorrhage then ceased. Eight days later secondary hæmorrhage came on about 11.30 p. m., and much blood was lost. Hæmorrhage was checked, but patient sank, and died at 11.15 a. m.

Necropsy (twenty-one hours after death).—Much gangrenous tissue in wound. This was owing to the necessity of keeping the wound open—at first with forceps, afterwards with gauze. Wound infection followed in spite of care. No open vessel was found, owing to condition of tissues. It was evident, however, that hæmorrhage was caused by sloughing of ligated end of artery divided during operation. Post-mortem not carried further.

C. H. G.
J. B. H.

DYSENTERY—PERFORATION OF COLON.

L. P.; aged 31 years; nativity, Norway; admitted to the United States Marine Hospital, New Orleans, La., July 10, 1895; died March 19, 1896.

History.—When admitted to hospital patient was suffering from frequent evacuations of the bowels; the act of defecation was attended with severe tenesmus; the discharges consisted of feces, mucus, tissue-débris, and blood. The number of daily evacuations vacillated between ten and twenty. The temperature was intermittent, resembling the ordinary register of advanced pulmonary tuberculosis, so that tubercle of the intestines was strongly suspected. Nearly all the remedies recommended by authorities for dysentery were given a trial, but no plan of treatment seemed to exercise any palpable or permanent benefit. Hypodermatic injections of morphine afforded the greatest relief. Three weeks before death patient suffered greatly and complained constantly of pain and tenderness over entire abdomen, which was hard, tense, and tympanitic.

Necropsy (twelve hours after death).—Rigor mortis marked; emaciation extreme; abdomen tense and retracted. Heart and lungs, examined in situ, were apparently normal. The liver weighed 1,740 grams and was pale externally. Sections showed marked congestion, with fatty metamorphosis. The peritoneum, including the mesentery, presented evidences of chronic inflammation; a large quantity of yellow, fecal discharge was found in the peritoneal cavity. Extensive perforations appeared in the transverse and descending colon; the internal surface of large intestine was greatly thickened, dark blue in color, and sloughs of varying dimensions extended from cæcum to anus. The inferior portion of ileum was inflamed. Stomach normal. Spleen weighed 200 grams, was dark and pultaceous. Kidneys normal.

S. N.
H. W. S.

CHRONIC BRIGHT'S DISEASE.

Case 1.

E. B.; aged 63 years; nativity, Kentucky; admitted to the marine ward of Mercy Hospital, Pittsburg, Pa., July 10; died July 21, 1895.

History.—Renal disease for several years past. Presents a typical picture of general œdema; face puffed; abdomen distended; feet and legs immensely swollen. There is marked dyspnœa, with tumultuous heart action, and impaired cerebration. Physical examination gave evidence of general œdema in the dependent portions of the lungs, with puerile respiration in the upper lobes. Heart action 120, and irregular; radial tension reduced; a mitral regurgitant murmur, heart hypertrophied. Abdomen moderately full of ascitic fluid. The urine was of 1.005 sp. gr.; acid, and contained numerous granular tube casts. Treatment to relieve symptoms: Free incisions afforded much relief from the pain and tension in the limbs and assisted in reducing the ascites and dyspnœa. Under supporting diet and treatment there was much improvement in all symptoms, save the impaired cerebration, for several days, after which he gradually sank, dying comatose.

Necropsy (eight hours after death).—Body of an adult male (colored); 165 cm. long; emaciated; the lower limbs and scrotum œdematous, the former showing a number of partially healed incisions through the skin into the subcutaneous tissue, from the most recent of which there flowed a clear serum in considerable quantity. There were no distinguishing marks. Median incision; peritoneum thickened; cavity contained 2,000 c. c. of fluid. Intestines normal; bladder empty; right kidney small, hard, with capsule adherent to the nodular surface; a number of retention cysts on cortical surface. Incision showed a diminished cortex with other cysts; pyramids pale; much fat about the pelvis; portion retained in 10 per cent formalin. Left kidney of normal size, but of firmer consistency; surface mottled, with three retention cysts; capsule adherent and at points inseparable from cortex. In the cortex, at the superior border, there was a large cyst full (4 c. c.) of urine. Pyramids pale; fatty pelvis. Portion retained for further examination. Spleen enlarged and congested. Liver congested, veins dilated; ducts patent; gall cyst with 30 c. c. normal bile. Pericardium normal; fluid 50 c. c. Heart enlarged; left muscular hypertrophy with dilatation, the mitral leaflets not accurately closing the dilated auriculo-ventricular opening, a relative insufficiency. Right heart muscle pale and thin; cavity dilated; heart in diastole. Lungs retracted only in upper lobes; lower lobes œdematous; chronic catarrhal inflammation of the tubes; pleuræ normal; in the right cavity 100 c. c. fluid.

Microscopical examination of sections from the right kidney, stained with hæmatoxylin and eosin, gave advanced fibroid changes in the cortex; numerous malpighian bodies were dilated with retained urine; in others there was advanced destruction from fibroid changes in the tuft. In a few sections there could be found nearly normal bodies and tubules, but extensive fibroid areas, in which there was total destruction of the parenchyma, were most frequent. The epithelium of the tubes was cloudy and granular, many nuclei fragmented, and desquamated cells obliterated frequently their lumen. Sections from left kidney gave evidence of much more recent injury, the arterioles were dilated; the cortical bodies were generally choked with a deeply staining small-celled infiltration and débris of desquamated epithelium. The epithelial elements of the tubes swollen, cloudy, and granular, and most usually choking the lumen from active desquamation; hyaline casts in the tubes numerous. There were numerous small extravasations into the intertubal connective tissue, and among the convoluted tubes could be seen the commencing contraction of the recently formed connective tissue. At one point in the cortex there were a number of incipient retention

cysts noted. Careful search gave no further evidence of an attack coincident with that in the right kidney. It would seem that the right organ, in its chronic condition, was alone capable of functionating at the last, and that the left organ had succumbed when the relative mitral insufficiency induced a general stasis, which resulted in its subacute inflammation.

E. W.

CASE 2.

Valvular disease of the heart.

J. W.; aged 42 years; nativity, Ireland; admitted to United States Marine Hospital, Chicago, Ill., November 5; died November 13, 1895.

History.—One previous attack of inflammatory rheumatism; multiple ulcers on penis twice, once accompanied by a bubo in each groin, one suppurating. Some years later one large ulcer on anterior aspect of right leg just below the knee. No other evidence of syphilis. Always drank liquor freely. Health not robust for past five years, yet no serious sickness. In 1892 he first noticed dyspnœa, a constant symptom since. In June, 1895, he first noticed œdema of lower extremities. On admission he was very feeble; had constant dyspnœa; a cough; no blood in sputa; extreme anasarca; large amount of fluid in abdominal cavity; liver not palpable; urine very scanty; heart very rapid; pulsation prominent just outside left nipple; pronounced murmur at apex, systolic, propagated into axilla; aortic and pulmonary sounds scarcely audible; lungs œdematous, full of coarse râles.

November 6.—3,700 c. c. clear yellow fluid drawn from abdomen. Urine high colored, alkaline, sp. gr. 1.016; albumen one-fourth of 1 per cent by weight; no sugar; small amount of sediment, containing only amorphous urates and bladder cells. Further examination of urinary sediment revealed nothing else. Various means were adopted to relieve the circulation and strengthen the heart, and apparently with some success, but he was found by nurse to have become suddenly unconscious, and he expired in a few minutes.

Necropsy (twenty hours after death).—Pericardial sac contained 125 c. c. turbid yellow fluid. Heart weighed 570 grams; both ventricles very large; walls not thickened proportionally. Valves not apparently incompetent; slight atheroma at aortic and mitral valves. Mitral orifice admitted tips of five fingers; was 4 cm. in diameter, 12 cm. in circumference. Tricuspid orifice admitted tips of eight fingers; was 45 cm. in diameter, 14 cm. in circumference. Coronary arteries atheromatous. Left pleural cavity, very dense posterior adhesions; lower lobe removed with greatest difficulty. Left lung weighed 760 grams, much congested. Right pleural cavity contained firm, general adhesions. Right lung weighed 710 grams, congested. Abdominal cavity contained 2,400 c. c. of turbid yellow fluid. Peritoneum normal, except that there were general adhesions over spleen. Intestines showed simply evidence of congestion. Liver hard but not nodular; nutmeg, purple color; weight, 1,510 grams. Kidneys large, smooth, capsules not adherent, congested; right weighed 225 grams, left 230 grams. Pelvis and ureters normal. No stricture in urethra; prostate enlarged. Spleen weighed 350 grams; capsule thickened, generally adherent, tissue rather firm. Urine taken from bladder at necropsy held much sediment, consisting of granular and epithelial casts and great numbers of columnar epithelial cells.

S. D. B.
J. B. H.

CASE 3.

H. G.; aged 37 years; nativity, Illinois; admitted to United States Marine Hospital, Chicago, Ill., March 30; died August 20, 1895.

History.—Hard drinker until a year ago. Digestive disturbances during winter

of 1894–95. On admission there were elevation of temperature, headache, loss of strength and appetite, and feeling of distress in abdomen. For a few weeks he remained in a condition simulating enteric fever, elevation of temperature and pulse, occasional diarrhœa, tenderness in right iliac region, some tympanites, coated tongue, headache; positive reaction in the Ehrlich diazo test of urine. Pulse occasionally intermittent during this time. Piles, from which he had suffered previously several times, recurred.

May 2.—General condition much improved, and temperature has been normal for several days, but recently he complains of loss of sensation and sharp pricking pains—first in feet, later in hands. Later, extremities became swollen and there was progressive loss of power of motion. Left hand was last to be affected and the only extremity to recover.

May 25.—Swelling has left the upper extremities and sensation and power of motion have returned in left hand, though it is still very weak. Fingers of right hand can be flexed and extended a little, and wrist can be slightly moved; sensation very slight. Ankles and toes capable of slight motion. Heart more rapid and intermits more frequently. Some dyspnœa present. At this time he was sitting up and walking about the ward. Temperature normal in morning; raised 0.2° C. to 0.3° C. at night. Appetite good and digestion fair.

July 19.—Loss of appetite during past two weeks. Diffused pain and sensitiveness to pressure over abdomen. Meteorism. Heart rapid, 110 to 120, but regular. Marked systolic murmur at apex, not propagated into axilla. Increased dyspnœa. Condition of extremities has not improved. Right hand flexed at wrist and contractured. Progressive emaciation.

August 7.—Urine has been frequently examined and nothing abnormal discovered. To-day there is a trace of albumen, and the microscope shows many crystals of "triple phosphates;" no casts. Abdominal pain and tenderness, inability to take nourishment; paralysis of extremities, rapidity and occasional irregularity of action of heart, dyspnœa, œdema of extremities were present to the end.

Necropsy (four hours after death).—Pericardial sac contained 30 c. c. clear fluid; white patches on heart, easily removed; heart weighed 440 grams; was large; coronary vessels very large; valves normal in appearance; left ventricle dilated; walls of fair thickness; thoracic aorta normal; trachea normal; left pleural cavity contained 1,050 c. c. clear fluid; right, 1,625 c. c.; strong adhesions at left apex; left lung, 410 grams; right, 450 grams; lungs dark colored, crepitant, not very elastic; tissue tough; abdomen contained 60 c.c. clear fluid; no adhesions. Peritoneum normal; stomach had granular, yellow surface, enlarged vessels, submucous hæmorrhages, and was of large size. The small intestines contained a large amount of bloody fluid and flocculent threads, and the mucous surface was largely covered with coagulated blood. The cæcum contained much coagulated blood, adherent to surface, and the same was true of colon and rectum in less degree. No ulcer nor cicatrix could be found in any part of the intestines. Mucous layer seemed everywhere thickened. Liver dark red; had a nodular surface and was very tough on section. Lobules visible; weight, 1,260 grams; gall bladder distended with tarry bile; walls very thick; dense coagulum lined lower third. Pancreas normal, 65 grams. Each kidney weighed 150 grams. Capsules thick, opaque, white, easily peeled off. Surface of both kidneys very nodular; mottled color, gray to red; tissue tough; section showed white infarctions and a general deposit of chalk-white color infiltrated through both organs. Spleen, 60 grams; normal. One supernumerary spleen, 1 cm. in diameter. Scalp, skull, and membranes normal. Brain weighed 1,400 grams. Nothing abnormal found except a blood clot about the size of two peas at left choroid plexus.

S. D. B.
J. B. H.

CASE 4.

Abscess of kidney.

J. W.; aged 43 years; nativity, Ireland; admitted to United States Marine Hospital, Chicago, Ill., July 31; died August 8, 1895.

History.—Treated at Milwaukee, Wis., for Bright's disease with chronic diarrhœa, and transferred to this port. The diarrhœa continued and could not be prevented; patient emaciated; unable to take food; vomited occasionally; urine, sp. gr. 1,006, acid reaction, large amount of albumen, much sediment, containing many casts, hyaline, fatty, epithelial, and some free epithelium.

Necropsy.—Pericardial sac normal; heart weighed 320 grams, and appeared normal, except a few small vegetations on two cusps of aortic valve; thoracic aorta showed slight evidence of atheroma near aortic valves. Both pleural cavities were obliterated by universal firm adhesions; lungs seemed congested, otherwise normal; left, 730 grams; right, 800 grams. Many adhesions and evidences of inflammation in peritoneum, especially right half; stomach dilated; appearance of chronic catarrh; capillary congestion; chronic congestion marked throughout intestinal tract, especially the large intestines, but no ulceration; ash-colored fæces in moderate amount through intestines; mucous surface of rectum jet black; liver mottled, brown color; weight, 1,830 grams; lower portion much thickened; surface not nodular; tissue not fatty in appearance; not creaking under knife; lobules distinct; pancreas apparently normal, extensively attached to intestines and right kidney; left kidney, 400 grams; capsule not adherent, but very delicate; color, pale externally, and on section cortex seemed narrow in so large a kidney; right kidney weighed 720 grams. On opening the abdomen a large, hard, white mass was felt in right side, below liver and pancreas, resting against ribs and spinal column; all surrounding parts were firmly agglutinated—liver, pancreas, intestines, great vessels, etc. Careful dissection freed it, and showed renal artery entering and a large ureter passing to bladder. The mass was nearly round, dense, white; a thin fluid exuded from one point ruptured in removal; section showed the anatomical outlines of parts of a kidney, but hardly a trace of renal tissue. In its place was a pasty, cheesy, white mass and here and there foci of more or less thick fluid; the urethra had a stricture in its deeper portion. The bladder appeared normal and contained considerable urine.

S. D. B.
J. B. H.

CASE 5.

M. D.; aged 38 years; nativity, California; admitted to the United States Marine Hospital, San Francisco, Cal., December 26, 1895; died June 19, 1896, at 9.30 p. m.

History.—On entrance he complained of pain in the left kneejoint, which was swollen. There was a small opening in the superior surface which discharged pus. He received an injury of the knee five days before entrance. On the 27th of December, 1895, there was found to be an immense abscess of the connective tissue around the joint. Albumen was found in the urine. During April, 1896, he had chills and fever every day. On the 30th of May all the sinuses around kneejoint were opened. From this time until his death the patient gradually grew weaker, with more albumen in the urine, vomiting, and slight pain over the kidneys.

Necropsy (eleven and one-half hours after death).—The right lung was normal, with the exception of a slight hypostatic congestion. Left lung had two scars in the apex; otherwise normal. Heart was flabby and pale; the valves were normal. Right kidney was very small, made up almost entirely of connective tissue; the

capsule was nonadherent. Left kidney was the same as the right. Spleen was pale and small. On section it was soft and jelly-like; weight, 115 grams. Liver was somewhat smaller than usual; otherwise normal.

C. W. D.
J. G.

CASE 6.

M. M.; aged 53 years; nativity, Canada; admitted to United States Marine Hospital, St. Louis, Mo., October 4; died December 6, 1895.

History.—Had been a very active, strong man until three years previous, when dyspnœa on exertion, cardiac palpitation, and œdema of lower extremities began. These symptoms became more severe. He was under treatment at this hospital during the winter of 1894–95 for chronic nephritis. The strength of heart's action increased, the œdema disappeared, and he was able to return to work, but continued to receive treatment at office. On readmission there were the same symptoms exaggerated. He was scarcely able to walk. General anasarca existed. Pulse very feeble. Action of heart regular and quite strong. A systolic murmur was heard at apex. Urine, pale, 1.016 acid, small amount of albumen; sediment contained many casts, largely epithelial; twenty-four hour urine, 3,000 c. c. His condition became worse, and coma followed. Daily excretion of urine continued large until near death. It was noticeable during sickness that the pulse was nearly imperceptible when heart's action seemed strong.

Necropsy (six hours after death).—Pericardium contained about 150 c. c. clear fluid. Heart, 780 grams, very large; wall of left ventricle 2.4 cm. thick; of right ventricle 0.8 cm. thick. Neither ventricle appeared greatly dilated. Thoracic aorta normal. Left pleural cavity contained 1,400 c. c. of clear fluid; a few adhesions at apex. Right pleural cavity contained 2,000 c. c. clear fluid; no adhesions. Lungs congested. Considerable clear fluid in abdomen; not measured. Stomach and intestines not opened; apparently normal. Liver, "nutmeg," 1,285 grams. Kidneys: left, 160 grams; right, 150 grams; capsules adherent, small, contracted, hard in texture, dark purple on section. The right contained two cysts filled with mucilaginous substance. Spleen, large, nodular, 320 grams.

S. D. B.

CASE 7.

F. K. (colored); aged 21 years; nativity, Maryland; admitted to the United States Marine Hospital, Baltimore, Md., April 7; died May 2, 1896.

History.—Family history obscure. Patient has had measles and malaria; denies all venereal diseases; was in this hospital four years ago for "inflammation of lymph glands of neck." He says they disappeared and only returned two weeks ago. His legs, penis, scrotum, and belly began to swell about the same time. Since then he has had pain in chest, abdomen, and privates. Bowels have been open; has had night sweats; temperature on admission (11 a. m.), 37°C.; pulse, 90. At that time there was general swelling over entire body. On either side of the neck there was noticed an enlarged gland the size of a hen's egg—soft and fluctuating. In each axilla there was an open gland discharging pus. Examination of urine revealed a large quantity of albumen.

April 13.—Patient had a chill, followed by a temperature of 40° C. and a pulse of 130. At this time the patient's bowels became loose, and it was with difficulty that they were checked. During the last six days of patient's illness his temperature did not rise above 37° C. in the afternoon, and barely reached 36° C. in the morning. For several days previous to his death patient could swallow his nourishment only with great difficulty. He became weaker and weaker, and died on May 2.

Necropsy (twenty-two hours after death).—Rigor mortis marked; emaciation considerable; œdema of lower extremities, left more than right. Abdomen was very much distended. Heart displaced upward by the diaphragm; 75 c. c. of dark-colored fluid found in pericardial sac. Heart weighed 210 grams; valves were normal. Liver weighed 1,800 grams; mottled in appearance and soft in consistence. Left lung weighed 600 grams. Right lung weighed 510 grams. Spleen weighed 330 grams; dark in appearance. Left kidney weighed 240 grams; very pale in appearance; capsule only slightly adherent. On section the kidney substance, excepting the pyramids, was of a grayish-yellow color. The pyramids were distinctly red and were striking in comparison with the color of the cortical portion. Right kidney same as the left. The peritoneal cavity was found to contain a considerable quantity of clear straw-colored fluid. Numerous enlarged mesenteric glands were found, some of which were caseous. A number of bronchial glands had also undergone caseous degeneration.

J. B. G.
G. W. S.

CASE 8.

Hemiplegia and valvular disease of heart.

H. B.; aged 44 years; nativity, Maryland; admitted to marine ward, German Hospital at Philadelphia January 31, 1896; transferred to United States Marine Hospital at Baltimore, Md., March 14; died April 16, 1896.

History.—Family history negative. Had measles when a child. Rheumatism four times, the first when 19 years old, and the last attack only eighteen months ago. The present illness began seven months ago with shortness of breath and palpitation of the heart. Physical examination on admission revealed loud systolic murmur at heart's apex, which was displaced to the left. The murmur was transmitted to axillary line.

February 2.—Patient was seized with motor paralysis of left upper and lower extremity, most marked in the latter. Sensation was only partially affected. Muscles of the face were not involved.

February 12.—The following note was made: "Has trouble swallowing, and speech is thick."

March 14.—Patient admitted to United States Marine Hospital at Baltimore. Was then emaciated and walked with great difficulty. Power in left upper and lower extremity very much diminished. Speech at that time was not affected, nor did the tongue show any deviation. Pupils were equal. Bowels were constipated, but there were no bladder symptoms Systolic murmur was very distinct at apex. An occasional râle was heard over chest. While here patient had frequent attacks of vomiting. Bowels continued constipated. Insomnia also was a troublesome symptom.

April 9.—The following note was made: Patient slept very little last night; talked at random at times. Cheyne-Stokes breathing was seen.

April 14.—Patient was in deep coma. Respiration regular, but rapid. Pulse full and almost incompressible.

April 16.—Patient continued in a comatose condition till death, which occurred at 2 a. m.

Necropsy (fourteen hours after death).—Rigor mortis marked; emaciation extreme; heart weighed 540 grams; thickness of wall of right ventricle, 33 centimeters; cavity was only slightly enlarged; the edges of both valves were thickened, and one of them was held back against the heart wall by greatly shortened chordæ tendineæ. Wall of right ventricle was only slightly thickened; cavity was not perceptibly enlarged; valves were normal. Left kidney weighed 90 grams; capsule adherent; kidney substance very resistant to the cut of the knife. The cortical

portion was not more than 5 millimeters in extent. Right kidney practically the same as the left; spleen weighed 150 grams; very dark in color. Left lung weighed 840 grams; lower lobe was very dark in color; it contained very little air. Right lung weighed 1,080 grams; congestion of the two lower lobes was marked, especially in their posterior parts. Liver weighed 1,080 grams; external surface was pale; on section the substance was very resistant to the knife; in appearance it was a typical "nutmeg liver." Brain: The meninges were fairly normal in appearance, except over the upper aspect of the parietal lobes, where they were thickened and adherent. On section the brain was normal in appearance.

J. B. G.
G. W. S.

PYONEPHROSIS.

J. O'B.; aged 60 years; nativity, Ireland; admitted to United States Marine Hospital, St. Louis, Mo., October 3; died December 19, 1895.

History.—Patient had double acquired talipes equino-varus of a few years' duration, which lately seriously crippled him. On admission there was incontinence of urine, a continual dribbling of several weeks' duration. There was no urethral stricture or stone in the bladder. Prostate enlarged. Urine, 1,600 c. c. in twenty-four hours; acid, sp. gr. 1.005; a small amount of albumen, considerable sediment, containing a few granular casts and much pus. There was continual pain, referred to suprapubic and perineal regions. Sleep broken by continual desire to urinate. Catheterization and irrigation of bladder with solution of boric acid failed to relieve symptoms, and the pus in the bladder increased. Nausea and hiccough were added to other symptoms. Amount of urine decreased.

December 18.—Perineal cystotomy was performed for the sake of drainage. He recovered from the chloroform, but hiccough was soon renewed. Almost complete suppression of urine and coma followed.

Necropsy (four hours after death).—Emaciated. Pericardial sac normal. Heart weighed 310 grams; valves competent. There was atheroma visible on one cusp of aortic valve and on mitral valve. Thoracic aorta normal. A few adhesions at apex of right pleural cavity; none in left. Lungs normal. Abdominal cavity and intestines negative. Liver: Firm adhesions over most of surface, capsule torn in removing organ; section yellowish brown, fatty, weighed 1,530 grams. Both kidneys lobulated, and had adherent capsules. Ureters much distended and sacculated. Pelves very large, occupying nearly all of kidney. Very thin layer of renal tissue left. Ureters and pelves filled with purulent fluid. Mucous surface of bladder purple, rugose. Prostate double normal size, projecting into bladder and forming a pouch behind. Spleen weighed 90 grams; firm adhesions over entire surface; tissue almost black.

S. D. B.

HYPERTROPHY OF PROSTATE GLAND.

R. C.; aged 82 years; nativity, United States; admitted to United States Marine Hospital, Cincinnati, Ohio, September 10, 1895; died January 19, 1896.

History.—When admitted he was suffering with retention of urine from hypertrophy of prostate gland. He had been a great sufferer for several months from inability to pass his urine, and has been obliged to have his water drawn. A digital examination per rectum revealed a marked enlargement and hardened condition of prostate (all lobes), and it was with difficulty that a small catheter could be introduced. The urine was very ammoniacal, and contained much sediment. Owing to the severe pain and difficulty in passing catheter for the relief of the retention, a soft catheter was left in bladder for several days at a time, and bladder was irrigated daily with warm aqueous solution of boric acid. Under this

treatment patient improved, pain lessened, urine contained less sediment, and was less ammoniacal. Patient's condition continued about the same until a week before his death, when his mind became affected and he gradually sank into a deep coma, and died at 7 p. m.

Necropsy (thirteen hours after death).—Rigor mortis present. Brain and vessels were all infected with effusions of serum beneath pia. Heart was rather soft, but normal in size. Mitral valves were thickened, and walls of ventricles very thin; weight 312 grams. Lungs were normal, except slight hypostatic congestion posteriorly. Liver normal; weight 1,303 grams. Spleen small and soft; weight 141 grams. The kidneys showed extensive fatty degeneration. Left kidney enlarged and contained a large cyst; weight 165 grams. Right kidney enlarged; weight 210 grams. Prostate gland enlarged and very hard, especially middle lobe. Bladder walls very much thickened.

J. W. S.
P. C. K.

GANGRENE OF PELVIC CONNECTIVE TISSUE.

T. S. G.; aged 64 years; nativity, Pennsylvania; was brought to the marine ward of Mercy Hospital, Pittsburg, Pa., November 24; died November 26, 1895.

History.—Stated that he had suffered from diarrhœa for two weeks, which he attributed to poor drinking water. In his family during this time there were two cases of enteric fever, and in consequence of his attendance upon these he had not taken to bed. Three days prior to entrance at hospital there had occurred two chills, and one on each succeeding day, generally in the afternoon, and followed by fever. He was, from the history related by an attendant, apparently suffering from enteric fever, and instructions to meet symptoms during the night were sent to the resident physician upon his admission on the afternoon of the 24th. On the 25th, at the morning visit, I found the patient extremely prostrated; nausea and vomiting incessant; anxious facies; a constant moaning and restlessness; tongue moist and clean; respirations, 20; temperature, 37.3° C.; pulse, 120. Abdomen slightly puffed, but soft and readily palpated; and although there was complaint of general pain, there could be detected no localized accentuation nor any increased resistance at any point. Bowels moved during night in response to mercurial. Liver most carefully examined, but no signs of abscess elicited; spleen not enlarged. Urine straw color; acid; sp. gr. 1,020; no albumen.

From the history there had been clearly a catarrhal enteritis, followed by irritation of the lower colon and rectum, but it could not be decided as to the cause of the evident general peritonitis, nor for the sudden stopping of the diarrhœa after the first chill. Treatment to meet symptoms. At 8 p. m. patient rests easier; nausea and vomiting ceased during forenoon; pain has been relieved by hot stupes to abdomen; enemata failed to open bowels; there is paroxysmal hiccough; milk punch is retained; pulse, 120; temperature, 37.5° C. At the morning visit on the 26th the patient seemed a little stronger; slept during the night; still some hiccough, temperature, 37.5° C., and pulse, 120; mind clear, and he was informed of the circumstances of his case and readily assented to an exploratory incision, which was done at once.

The abdomen was found, under ether, to be soft, and the organs easily palpated, with no definite information; sore in the median line; a slight sensation, as of incipient (small bubble) emphysema of the subcutaneous connective tissue. Incision showed this, for this tissue was of a greenish appearance and contained a greenish and offensive serum. The preperitoneal fat and connective tissue was dark green and sloughing, a true gangrene, and the gas formation had dissected the peritoneum, the surface of which was greenish black, from the superjacent structures for several centimeters on either side of the median line. Peritoneum

much thickened, and since there could be found no opening leading into the cavity, it was incised, and a careful search made for any possible twist, intussusception, or localized influence. There was general inflammation of the peritoneum, with plaques of lymph agglutinating the intestines, but nothing else could be found. In closing the abdominal incision there was noticed an oozing from the connective tissue next the symphysis pubis, and following this downward to the immediate surface of this bone there was opened up a gangrenous cavity between the symphysis and bladder, which extended into the pelvis and ischial fossæ, and was partially filled with offensive fluid and débris of gangrenous tissue. This was emptied, flushed, and drained. Patient died at 5.15 p. m.

Necropsy (seventeen hours after death).—Body of an adult male; 165 cm. long; rigor marked; some hypostasis about loins and legs; no distinguishing marks. In median line of abdomen there is a recent line of incision, closed sore at lower angle, from which projects a glass drain. This incision reopened and enlarged upward to the interclavicular notch. Along the line of primary incision the thickened peritoneum is dissected from the superjacent muscle on either side for 4 cm., the connective tissue and fat being destroyed. Intestines inflamed as to serosa; catarrhal mucosa. In the rectum, just above the inner sphincter, the mucosa was hæmorrhagic in plaques of various sizes, one being an extensive extravasation on the right lateral wall, with some free hæmorrhage; epithelium abraded; no slough nor perforation at any point. The serosa adjacent to this abrasion of the mucosa was thickened and the plastic material showed gangrenous change. Save posteriorly, the rectum was bare of connective tissue. Extensive lymph formation limited the gangrenous process above, but the loose connective tissue between bladder and rectum and bladder and spmphysis and about the crura of the penis allowed it to pass toward the surface of the abdominal wall, and therein upward along the median line for 5 cm. Bladder normal; kidneys macroscopically normal; liver the same; spleen slightly enlarged; pleuræ normal; lungs retracted and normal; pericardium normal; heart tl ɔ same in diastole.

Through inadvertence material taken from the gangrenous cavity was lost or thrown away before cultures could be made from it, but from the spleen tube cultures were made upon bouillon, agar-agar, sugar agar, and gelatin, both stick and slant; also the splenic blood was plated upon agar-agar and gelatin. From these the tubes of bouillon and agar-agar and sugar agar and an agar plate were submitted to 38° C. of heat in the culture oven, the gelatin cultures, with a plate on agar and a tube in bouillon, remaining at the room temperature, about 20° C. After twenty-four hours there had developed upon the tubes and plates in the culture oven a creamy growth; this extending in the deep stick cultures slightly along the needle track; on the bouillon tube there was a white film. Cultures at room temperature showed no growth. A deep stick culture now made on agar and the tube filled with liquefied gelatin at 28° C., and kept at room temperature; also an improvised Buckner's jar was made, and an agar tube submitted in culture oven. After forty-eight hours the growths upon the tubes and plates first made were well developed; no appearance upon the tube in Buckner's jar; none upon cultures at room temperature. Cover slips made from agar and bouillon tubes, and from a colony on the agar plate, and one from each examined in normal salt solution, showing a pure culture of a short bacillus, with rounded ends, thicker than the tubercle bacillus and actively motile; numerous sharply refracting spores, both free and within the organism, were present. Stained covers in Löfler's blue gave the same rod with spores. Attempts to differentiate these spores in Carbol-fuchsin failed.

After five days the tubes for the anærobic test showed a slight growth; that made in agar, superimposed with gelatin, gave a slight growth which was floating to the surface of the gelatin, now liquefied in culture oven; the one in Buckner's jar showed a slight growth along the track of the needle. The plate cultures

gave now well developed, round colonies of a creamy color, dense in the center, lighter at the edges, those on the surface showing more vitality than those below. Cover slips, stained and unstained, gave the same organism. On the ninth day there was first noticed a growth on the culture media at room temperature, the gelatin plate showing a few small liquefying colonies; the agar tubes and plate a creamy colony, very minute within the medium, but larger on the surface. Cover slips showed the same bacillus. The agar slant cultures, first placed in oven, now exhibited a beautiful arborescent appearance of the growth on their surface. The old cultures, especially in the moist tubes, gave off a very intense and disagreeable odor, almost fetid; the bouillon tubes were very offensive. There had been gas formation in both anærobic growths, bubbles being frequently noticed in the gelatin liquefied above the agar stick cultures. As an anærobe the organism gave but indifferent growth.

These experiments show only the presence in the blood (of the spleen) of this individual of this organism in pure culture, its power to multiply in the absence of oxygen, and its power to form a gas very closely resembling those of putrefaction. Owing to the scarcity and high price of animals, experiment with these was limited. A young buck rabbit was inoculated subcutaneously with 1 c. c. of well-grown bouillon culture, just below the ribs on the ventral surface. Almost immediately after the subcutaneous injection the animal exhibited signs of paralysis of the hind legs which persisted for several hours, but had passed off by the next day, when the site of inoculation appeared œdematous and very slightly emphysematous. Animal on third day was quite sick, ate but little, and was feverish, with quickened pulse; œdema more extensive. On fifth day animal brighter; site of inoculation an extensive slough of skin and connective tissue of a disagreeable odor. On the sixth day the central part of this slough had turned black and foul, and the edges were retracted from the sound skin, under which the necrosis in the connective tissue continued for some distance. Cover slips from beneath slough, and from undermined skin, gave the bacillus, the former in pure and latter mixed culture; culture tubes soon gave same results. Rabbit convalesced. After a week a saline, with a drop of fresh agar-agar culture in suspension, was introduced into the peritoneum and the animal killed on the third day. There was no peritonitis; fluid sterile.

E. W.

ANGULAR CURVATURE OF SPINE.

J. D. (colored); nativity, Kentucky; aged 36 years; admitted to United States Marine Hospital at Cincinnati, Ohio, January 18; died July 5, 1895.

History.—Patient was admitted complaining of pain in shoulders and knees, which was attributed to rheumatism, and for several weeks he was treated for that disease. Symptoms of Pott's disease of the spine developed. Prominent among the symptoms were kyphosis of the cervical spine, pain at the seat of deformity, partial motor and sensory paralysis of right limbs, occasional pain in right shoulder, constant pain in right knee, occasional pain in left knee, and difficult deglutition. The temperature and other symptoms pointed to a general tuberculous infection. Patient received palliative treatment. Bed sores and colliquative diarrhœa developed; patient gradually grew worse, and death occurred.

Necropsy (nine hours after death).—Heart weighed 228 grams. Pericardial sac was obliterated. Valves were competent. In the region of the orifices of the pulmonary veins a peculiar growth was situated. It was a neoplasm, of gristly consistence, whitish color, and considerable size. Left lung weighed 385 grams, and right 442 grams. Numerous miliary tubercles were present in both lungs. There were adhesions between the parietal and visceral layers of both pleuræ. Angular and lateral curvature and rotation of the cervical spine were present in

a marked degree. Caries had progressed far. The vertebral bodies and the intervertebral discs were extensively destroyed. Fusion had occurred. The spinal canal was narrowed, and there was some compression of the cord. The spinal meninges were thickened and indurated, and adherent to each other and to the osseous wall of the spinal canal.

P. C. K.

ULCER OF SKIN OF LEG—RUPTURE OF CORONARY ARTERY.

J. S. (colored); aged 50 years; nativity, North Carolina; admitted April 24; died May 3, 1896.

History.—Family history obscure. Has usually enjoyed good health. Patient came in hospital for an ulcer on leg, which he said is due to a burn which occurred four months ago. He denied syphilis. On the lower front aspect of the left tibia there was observed an irregular-shaped indurated ulcer. Base deep and edges precipitous. Under the usual treatment patient began to improve. May 2, two days before death, he had severe headache, with nausea and vomiting. Temperature at this time was 36.2° C.; pulse 84 and noncompressible. May 3 the dyspnœa became marked and the pulse weak; death followed at 6 p. m.

Necropsy (eighteen hours after death).—Rigor mortis marked. Emaciation slight. Healing ulcer on left leg. Left lung weighed 600 grams; adherent to diaphragm. Pleural cavity contained 400 c. c. clear fluid. A tubercular area was found at the base of the lung; it seemed to be well shut off by cicatricial tissue. Right lung weighed 750 grams; very much congested. Heart adherent to parietal layer of pericardium; weight 780 grams. Heart substance pale; valves normal. Pericardial sac contained about 75 c. c. blood. The coronary artery was found to be ruptured. Sclerosis was marked. Peritoneum contained 800 c. c. clear, straw-colored fluid. Liver weighed 1,740 grams; surface distinctly "hobnailed;" very resistant to the cut; the knife surface was distinctly mottled. Gall bladder was distended. Spleen weighed 135 grams. Right kidney weighed 105 grams; surface was irregular; capsule adherent; cortex extremely narrow; pyramids distinct. Left kidney practically same as right.

J. B. G.
G. W. S.

FRACTURE BASE OF SKULL—LEPTOMENINGITIS.

W. R.; aged 39 years; nativity, Maryland; entered the marine ward, St. Vincent's Hospital, Norfolk, Va., December 4; died December 6, 1895.

History.—Patient had been struck by the boom of a schooner on the side of the head four days before. Was knocked senseless, but recovered consciousness, and for two days did light duty aboard the vessel. Was not complaining much on going to bed, but was unable to work this morning. Had a temperature of 40.6° C. on entering hospital; somewhat dull and somnolent, with much headache. Had bled from both ears and nose when first hurt, and probably had a serous discharge from left ear. A diagnosis of fracture of base of the skull, with septic meningitis, was made. Patient died in about thirty-six hours.

Necropsy (fourteen hours after death).—A large-framed, well-nourished man. The cerebral sinuses, visible on removing the skull cap, are engorged with blood. A considerable amount of turbid and blood-stained cerebro-spinal fluid escaped on opening the arachnoid space. The brain is adherent to its membranes at the base on the left side and about the middle line, and was slightly torn at these places in the attempt to remove it. At these places it was soft and its substance stained by infiltration of blood. No abscess or collection of pus was visible. The veins over the whole surface of the brain were enormously distended with blood, and at the

base and left temporal and parietal region the membranes were stuck together in places with a fibrinous exudate and separated in places by a thin sero-pus. They were intimately adherent above the ethmoid and part of the left temporal bone with the brain substance. A well-marked leptomeningitis of part of the meninges. The base of the skull shows a fracture across the petrous portion of the temporal bone about 7 cm. long and interior to the protuberance of the semicircular canal, and another radiating from near one end of this to the jugular foramen. Both of these fractures were wide enough to put the flat end of a probe in, and the longer one was suppurating, the edges of the bone being softened. The sinuses about the sella turcica were filled with thrombi, and were unquestionably infected and breaking down. At the base the brain was softened and hyperæmic; but, save absence of ventricular fluid, nothing else abnormal was found about it. No other organs examined.

H. R. C.

GUNSHOT WOUND, CHEST—HÆMORRHAGE.

W. F. (colored); aged 20 years; nativity, Texas; admitted to the United States Marine Hospital, Cairo, Ill., February 11; died February 15, 1896.

History.—Patient was brought to the hospital in a wagon at 2.45 a. m. He stated that while asleep under the boilers of the steamboat upon which he was employed as roustabout he was shot by the captain of the watch, two days before. On admission he complained much of pain in right chest, and was in a state of collapse. Respirations, 32, superficial; pulse, 125, thready; temperature [oral], 36.7° C. Fine râles were heard in upper portion and coarser in lower part of right lung. Skin cold and dry. A gunshot wound of entrance was found about 1 cm. in diameter, perforating tenth rib immediately below its superior margin and 10 cm. from central line of vertebræ. He was sponged off gently with warm water, placed in bed surrounded by hot-water bottles and a hypodermatic injection of sulphate of morphia and of sulphate atropia given. As soon as he was sufficiently quieted he was raised and the entire chest well strapped with adhesive plaster, which greatly added to his comfort. Diet: Milk, soft-boiled eggs, and crackers, ad libitum, of which he partook freely every two hours. In the evening of the first day of treatment the temperature, pulse, and respiration rose to 38.5° C., 112, and 36, respectively, where they remained for twenty-four hours. A stimulating rectal enema on the evening of the 12th brought away a large amount of fæces presenting no feature of note. Urine voided normally and without trace of blood. The symptoms apparently ameliorated immediately upon the fæcal discharge, and on the evening of the 13th the temperature and respiration were 36.5° C. and 26. Hiccough set in early on the morning of the 14th and, while neither frequent, violent, nor distressing to the patient, persisted until the end. Whisky and lime water were now added to the milk and other diet withdrawn. Digitalis tincture and ammonia spirits were given. The temperature and pulse rose steadily on the 14th to 38.5° C. and 125, from which the temperature as steadily declined to 36.5° C. in the evening. The right lung became entirely silent, its place being evidently taken by hæmorrhage. He died in coma at 8 a. m.

Necropsy (seven hours after death).—Body that of a young, very muscular black male, well nourished. Rigor mortis marked. Thoracic and abdominal viscera apparently normal, except as noted herein. Heart weighed 435 grams; left lung, 585 grams; right lung, 500 grams, congested; middle and inferior lobes perforated posteriorly from below, upward, and inward and presenting a ragged wound; lung collapsed and pressed into apical space; pleural cavity and rest of lung space filled with very dark fluid blood. Liver weighed 2,665 grams, slightly anæmic. Kidneys: Left, weight 210 grams, somewhat congested; right, 270 grams; spleen, 195

grams. The superior border of the tenth right rib was perforated about midway between the angle and tuberosity and slightly splintered. The missile, a leaden conoidal bullet weighing 9 grams, 1.5 cm. long, was found, after long search, completely buried in the body of the fifth dorsal vertebra.

J. M. G.

FRACTURE OF TIBIA AND FIBULA—SCALD—DEATH FROM SHOCK.

M. McL.; aged 45 years; nativity, Ireland; was brought to United States Marine Hospital, San Francisco, Cal., from the receiving hospital July 18, at 12.35 p. m.

It is supposed that while under the influence of alcohol he tampered with the boiler of the steamer *Portland*. It is known that he was scalded by escaping steam on both forearms, on the right arm, the back and both lower extremities, and, slightly, on top of the head. There was a compound fracture of both bones of the right leg, the wound in the skin being anterior. The burns were superficial, but extensive, and the patient suffered much from pain and shock. When received here the burns had been dressed and a splint applied to the broken leg, though the bones were not in proper apposition. There was considerable hæmorrhage from the wound of the leg. Patient was placed upon the operating table and the burns dressed. This was accomplished without anæsthetic, the patient vomiting every few minutes. About 1.30 p. m. chloroform was administered and the ends of the broken fragments of the tibia were placed in position and wired. After checking hæmorrhage the external wound was sewed up, leaving in a drainage tube. Patient had to be stimulated several times while on the table, but promptly came from under the influence of the anæsthetic. Large doses of morphine had no perceptible effect on the pain, and pupils remained dilated. At 8.45 p. m. patient collapsed. Stimulants of all sorts were tried without avail; he died at 9.06 p. m.

Necropsy (fourteen hours after death).—Layer of superficial fat on chest an inch thick. Heart muscle pale and friable; fatty degeneration; aortic valve competent; mitral valve also competent. Lungs: No pleuritic adhesions; deeply pigmented; lower lobes congested. Liver normal, except for bile stains on the surface of right lobe. Stomach congested, especially about cardiac orifice. Right kidney small; cortex thin; congested. Left kidney also congested; larger and heavier than right.

J. B. C.
J. G.

AMPUTATION OF LEG—TUBERCLE OF LUNG.

J. B.; aged 29 years; nativity, Finland; admitted to United States Marine Hospital, Boston, Mass., July 15; died July 25, 1895.

History.—On July 1, while assisting in passing ship through drawbridge, his leg was caught in bight of rope (cable), which, becoming taut, cut the leg off just above the ankle. He was removed to Emergency Hospital, where an amputation was done just below knee; was kept in that hospital for two weeks and then sent to United States Marine Hospital, Boston. When admitted to this hospital, on July 15, the flaps left by amputation had sloughed away, leaving a raw, bleeding stump, which was very painful. Man was also suffering from tubercle of lungs. Patient suffered from injury to side sustained at time of accident. Both parents died of tubercle. On July 23 leg was reamputated in order to get flaps. Patient died on 25th from emboli and thrombus filling right jugular vein, which extended for a considerable distance from heart into superior vena cava and jugular vein.

Necropsy (eight hours after death).—Body that of medium-sized white male, considerably emaciated. Rigor mortis slight. Some post-mortem lividity of back. Right leg had been amputated at junction of lower and middle third. Heart weighed 400 grams; its tissues pale and flabby. Pericardial sac normal. Valves

competent; considerable clot in right ventricle, extending into pulmonary artery. Larynx and trachea somewhat œdematous. Left lung weighed 700 grams; upper lobe infiltrated with tubercle and contained cavity size of an orange; pleura adherent. Right lung weighed 670 grams; pleura adherent; lung collapsed in parts, œdematous in others. Considerable fibrinous exudate and effusion in pleural cavity. Intestines inflated with gas. Liver exceedingly pale; weight, 1,700 grams. Gall bladder full of viscid, yellowish bile. Right kidney weighed 180 grams; left 195 grams; capsule peeled with difficulty in both. Line of demarcation between cortical and medullary substances well marked. Spleen lobulated and soft; weight, 155 grams.

W. P. M.

NECROSIS OF BONE—GANGRENE OF LEG.

P. H.; aged 34 years; nativity, Louisiana; admitted to United States Marine Hospital, New Orleans, La., November 20; died December 19, 1895.

History.—General health had been good; confessed having had numerous ulcers of penis, but gave no history of systemic infection; was admitted to hospital for necrosis of phalanges of right great toe. This condition had been preceded by pain, which was followed by suppuration, ulceration, and loss of the nail, leaving the terminal phalanx exposed. The toe was malodorous and painful. On the left leg, just above the inner malleolus, existed a pale, bluish, indolent ulcer, about 2.5 cm. in diameter. The urine contained no albumen. Heart and lungs appeared to be healthy. It was decided to amputate the great toe, the operation by the oval method being performed under chloroform anæsthesia on November 21, the head of the first metatarsal bone being also removed.

November 22, p. m.—Temperature, 38° C. Ordered saturated solution of potassium iodide (t. i. d).

November 26.—Fever has been remitting in character since operation, the afternoon record being as high as 39.7° C. Dressing removed; no reaction of soft tissues; slight sanious discharge.

November 28.—Redressed; sutures removed and a blackened mass exposed; dry gangrene had taken place. Temperature, 39.3° C.; pulse, 126 and dicrotic; complained of soreness of ankle.

November 29.—Pain increased in ankle and lower third of leg; emphysematous crackling detected throughout lower half of inner side of leg. The patient being a negro, no changes in color of skin were noted. The conjunctivæ were now a deep yellow, probably a hematogenous jaundice. Temperature, 40° C. at 3 p. m. As a last resort it was determined to amputate. Under ether anæsthesia the thigh was amputated at the lower third, the circular method being employed; stout catgut sutures and ligatures were used, strips of iodoform gauze being left in situ at either angle of the wound for temporary drainage. The hæmorrhage was slight, the blood coagulated slowly, and the pulsation of the superficial femoral could scarcely be detected.

November 30.—Temperature, 37.2° C.; pulse, 102; skin moist, and patient feels well. Retention of urine; catheterized, about 500 c. c. of bloody urine being drawn.

December 2.—Spontaneous micturition. Temperature normal.

December 5.—Wound inspected; edges apparently united except at angles. Strips of gauze removed, and a free, dark, sanious discharge from the inner angle of wound noted.

December 7.—The lips of the wound are separated at the center; primary union, about 1 cm. in length, at either side; extremity of femur exposed, and numerous shreds of dark-yellowish, necrosed tissue around end of bone. The surfaces were thoroughly irrigated with warm sublimate solution (1–2,000) and a dressing of

iodoform and iodoform gauze reapplied. No odor nor sign of pus. The muscles on internal aspect of femur were very dark in color. Subsequently the stump was dressed daily, but the muscles and connective tissue continued to disintegrate.

December 10.—Temperature rose and continued about 38° C. until patient died on December 19, at 1.50 a. m. Delirium was present several days before death, both medicines and nourishment being refused.

Necropsy (eleven hours after death).—Body fairly well nourished; rigor mortis marked. Heart weighed 270 grams; valves and pericardium normal. A small antemortem clot was found in right ventricle. Lungs small, but otherwise normal. The liver was pale in color and weighed 1,850 grams; cirrhotic changes were noticed, especially in the left lobe. Gall bladder and ducts normal. The left kidney weighed only 48 grams; was in an advanced stage of cirrhosis, with capsule strongly adherent. Atrophy of the entire upper half had taken place; in the lower half multiple cysts were found in the cortex, and no line marked the division between the cortical and medullary substance. In this kidney only one distinct pyramid could be distinguished. The right kidney weighed 190 grams; its capsule could with difficulty be detached; its upper half was markedly cirrhosed, and multiple cysts were disseminated throughout the cortex. The lower half was hypertrophied, pale, and anæmic, and was the only portion of either kidney presenting any resemblance to the normal organ. Both ureters were patent. The spleen was very diminutive and cirrhotic; capsule adherent and weighed only 60 grams; sections showed hypertrophy of the interstitial tissue. The blood was thin and hydræmic and was deficient in fibrin.

NOTE.—It is evident that the diseased condition of the kidneys was the most prominent factor in the production of the fatal issue.

S. N.

SARCOMA OF LOWER JAW, WITH GENERAL SARCOMATOUS INVOLVEMENT OF VISCERA.

N. F.; aged 67 years; nativity, France; admitted to the United States Marine Hospital, San Francisco, Cal., March 23; died April 8, 1896, at 9.50 p. m.

History.—On entrance he complained of a tumor in the mouth of about three weeks' duration; he also had attacks of dizziness, headache, pain in the back, and was gradually losing his eyesight. The general nutrition of the patient was poor, and his skin presented a tessellated appearance. Scattered over the body, beneath the skin, several small tumors were seen. Microscopic examination of a section of the tumor of the mouth showed it to be a round-celled sarcoma containing pigment. The tumor was operated upon and removed. The patient grew weaker, became delirious, and finally died.

Necropsy (thirteen hours after death).—On removing a section of the skull a profuse amount of cerebral fluid and blood escaped. There was a cloudy swelling of the pia. The brain was mildly congested and its surface was studded with several small dark spots. On section, about halfway to the corpus callosum, dark, soft, melanotic deposits, varying in size from a pinhead to 2.50 cm. in diameter, involved the brain substance. The growths completely penetrated the external capsule on the right side. The speech center contained similar metastatic tumors, as did also the cerebellum. The right lung, twice as large as the left, weighed 1,020 grams. Its tissue was studded with metastatic growths. At its base was a large indurated mass, somewhat pale externally, but almost black on section. The left lung, 550 grams in weight, was less involved, but the deposits were of the same character. The heart was normal, with the exception of vegetations on the aortic and mitral valves. A large encephaloid mass was found just beneath the liver and over the duodenum. It was about 12 by 10 by 6 cm., and contained a large amount of dark fluid. The liver contained considerable cancerous infiltration,

especially in the left lobe. The spleen was similarly affected. Both kidneys were involved, the left greater than the right. The stomach was smaller than usual and was surrounded by a mass of enlarged glands. About 15 cm. down the duodenum a growth similar to those described was found. This caused the duodenum to take on a peculiar convoluted appearance. The remaining intestines were more or less affected. The pelvic peritoneum and the bladder showed here and there the same dark sarcomatous growths that were seen in the great glands.

N. M. N.
J. G.

CARCINOMA OF THE HEPATIC DUCTS AND PANCREAS.

Case 1.

R. M.; aged 48 years; nativity, Ireland; admitted to the United States Marine Hospital, Baltimore, Md., October 23, 1894; died July 17, 1895.

History.—When patient entered hospital he complained of loss of appetite, nausea, vomiting, and irregular headaches. Bowels alternately lax and constipated. For four weeks previous to admission these had been the prominent subjective symptoms. When admitted the skin and conjunctivæ were yellow; urine dark colored, containing bile pigment, but free from albumen. There was general pruritus. Lungs and heart normal. Percussion over the region of the liver showed this organ to be hypertrophied, the anterior margin of the right lobe extending about 5 cm. below the costal border. The fæces were light or clay colored. Symptomatic treatment was begun, purgatives and laxatives being freely administered. The jaundice continued to grow worse; the bowels became irritable and active, the evacuations numbering from six to eight daily. At no time did the temperature rise above 38° C.; the regular morning register was normal, occasionally subnormal. The pulse was not distinctive.

January 24.—Fæcal matter was dark; first change of color noticed since patient's admission to hospital, but the change was only temporary, the characteristic clay or putty color continuing for the most part throughout the period of illness.

February 2.—From this date patient complained of pain and soreness in the abdomen, which was now constantly distended; also suffered from general restlessness and insomnia. Emaciation gradually progressed and was accompanied with slight ascites and œdema of the ankles. During the last few days of his illness patient slept constantly.

July 15, 6 p. m.—Vomited about 200 c. c. of dark viscid fluid. Became unconscious, dying at 4 a. m. July 17, 1895.

Necropsy (twelve hours after death).—Rigor mortis marked; body emaciated; skin of face bronze, of rest of body a saffron-yellow color. The pericardium contained a small amount of clear fluid. The heart weighed 360 grams; valves normal. Pleura of right side adherent; left pleura normal. Both lungs were congested, the right weighing 1,000 grams, the left 900 grams. The liver was much enlarged, weighing 4,000 grams; its external surface presented the appearance of morocco leather, the condition usually found in hypertrophic cirrhosis (Woodhead). The parenchyma was uniformly stained with bile and was dark green in color. Sections were hard and resistant to the knife. The gall bladder was moderately distended with a viscid fluid, dark colored, but containing very little if any bile. A carcinoma of the scirrhous variety was found, involving the bile passages, the head of the pancreas, the adjacent portion of the duodenum, and had invaded the liver at the transverse fissure. The stomach was dilated and was filled with a black fluid containing coagulated blood and undigested food. The left kidney weighed 250 grams; the right 235 grams. Both kidneys were very

dark in color, and hard and resistant to cutting; no line of demarcation existed between the cortical and medullary portions. A depression was found over the center of the posterior surface of the left kidney, probably marking the position of an old infarction. The spleen weighed 950 grams and was almost black in color, soft, and easily crushed.

G. W. S.

CASE 2.

Duodenum.

J. L.; aged 38 years; nativity, Sweden; admitted to the United States Marine Hospital, Port Townsend, Wash., August 3; died November 18, 1895.

History.—For three years the patient has been greatly troubled with his stomach, at times having dyspepsia so badly that he could not eat. He has been an applicant for treatment at various times, always improving and returning to work. When admitted in August he had severe diarrhœa and vomiting, which was never entirely controlled at any time. He complained of severe pain in the epigastric region, but no pathological condition could be found. On September 20 the patient called attention to a swelling on the left side of his neck. This swelling kept increasing for several days and was quite painful. About this time he began to develop a saffron coloring to his complexion, which later showed to be the peculiar complexion of cancer cachexia. Still, with all this suspicion, not a sign of a new growth could be found in the abdomen. At times the urine contained sugar, but it would disappear in a day or so to return again. About November 1 the liver was found to be enlarging, and this condition increased very rapidly. The feet became œdematous, and there was some fluid in the abdomen. The patient asked for an operation, and an exploratory laparotomy was decided upon November 12. The patient was chloroformed and an opening 3½ inches made in the epigastric region slightly to the left of the median line. The duodenum was the original seat of the disease. The small intestines were matted together, and the mesenteric glands indurated and enlarged. The liver was enlarged and was secondarily infected. Stomach enormously distended. The case was decided to be one in which operative interference was deemed inexpedient and the wound was closed. The patient lived six days and died from exhaustion.

Necropsy (twelve hours after death).—Body very much emaciated; feet swollen; abdomen distended. The abdomen opened and the wound examined, which was found to be entirely healed. Some fluid in the abdominal cavity. Stomach greatly distended and full of fluid. The small intestines matted together. The mesenteric glands indurated and enlarged. The liver enlarged and contained several infected spots. The gall bladder contracted. The kidneys enlarged and very hard and friable. No other organs examined.

J. O. C.

CASE 3.

Stomach.

J. D.; aged 45 years; nativity, Holland; admitted to United States Marine Hospital, Vineyard Haven, Mass., January 4; died April 10, 1896.

History.—One brother died from tubercle of the lungs; family history otherwise negative; had scarlet fever in childhood, but no other disease; present illness began thirteen months ago. He has lost flesh rapidly; has constipation of the bowels, pain after eating, and more or less constant pain over the region of the liver. The superficial epigastric veins are enlarged, the skin on the trunk has an icteroid hue, the liver dullness is diminished, and there is tenderness, on pressure, over the lower margin of the right lobe. There is slight enlargement of the spleen, slight œdema of the ankles, and he complains of insomnia. He steadily grew

worse and suffered from severe abdominal pains, nausea, and vomiting. On March 13 a small tumor, painful to the touch and firm on pressure, was observed to the right of the median line of the abdomen, just above the umbilicus. This gradually enlarged, the gastric symptoms increased in severity, there was progressive wasting, and he died in asthenia April 9, 1896.

Necropsy (seventeen hours after death).—Rigor mortis present; body greatly emaciated; brain not examined. There was 200 c. c. of serous effusion in each pleural cavity; one strong adhesion at the apex of the right lung; none on the left side; numerous deposits of carbon throughout both lungs; otherwise normal; heart small in size, pale, and valves competent; liver small, cirrhotic, firm on section, and partly invaded by cancerous deposit; gall bladder empty; stomach greatly dilated, and a large cancerous mass (schirrus) is found involving the pylorus, duodenum, and head of the pancreas. On section the pyloric opening is about the size of a goose quill and the walls on each side are 2.5 cm. thick. The mucous surface is softened and breaks down easily. Nearly all traces of peptic glands in the stomach are gone and the organ is coated on its inner surface with a glairy, tenacious mucus; omentum much wasted and filled with numerous pearl-like bodies of various sizes; mesenteric glands enlarged and filled with cancerous deposit; parietal peritoneum normal; that in vicinity of duodenum marked by numerous firm adhesions. Nothing of any special importance was noted in the rest of the small intestine or colon. Kidneys: Right congested, firm, and capsule adherent; left very pale, firm, and capsule adherent; suprarenal capsules wasted; spleen very small and apparently normal; genito-urinary organs normal.

D. A. C.

EPITHELIOMA.

Case 1.

Jaw.

T. G.; aged 55 years; nativity, Scotland; admitted to United States Marine Hospital, Boston, Mass., September 25, 1895, suffering from malignant new growth (epithelioma) of lower jaw; died January 29, 1896, at 4 a. m.

Necropsy (seven hours after death).—Body of small man, very much emaciated. Rigor mortis not very marked; pupils equally dilated. Lower jaw to angle on either side was removed by operation some time since; right side of neck on line with sterno-cleido-mastoid muscle has large fungoid, ulcerating growth; also suppurating sinus at left angle of jaw; arteries atheromatous; hydrocele of left testicle; marked cachetic appearance characteristic of new growth. Slight pleuritic adhesions over upper lobe of left lung; lower lobe partly gangrenous, containing several cavities the size of a walnut; on section of lung an offensive odor is emitted; lower lobe partly consolidated; weight of lung, 1,310 grams. Right lung normal; weight, 510 grams. Pericardium normal; contains normal amount of fluid. Heart normal in size; coronary veins deeply congested; both sides of heart completely filled with antemortem clots, extending almost a foot into aorta and pulmonary artery; weight of heart, 300 grams. Liver "nutmeg," showing fibrous degeneration; gall bladder distended; no stones. Weight of liver, 1,370 grams. Stomach and bowels normal in appearance. Spleen small and normal in appearance; weight, 100 grams. Urinary bladder contains small amount of urine. Right kidney broad across the back (Formod's pig-back kidney); capsule markedly adherent; weight, 120 grams. Left kidney similar in appearance to right; capsule adherent; weight, 110 grams. Macroscopically both kidneys show fibrous degeneration from congestion. Brain and spinal cord not examined.

E. S.
H. W. A.

CASE 2.

Floor of mouth and tongue.

C. F.; aged 37 years; nativity, West Virginia; admitted to United States Marine Hospital, St. Louis, Mo., March 30; died July 30, 1895.

History.—Father and mother died from natural causes. Two brothers died from consumption. One brother living and healthy. Patient has always enjoyed good health until present illness. In August, 1894, he first noticed a slight swelling under the right jaw, midway between the angle and symphysis. It was not painful, grew steadily larger, and did not cause him much inconvenience. He received treatment at the office in the city for some time, and on January 30 he came to the United States Marine Hospital. On examination a small abscess was found at the site of the original swelling and a tuberculous-looking ulcer on the under surface of the tongue, to the right of the frenum linguæ. The lymphatics of the neck are not involved and he has no pain. Specific history is denied. The urine contains a trace of albumen, but otherwise he is in fair condition. The abscess was opened and emptied of pus and cheesy matter, washed with hydrogen peroxide, and packed with iodoform gauze. The tubercle bacillus could not be found in the discharge from the abscess. On February 8 he was discharged, at his own request, much improved. On February 28 he was readmitted. The lymphatics of the neck are now badly involved and the skin on the anterior part and sides of the neck infiltrated. The ulcer in the floor of the mouth looks about the same. A section from a piece of the border, hardened and stained, shows that it is in all probability carcinoma. He declined operation, and March 21 went home at his own request. On March 30 he was again admitted. He is now much weaker and complains of severe pain in the right side of the jaw and shoulder. The lymphatic glands on the left side of the neck are now involved. Under anæsthesia the parts were curetted, cleaned, and dressed with iodoform and packed. On April 19, as there was still some doubt as to the positive nature of the affection, an injection of tuberculin was given, but was followed by no reaction. On May 4 he consented to operation. Under anæsthesia and with the usual preparations the right and left lingual arteries were ligated, a preliminary tracheotomy performed, Treudelenburg's tampon canula inserted, the floor of the mouth exposed by a modification of Regnoli's incision, the tongue drawn out through the incision, and all of the floor of the mouth and tongue involved in the disease thoroughly removed. There was no alarming hæmorrhage, and the operation, although somewhat tedious, was not difficult. All affected lymphatics on both sides of the neck were removed at the same time. The parts were adjusted by sutures and the mouth and sides of the neck packed with iodoform gauze. Case reacted well after operation. The air jacket on the tampon canula was allowed to collapse one hour after operation and after all hæmorrhage in the mouth had ceased, and the tampon canula was removed and replaced by an ordinary silver trachæal canula on the day following operation. Rectal feeding was employed for the first week and the canula was frequently cleaned by a soft clean feather. The floor of the mouth was packed each day and the packing coated with warm paraffin. The trachæal canula was removed at the end of the first week, and in ten days after operation he was taking liquid and semiliquid fluid by the mouth. The case made very satisfactory progress and the results were encouraging, but on June 26 the wound in the neck began to look unhealthy. The floor of the mouth had almost closed and the portion of the tongue left was not involved, but the disease seemed to extend rapidly in the soft tissues of the neck. The neck was thoroughly curetted several times and all kinds of applications tried, including electrolysis, but nothing seemed to check the disease. He became much emaciated, grew steadily weaker, and died on July 30, nearly three months from the time of operation.

Necropsy (*five hours after death*).—Rigor mortis absent. Body much emaciated, fungoid ulceration with deep sinuses along the course of operation wounds in the neck. Trachæal wound firmly closed. Scalp normal. Brain and meninges: General leptomeningitis most marked at convexity of cerebrum. Dura adherent to pia at posterior margins of parietal lobes near longitudinal sinus. The ventricles contained much serum and the choroid plexuses were congested. No further pathological changes were noted in the cerebrum or cerebellum. Slight adhesions at posterior part of left lung; none on right side. Lungs normal. Heart and pericardium normal; mitral orifice small; admits but two fingers. Stomach and intestines normal; pancreas small and very hard in texture; spleen soft and congested; omentum and mesentery wasted; right kidney large and congested, with much fat in pelvis; capsule adherent and the kidney is surrounded by a thick layer of fat; left kidney smaller than the right and slightly congested. Bladder normal. The floor of the mouth and anterior surface and sides of the neck infiltrated with a cancerous growth, which has reached the stage of ulceration in many places. The portion of tongue left after operation was not invaded. Sections made from portions taken from the sides of the neck and floor of the mouth showed the usual characteristics of alveolar carcinoma. Weight of viscera: Brain, 1,550 grams; right lung, 335; left lung, 280; heart, 250; liver, 1,620; spleen, 185; pancreas, 120; right kidney, 165; left kidney, 120 grams.

D. A. C.

CONTRIBUTED ARTICLES.

CONTRIBUTED ARTICLES.

The following articles relating to the work of the Service have been contributed by the several officers named.

A series of interesting historical sketches of the Marine-Hospital Service at the ports of Detroit, San Francisco, Boston, Vineyard Haven, Evansville, Louisville, and Cleveland are grouped together in the latter part of this chapter.

CASES IN HOSPITAL PRACTICE.

Service of Surg. H. W. Austin.

Reported by W. M. BURWELL, A. M., M. D., *Interne.*

FRACTURE OF PELVIS.

F. V.; aged 35 years; nativity, France; admitted to the United States Marine Hospital, Boston, Mass., September 14, 1895, for fracture of ramus of pubes, the result of a fall from the foremast to the deck, a distance of about 60 feet. Did not strike anything before reaching the deck, when he struck on his right side. Accident occurred at 11 a. m. on day of entering hospital.

Surg. H. W. Austin made an examination, which revealed fracture of right descending ramus of pubes near junction with ramus of ischium; on manipulation crepitation was distinct.

Patient was kept in bed, on back; pelvis was immobilized with wide roller bandage, tightly applied, and by sand bags, and extension was applied to both legs by weight and pulley. This treatment was continued for four weeks, at the end of which time he was permitted to sit up, and a week later to walk about the wards.

He was discharged on October 28, 1895, entirely recovered. No deformity.

INJURY FROM FALL.

The following case is of interest principally because of the fact that the man fell 75 or 80 feet without any very serious injury. The facts are as follows:

C. A. was brought to hospital in ambulance on morning of March 31, 1896. He stated that on that morning he had fallen from crosstree to deck of vessel, a distance of 75 or 80 feet; that there was a boat lying on deck, bottom up, and that he fell through bottom of boat, striking on his back. The statement was corroborated by the captain of the vessel.

Examination revealed a small scalp wound just over left frontal eminence, a superficial wound on right elbow, and contusions in lumbar region on both sides of spine. There was some pain in back, and considerable ecchymosis over the back and hips, but no bones were broken, and there was no serious internal injury. Patient made a rapid and complete recovery, and was discharged April 29, 1896.

EPITHELIOMA OF JAW—OPERATION FOR REMOVAL.

T. G.; aged 55 years; nativity, Scotland; was admitted to the United States Marine Hospital, Boston, Mass., September 14, 1895. He had a hard tumor of about one year's standing, involving the lower jaw. The glands of the neck on the left side were greatly enlarged, and were adherent to the deep tissues in the carotid region. He suffered considerable pain from the tumor.

On the morning of September 27 he was prepared for operation. An anæsthetic was administered. Surg. H. W. Austin excised the lower jaw anterior to the angles, leaving one molar tooth on each side. Only one incision was made, which was along the inferior border of the body of the bone. The bone was cut through with a chain saw after the removal of a tooth on either side. The tumor in the neck was dissected from the sheath of the carotid vessels and from the cartilages of the larynx, which were found to be involved to such an extent that a removal of the same was unwarranted. The patient made a quick recovery from the operation, and was walking about the wards in about two weeks. At the end of six weeks the disease began to show itself again in the wound in the neck and also in the jaw. The patient's strength gradually declined until he died, January 30, 1896.

DISEASE OF SHOULDER JOINT.

N. K.; aged 46 years; nativity, Norway; admitted to the United States Marine Hospital, Boston, Mass., October 26, 1896. His general health was fair. Examination revealed a sinus in left axilla leading to shoulder joint, and there was some discharge. He had been unable to use arm for two years, and there was atrophy of the muscles of shoulder and arm. Introduction of probe into sinus revealed dead bone at upper extremity of humerus. Passive motion of arm caused grating of humerus in glenoid cavity. An excision of the upper end of the humerus was deemed expedient. Patient was prepared for operation November 8, 1895. Aseptic precautions were taken. Patient under ether, Surgeon Austin made an incision from the acromion process, down arm, parallel with and posterior to long head of biceps, for about 4 inches, down to bone. Bleeding vessels were ligated, and all soft tissues separated from head of humerus, which, firmly adherent and partly necrosed, was forced from glenoid cavity and cut off with saw at surgical neck. Rubber drainage tube was inserted, wound closed with sutures, and an aseptic dressing applied. After fifth day wound was dressed nearly every day for three months. It was cleansed with peroxide of hydrogen; later it was irrigated every second day with a glycero-iodoform mixture. Before patient was discharged wound had closed, and there was fair motion of joint. He could place

hand on opposite shoulder or raise to mouth, abduct arm to a considerable degree, but could only raise it as far as the horizontal position; had good strength in arm; could lift a heavy chair or other object. Result was highly satisfactory. General health was excellent when discharged, June 15, 1896.

APPENDICITIS.

A. L.; aged 21 years; nativity, Germany; admitted to United States Marine Hospital, Boston, Mass., December 26, 1895. Said he had enjoyed good health up to two days previous to applying for relief, when he was taken suddenly, while in a theater, with cramp-like pains in abdomen, particularly in right side. Bowels moved freely without a cathartic on December 25. Examination showed slight general tympany, with extreme tenderness, in right iliac fossa, but no tumor could be made out. There was persistent vomiting for thirty-six hours. Temperature was 38.9° C. when admitted. Salines were freely administered, and by the seventh day the symptoms had disappeared. However, patient was retained under observation, and on January 8 a fluctuating tumor was discovered in right iliac fossa. An operation was at once decided upon. An anæsthetic was administered. Under aseptic precautions Surgeon Austin made an incision about 6 inches long, beginning just above the middle of Poupart's ligament and extending up in front of the anterior-superior spine of the ilium. The incision was carried down into the iliac fossa, external to the peritoneum, and the abscess opened and cavity cleansed. About 75 c. c. of foul-smelling pus were evacuated. The cavity was irrigated with a 1:4,000 solution of bichloride, a drainage tube inserted, and the wound partly closed by sutures. Cavity was irrigated and clean drainage tube inserted every day for five weeks, at the end of which time discharge had ceased. By March 1 wound had healed. On March 9, 1896, patient was discharged cured.

HERNIÆ.

Case 1.—A. B.; aged 40 years; nativity, England; admitted to United States Marine Hospital, Boston, Mass., December 23, 1895. He was a robust, muscular individual, and had had a hernia for two years. Examination showed a reducible, oblique, inguinal hernia on right side. On coughing the tumor would appear below the external ring, and was about the size of an ordinary fist. It could be reduced by pressure, or would disappear when patient would lie down. He desired an operation for radical cure, and was prepared by having a saline cathartic on the evening before the operation; pubes were shaved and thoroughly scrubbed with soap and water on morning of operation, and a wet bichloride dressing was applied; when on operating table pubes were again washed with alcohol and with sterilized

water. Ether was administered. Surgeon Austin did an operation after Bassini's method. An incision was made over the hernial sac and along the inguinal canal to the internal ring; the sac exposed and carefully separated from the spermatic cord and vessels; the sac was firmly ligated with catgut as high up as possible and cut off; the spermatic cord and vessels were lifted up and the border of the rectus and edges of the internal oblique and transversalis and transversalis fascia were firmly sutured to Poupart's ligament with interrupted catgut sutures; the cord was placed upon this layer, then the border of the external oblique sutured to Poupart's ligament; the superficial fascia and skin were closed with interrupted silkworm-gut sutures. No drainage was used. An aseptic gauze dressing and a firm compress of cotton were applied. Patient was kept in bed on milk diet for one week, at the end of which time dressings and skin sutures were removed. There was complete closure of wound by primary union. A compress was retained for one week longer, when result was apparently perfect. Man was discharged January 13, 1896, without a truss.

There was a slight rise of temperature (37.8° C.) on the day after the operation; temperature continued slightly above normal until the fourth day. For thirty-six hours after the operation there was pain in the region of the kidneys, thought to be due to ether.

Case 2.—A. R.; aged 36 years; admitted to United States Marine Hospital, Boston, Mass., December 18, 1895, for a contusion of the leg. He had a reducible inguinal hernia which he desired operated on. Eighteen months ago he noticed an enlargement in groin, and six months previously he had received an injury in groin by having a man fall on him. Tumor did not reach the scrotum. On January 21 Surgeon Austin operated on him by Bassini's method. On January 26 dressings and skin sutures were removed; there was complete union by first intention; pressure bandage was retained for three weeks longer. Patient was discharged on February 24, 1896, with a perfect result. No truss.

Case 3.—E. I.; nativity, New York; admitted to hospital on February 12, 1896; was ruptured on right side seven days previously while lifting and making fast a sail; said he felt the parts give way. Examination revealed a small oblique inguinal hernia. On February 14 Asst. Surg. A. R. Thomas operated on hernia after Bassini's method, slightly modified; put in a little gauze drainage at lower end of wound; removed drainage on second day after operation, and on sixth day dressings and skin sutures were removed, when wound was completely closed. Result was apparently perfect. Discharged on March 5 without a truss.

Case 4.—M. P.; aged 55 years; nativity, Maine; admitted to hospital May 23, 1896. Had a reducible inguinal hernia of twenty years standing. Tumor was the size of a large fist and reached down into the scrotum. Opening in wall would easily admit three fingers. On

May 27, after the cleansing of surface, an operation for the radical cure was performed by Surgeon Austin. Bassini's method was slightly modified. All sutures and ligatures used were catgut, except skin sutures, which were silkworm gut. On June 3 skin sutures were removed and pressure bandage applied. On the night of the 4th patient did not rest well, and on morning of the 5th his temperature was 37.4° C. Wound was examined and 3 c. c. of pus were evacuated from beneath the edge of the external oblique muscle, apparently from the site of one of the catgut sutures. Wound was at once thoroughly cleansed, and again on the succeeding day. Temperature returned to normal as soon as pus was evacuated. On June 12 wound had entirely closed. Result was perfect when patient was discharged on June 22, 1896.

A NOTABLE OVERGROWTH OF CONNECTIVE TISSUE AFTER URETHROTOMY, ASSOCIATED WITH KELOID OF CICATRIX AFTER CŒLIOTOMY.

By P. A. Surg. EUGENE WASDIN.

H. H.; a colored male; aged 35 years; asked relief for a stricture of the urethra of ten years' duration, during which time he had undergone several surgical operations, one at least an internal urethrotomy. Examination showed a much-scarred prepuce and glans from chancroid, a series of fibrous masses along the urethra, and several fistulous openings in the perineum, through which most of the urine was passed. The perineum was occupied by a large mass of new tissue, the raphé to the right. A filiform bougie could only be passed a little beyond the meatus externus. After three days of preparatory treatment the perineum was incised, and the urethra found occluded, and embedded in the mass of rather soft, new connective tissue, and well to the right of the median line. After its division the most careful efforts to introduce a guide backward toward the bladder or forward into the penile urethra were futile. After a half hour thus spent, the patient taking the anæsthetic very badly, it was thought best to discontinue the effort, and to take advantage, at another time, of the act of micturition to locate the proximal opening of the urethra. Reaction from the anæsthetic was good, and the next morning he was placed upon the operating table, when it was found that he had, with great difficulty, completely emptied the bladder. Ether was again given, and without further effort to reach the bladder through the perineal incision, a supra-pubic cystotomy was done, a steel sound passed into the deep urethra, through the bladder, to the obstruction, which was about 1 cm. from the vesical neck, and the tissues incised upon its point. For nearly 3 cm. the deep urethra was practically destroyed in the enucleation of the dense, yet soft, fibrous mass; as much of its epithelium as possible was saved. The penile urethra was now opened up, from the meatus downward, by means of a linear cataract knife with small handle, a procedure which I had often had to adopt in these impermeable penile strictures. The meatus externus was freely incised, and the Graefe narrow knife passed directly to the first obstruction 1.5 cm. beyond, through which it was gently pressed, the left thumb and index finger holding the fibrous nodule firmly in the median line. Each nodule was thus incised, the knife being passed upon the grooved director to the two deeper ones; the last, at the bulb, now being divided from the perineal wound. Otis's dilating urethrotome could now readily pass, and the penile urethra was incised

at constricting points to 31 mm., a sound readily passing into the bladder.

By the use of the long urethral knife in these cases we avoid the serious irritation which always accompanies the use of multiple filiforms and sounds; the incisions are clean and are under perfect control. In the use of the cataract knife the small handle offers no obstruction to its passage to the deep urethra. I make use of it in every case in which the caliber of penile strictures will not admit the dilating and cutting instrument; and it is only a matter of delicacy of touch which limits its usefulness. After irrigating the bladder and urethra with hot, sterile water, the perineal wound was lightly packed with gauze, the abdominal wound having been closed immediately when it had served its purpose. At the next visit there was already a noticeable growth of granulations in the perineal wound, which quickly closed, a 31 French sound being passed daily from the second day. Before his discharge from hospital the penile stricture at 3 cm. from meatus had recontracted to 25 mm., and under cocaine it was again cut with the dilating urethrotome to 31 mm. In the deep urethra I felt that only the daily passing of the sound prevented the overgrowth, plainly seen and felt in the perineum, from again obstructing the urethra from its pressure. The sound in the penile urethra plainly showed a mass at each stricture site, soft and intraurethral. The refusal of the tissues to contract or undergo absorption was the cause of his rather lengthened stay in hospital.

After discharge the urethra was kept open to 30 mm. at dispensary for several months, when he disappeared. A month later he again sought relief, stating that a country physician had been employed to pass a sound twice a week; that only a small size had been used, and that for two weeks none had been passed. I examined him and found the deep urethra impassable for anything above a filiform; the stricture nodules very prominent in the penile urethra and the caliber reduced to 15 mm. I again incised the soft, bulging perineum freely and again used the Otis instrument, cutting each mass upward and outward to 32 mm. After this incision the cicatrization was better, and at the last inspection the scar was contracting and the perineum nearly normal. The connective tissue masses in the urethral and peri-urethral tissues are still prominent, not excessively hard, and show little tendency to either absorption or further contraction, the urethral caliber now being maintained more by the restraint over the further overgrowth of this tissue than by its dilation through the passage of sounds of the full size of the canal. The line of incision in the abdominal wall became affected soon after healing, the keloid rising above the skin surface 5 mm. and the suture tracks showing as raised fibrous bands radiating from the keloid of the scar. In my service in the South I have seen keloid very frequently in the negro race, but in urethral work among them have not before this case noticed a disposition to this cellular overgrowth after operative procedures.

GYNÆCOLOGY IN THE SERVICE.

By P. A. Surg. Eugene Wasdin.

An examination of the statistics of the Service at my command shows that the women engaged upon our merchant vessels very frequently apply to the medical officers for relief from those diseases peculiar to their sex, and that the number of such applications is steadily increasing. Whether this increase is due to an increased number of women engaged, or to the fact that they are able to get efficient treatment at the hands of the Service physicians, I am unable to say, but I presume the latter. The statistics show that during the years from and including 1873 to 1876 only two cases of this nature were treated. In 1880 thirteen were treated, all from the district of the Ohio and the Great Lakes. From this time until 1890 there was a decided annual increase, and sixty-seven cases were reported for that year, among them one curettement. For 1891 there were forty-nine cases and one curettement reported. In 1892 there were forty-eight cases, among them the surgical treatment of an "abscess of the broad ligament," and one perineorrhaphy. During 1894 only thirty cases were reported. It is noticeable that not a single case in the reports before me has been reported from the North Atlantic district, and only two from the Pacific Coast. Of all the cases given, the Gulf district furnishes only 9, the South Atlantic 20, the Middle Atlantic 6, the district of the Mississippi 47, the Ohio 64, and the Great Lakes 219 cases of disease peculiar to women. These figures are not taken from an unbroken line of annual reports, but serve to show the comparative gynæcologic value of the districts. It is to be regretted that it is impracticable to obtain the results of treatment in these cases, since the large majority of them were dispensary cases; however, I have found no records of any deaths. In order to stimulate further the reports of these very interesting cases, I offer a few from the practice of this station during the past year.

Case 1

Mrs. W. (white); aged 50 years; multipara; last child fifteen years ago, since which she had suffered from great menstrual pain, profuse flow, and a constant pain in back and pelvis. At 46 the menopause was accomplished after much flooding and suffering. She presented a worn and anxious facies, with the imprint of much suffering; stated that there was constant pain in the entire pelvis, specially localized at

the right side, which, radiating into the right renal region, became excruciating. There was much reflex disturbance, headache, nausea, and vomiting. Examination gave a normal outlet, a cicatrized bilateral laceration in cervix, most marked on right; uterus fixed to the right, movable to the left side; right ovary embedded in dense painful adhesions; left large and tender. Pressure on the right ovarian mass gave rise to nausea; bimanual contact showed this mass to extend through the entire broad ligament, and it was thought the appendix vermiformis was involved. There was profuse leucorrhœa, blood tinged and offensive; uterus 10 cm. deep; endometrium granular. She was sent to hospital, when the stenosed cervix was forcibly dilated, under ether, and the endometrium curetted and touched with iodine and phenol, and the cavity lightly packed with iodoform gauze, which was changed every day. There was some improvement at once, appetite returned, reflex nausea and headache ceased, and pelvic pain decreased. However, the pain in the renal region was still at times extreme, so much so that it was disassociated from the pelvic pain. Urine gave pronounced trace of albumen, sp. gr. 1.012, was acid and very free; microscopically, amorphous phosphates, ammonio-magnesium crystals, glomerular epithelium, bladder epithelium, no pus nor blood. After some consideration I thought it best to explore the right kidney through the loin, and stated to patient the advisability of operation upon the pelvic organs, but this was refused. The kidney was found abnormally high, the lower border being opposite the upper margin of the tenth rib; capsule not tense or adherent; capillary needle detected no calculus; capsule freely incised.

After this capsulotomy there was marked relief from pain, and the patient soon afterwards discharged, and thereafter treated at the dispensary for the still persistent endometritis and ovaritis. To meet these indications biweekly applications of the galvanocautery were made, the positive applications, with the thoroughly protected electrode in the vagina placed against the ovaries, to relieve pain, and the negative cauterizations to influence electrolysis and absorption of the more recent adhesions, and for their alterative influence upon the uterine mucosa. At the first application her tolerance of the current was indifferent, only 25 m. a. being borne through the Massey current controller. Her tolerance, however, soon increased, and negative applications of 75 and 80 m. a. were nicely borne. After four weeks' treatment the uterus was reduced from 8 c. m. to 6 c. m.; the mucosa became smooth, the discharge normal, and the cervix perceptibly softened. The ovaries remained hypersensitive, the mass to the right softened, but not diminished; pain not materially lessened. During the next month the cauterizations were nearly all positive, the active pole being at times intravaginal, and again over the ovarian region, in the form of a large, moistened, felt pad, the negative pad over the sacrum, with further improvement. During the next month this

improvement vanished, and she lost rapidly, besides becoming very despondent from the increasing pain. She now asked for the operation of removal of both uterus and adnexa. Not anticipating relief from any less extreme measure, she was readmitted to hospital on November 19, and there being 3 per cent of albumen in the urine, preparatory treatment was continued until the 29th, when, assisted by the resident staff, I removed the uterus, ovaries, and tubes. Owing to the dense adhesions in the right pelvis and the possibility of involvement of the appendix, it was thought best to combine the vaginal operation with a cœliotomy, and thus remove the organs. Therefore under ether, and after thorough curetting and disinfection of the uterus, the cervix was freed from its vaginal attachment; the vesico-uterine peritoneum dissected to the fundus uteri, and the peritoneum to the same extent posteriorly. Clamps were adjusted to the broad ligaments to include the uterine arteries, and the tissues freed to that extent; a stout volsellum left in the cervix and the vagina loosely packed. Patient quickly changed into the Trendelenburg posture, and the abdomen opened. The adhesions to the right of the uterus were very dense, completely hiding and binding the ovary, and it was very difficult to free the organ and ligate the ovarian vessels. However, the appendix was not involved, but the ureter had been displaced through the contractions and would probably have been included in the grasp of the second clamp if applied from below. On the left side the procedure was simple. The peritoneum was transversely cut and the uterus, with ovaries and tubes, removed through the abdomen, the volsellum left grasping the cervix having been removed, after assisting materially in rotating and lifting the organ; abdomen closed as usual. Convalescence without incident; result, great relief from all symptoms and improved general health.

Although the combined operation is advised by some operators as their rule, I can but state that in this case I believe it prevented my clamping the right ureter, and although I was unable to suture the flaps of peritoneum over the clamps on uterine arteries, as I wished to do, there was the certainty of drainage, which was slight, and the clamps were removed on the third day.

Case 2.

M. A. (white); aged 29 years; with history of two abortions; complained of great pain in back and a constant "bearing down" pain in pelvis; also great pain on micturition and defecation, especially during menstruation. Bimanual examination gave a badly retroflexed uterus, the fundus pressed downward by the distended lower bowel, the cervix pressed against the base of the bladder; the pelvis excessively tender; left ovary adherent in the posterior cul de sac, large and painful; right tender; sound did not pass the angle of flexion in the

neck; much endocervical mucus. As a first measure the uterus was thoroughly curetted, after forcible dilatation and the effort made to adjust a pessary; but owing to the almost infantile cervix, and the extreme tenderness of the pelvis, this treatment was abandoned. From the dilatation and curettement there was immediate and marked improvement. Three months later she reappeared. Examination showed the same condition of acute retroflexion; general hyperæmia; the right ovary now enlarged and painful. The evidence of suffering was marked. There was profuse leucorrhœa and a voluntary constipation for seven days. I advised the removal of the left ovary and the fixation of the uterus to the anterior wall of the abdomen, and this was done under ether, the uterus first having been thoroughly disinfected, after dilatation and curettement. The left ovary was found fixed in Douglas's pouch, cystic, and was removed with its tube. The fundus was lifted forward, and three silkworm-gut sutures passed through its substance, the peritoneum, and the muscular parietes, fixing the organ firmly forward when tied and remaining permanently buried sutures.

Owing to rather free oozing from the site of the ovarian adhesions, a drainage tube of glass was placed in the pelvis before the incision was closed. Reaction from anæsthetic slow. After half an hour the drainage tube was exhausted and the bleeding found to be slight; but with reaction hæmorrhage became alarming, the patient, when I was summoned, being almost pulseless. With a minimum of chloroform, and without removing the patient to the operating room, the abdomen was reopened, the uterine fixation sutures sacrificed, and the bleeding from the surface of the peritoneum stopped with a clamp, the blood removed, and the abdomen freely flushed with hot sterile water. A deep ligature controlled the bleeding; two fixation sutures replaced, the abdomen closed, and reaction assisted. During this time subcutaneous transfusion of 1 liter of normal salt solution was made, and a rectal exhibition of 2 liters of hot water with 50 c. c. of whisky. Reaction good and convalescence normal until the end of the second week, when obstructive phlebitis occurred in the right lower limb, the internal saphenous becoming impervious from the knee to the saphenous opening, but the femoral vein was not involved. This subsided by the time she was allowed to leave her bed. When discharged the uterus was nicely anteverted, the cervical canal straight, and the right ovary normal after a normal menstruation.

The subsequent history of this case demonstrates the inadvisability of using silkworm gut as a buried suture. This woman's occupation required much scrubbing of paint work, and while working overhead she fell and strained the abdominal walls. She felt after this an irritation which finally, nearly two months after leaving hospital, ended in a small abscess at the site of the fixation sutures, the pus from

which was sterile, and no bacteria were found with the microscope. The sutures were removed. In other experiences sterile silk has been used as the suture material, and suspension of the uterus after Kelly I find the ideal operation.

CASE 3.

A. B. (white); aged 34; multipara; married three years; asked relief from subacute cystitis, due to acute anteflexion of uterus. Stated that there had been great menstrual pain since their first appearance, when a good red flow had continued three days, after which the flow was scant and of a pale pink tint. Although she was anæmic, the lips and conjunctivæ pale, there were no murmurs over the large vessels, and she declared herself in her usual health. She was admitted to hospital, and under ether the cervix forcibly dilated and straightened, the uterine mucosa gently curetted, and a grooved hard rubber stem placed in situ. At the next period the flow was painless, but the nurse declared it impossible to distinguish it from serum. She was afterwards placed upon galvano-cauterizations once each week at dispensary and chalybeate tonics. The first negative intrauterine applications induced the most copious flow of muco-serum I have ever witnessed. In two months the patient declared herself well, the last flow having been practically normal in color and duration.

CASE 4.

Mrs. M. P. (white); aged 32 years; parous; twice married; asked for relief from a painful and suppurating vulvo-vaginal fistula, following injury received some years previously. History of more or less marked neurotic attacks, at times hysterical in their nature, and frequent hemicrania. She was a reformed opium habitué. Examination gave a tortuous sinus opening upon the right labium majus, and also upon the posterior vaginal wall just within the introitus. It extended upward between rectum and vagina 3 cm.; uterus retroverted, movable; old cicatrized laceration in left cervix, rather tender to the touch, but without marked reflex symptoms when pressure was increased; ovaries slightly enlarged, movable, and tubes normal. There was much glairy endocervical mucus, and a profuse mucopurulent discharge from the endometrium. I advised the excision of the cervical scar on account of the tenderness at the cervico-vaginal junction at the time of closure of the fistulous track. She would only consent to the repair of the sinus, and this was done by thoroughly curetting the fully exposed sinus walls and the application of the necessary deep sutures for primary union of the incisions, which was perfect. Later at dispensary intrauterine negative cauterizations reduced the size of the uterus, restored tone to its mucosa, entirely relieved the leucorrhœa, and greatly benefited the general health.

CASE 5.

Mrs. D. (white); aged 48 years; parous; asked relief from constant ovarian pain and prolapse of uterus. Menopause five years ago was accomplished with great monthly suffering, since which there have continued almost monthly disturbances of the pelvic circulation, the uterus becoming heavy, and readily prolapsing; very free muco-serous leucorrhœa; backache, headache, and constipation. One prolapse had been almost complete; most frequently the cervix alone protruded at the outlet. Examination gave a moderately large vagina, but perfect outlet; uterus 10 cm. deep, movable, and low in the pelvis; left ovary prolapsed, large, and very tender; right, tender to touch; offensive muco-serous discharge. This patient had heard of other vaginal hysterectomies, and desired the operation. I, however, persuaded her to first try dispensary treatment, and she came as regularly as possible twice a week, when galvano cauterizations were made to the endometrium; the negative pole being relied upon to reduce the size and weight of the uterus, and to restore tone to its mucosa, the positive intravaginal, to relieve the pelvic and ovarian pain. After six negative cauterizations the uterus measured 7 cm., the offensive muco-serum diminished, and there was noticeable increase of tone in the uterine supports; pain in ovaries less; no monthly congestion. After the second negative application the discharge became very profuse and bloody, and required a positive intrauterine application before it was controlled. This was the only positive application to the endometrium. During the first month she received ten applications, and during the second only four. These applications were all made with insulated uterine and vaginal electrodes, the positive intrauterine electrode of the Goelett composite metal, the inactive pole being attached to a large felt pad moistened with salt solution. They were usually of ten minutes' duration, with a current flow of 40 to 75 m. a., perfectly controlled through a Massey graphite controller. The result was freedom from all symptoms when last seen.

THE RADICAL OPERATION FOR THE CURE OF INGUINAL HERNIA.

By P. A. Surg. EUGENE WASDIN.

In each Annual Report there are usually published a number of cases of operation for the cure of inguinal hernia, and various methods have been mentioned as giving "recovery." It is not the intention to criticise these methods, nor to call attention to the ultimate result in a number of reported recoveries, in which, to my knowledge, the condition subsequent to operation was worse than before it; but to report the result thus far in three cases after the Halsted method. In these cases the immediate demand for operative assistance was relief from pain in poorly supported nonretainable herniæ. In one case, purely omental, the constant tension upon this membrane had given rise to a most serious condition from reflex influences, there being pain in abdomen, anorexia, inhibition of stomach digestion, fermentation and gaseous distension, progressive emaciation, and anæmia. In the report of the first case I will give in detail the steps of the operation, since it has never been published in the Annual Report.

CASE 1.

F. B. (white); aged 35 years; asked advice for pain in an old right inguinal scrotal rupture, which, although constant for some time, was now extreme. I examined the rupture and advised operation. At hospital preparatory treatment was directed for cœliotomy. On the morning fixed for operation as I went to the bedside I noticed the chart recording a temperature of 38° C. The dressing at once removed from abdomen and an appendicial abscess diagnosed. This was opened, the appendix not removed, since it was not gangrenous, but firmly fixed in the limiting lymph. Cavity packed and dressed daily until the incision healed. During this time the pain in the scrotum, the rupture remaining down, was still severe, and as soon as it was thought safe the Halsted operation was done. Under ether, the abdominal walls having been thoroughly prepared, an incision was made through the skin directly over the inguinal canal, extending from a point 2 cm. external to and above the internal ring well into the scrotum, thus exposing the aponeurosis of the external oblique and the external ring. The grooved director was passed through the ring beneath the external oblique and its division made to the extent of the skin incision, or about 1.5 cm. beyond the internal ring, the internal oblique and transversalis then divided to

the same point. The canal was thus freely exposed. The restraint being removed, the peritoneum bulged freely through the incision and was retained by sterile pads. The cord was then thoroughly dissected of excess of areolar tissue, and two of three large veins accompanying it were excised between ligatures 3 cm. apart, thus reducing the volume of the cord. Coincident with this dissection of the cord the sac was freed from the scrotal tissues.

There was now no neck to the sac; there was only pouching peritoneum, but a hemostat placed at the internal ring served as a guide in the resection of the portion forming the old sac. This large opening in the peritoneum may be closed with continuous or interrupted sutures. I preferred to use the suture of fine silk, as in ligaturing the broad ligament. The cord was now drawn to the upper limit of the incision, or a little beyond its point of normal exit at the internal ring, and held here, while mattress sutures of kangaroo tendon were placed through the muscular tissues and tied, the cord emerging from between the first and second sutures. Care was taken to push the proximal stumps of the excised veins beneath the transversalis, thus preventing the weakening of the wall at this important point from atrophy of the venous trunks. By thus transposing the reduced cord the muscular and tendinous structures can be sutured together much more securely, and the distended external ring absolutely closed by deep sutures through the conjoined tendon and Poupart's ligament. Thus the inguinal canal was abolished, the internal ring modified, the external sealed. The skin was now closed over the transposed cord with silkworm gut, the dressing applied, and the patient kept quietly on his back for four weeks. In this case there occurred some suppuration from invasion of the wound by a streptococcus from the older appendicial incision, the lower limit of which overlapped the upper angle of the recent one. His recovery was delayed, but good. More than a year later he presents a firm abdominal wall; no appearance of return.

Case 2.

M. C. (white); aged 43 years; presented an oblique inguinal hernia; scrotal, and as large as a lemon; painful, and for some time irreducible; contents omentum. Operation the same as above. In this case there were two sacs, double omental hernia, one oblique, the other direct and much the smaller. After its exposure the peritoneum was excised sufficiently to reduce the pouching. Convalescence uninterrupted. Heard from one year later; still no return.

Case 3.

J. H. (white); aged 37 years; had suffered from rupture ten years; complete on left side, a bubonocele on right; both omental. Complained of much pain in abdomen when rupture was down; truss

retained it, but made it very irritable and painful. History of recent sciatica and rheumatism treated in hospital. There was now much pain localized in the region of the gall bladder; anorexia with nausea and vomiting; gaseous distension of the stomach; progressive emaciation and anæmia. While under treatment for sciatica the patient had asked for operation upon the hernia, attributing all his ills to that source, and he again demanded the operation. Under ether the Halsted method was pursued. The left sac contained a loop of intestine and a mass of omentum; right only omentum. On this side the peritoneum pouching but little, it was not interfered with, but in other respects the operation was the same as on the left side, and outlined above. Convalescence slow and unimportant, save that at each upper angle of the incisions the kangaroo suppurated on the tenth day. Pus examined and found sterile. At time of discharge there was a little weakening at the site of these little abscesses. Now, nearly a year later, there is some bulging at these points, and I have offered to place an extra suture for their reenforcement.

In view of the laborious employment of the patients applying to the Service for relief from hernia, it has been an important question whether the operation offered very much to them, since a return was more than probable in those exposed to laborious work. Besides, there is an element of fatality which under the older methods of operation was influential in the decision against operation so long as a truss would comfortably retain the rupture.

With the introduction of the methods of Halsted and Bassini the possibility of permanent relief was increased, and the question now is whether all herniæ should not be operated upon after these methods. I believe an affirmative should be given in all cases of rupture of recent occurrence; but in older and large scrotal herniæ the operation does not insure a permanent cure, owing to the changes in the tissues of the abdominal wall from long-continued pressure, both of the distending rupture and of the retention pad usually worn. In these cases I prefer that some acute condition, such as incarceration, pain, or reflex phenomenon should determine the procedure. Unfortunately it has so long been the custom to advise the wearing of a truss for recent ruptures that it is difficult to influence these cases to select the early operation, and yet the very measure we advise is noncurative, and from continuous pressure tends to lessen the chances of cure when operation is done later. For instance, there was a marked difference in the tissues of the two sides in Case 3; the right one never having had a truss, while the left rupture had been retained with a pad for several years, the tissues being thin and pale from interference with their nutrition. In other words, our position is now almost the opposite of a few years ago, and, with the radical change in the relation of the tissues after these operations, the early operation seems the most advisable. Of the two procedures I deem the Halsted

superior to that of Bassini, for the reason that in the former the effort is made to destroy the inguinal canal from the internal ring outward, and to this end the cord, only reduced by Halsted, is transplanted beneath the skin, emerging between the muscular sutures at or near the extreme upper angle of the incision. In the Bassini method this transplantation of the cord is only between the internal oblique and transversalis and the external oblique; thus necessitating its passage out at the external ring. This is the serious objection to the method, since the canal is only modified in a portion of its extent, the procedure being but little better than the method of Czerny.

In the Halsted method there is but one weak point, the internal ring; in the Bassini, two, the internal and external rings. As to the technique of the operation, the methods are the same, the most important question being that of the suture material. Both silk and kangaroo tendon are used. In one case of my own, and in another of a confrère, the kangaroo tendon resulted after some time in sterile abscesses, which I am convinced were due to the reduced condition of the patients, the leucocytes lacking vitality and succumbing to the influence of the animal tissue. The silver-wire suture, as used by Kelly in cœliotomies in the median line, would obviate the possibility of pus. The subsequent dressing with double spica bandage I find sufficient, and only once have used the gypsum bandage, which is apt to chafe and fret the patient.

A CASE OF APPENDICITIS.

By P. A. Surg. P. M. Carrington.

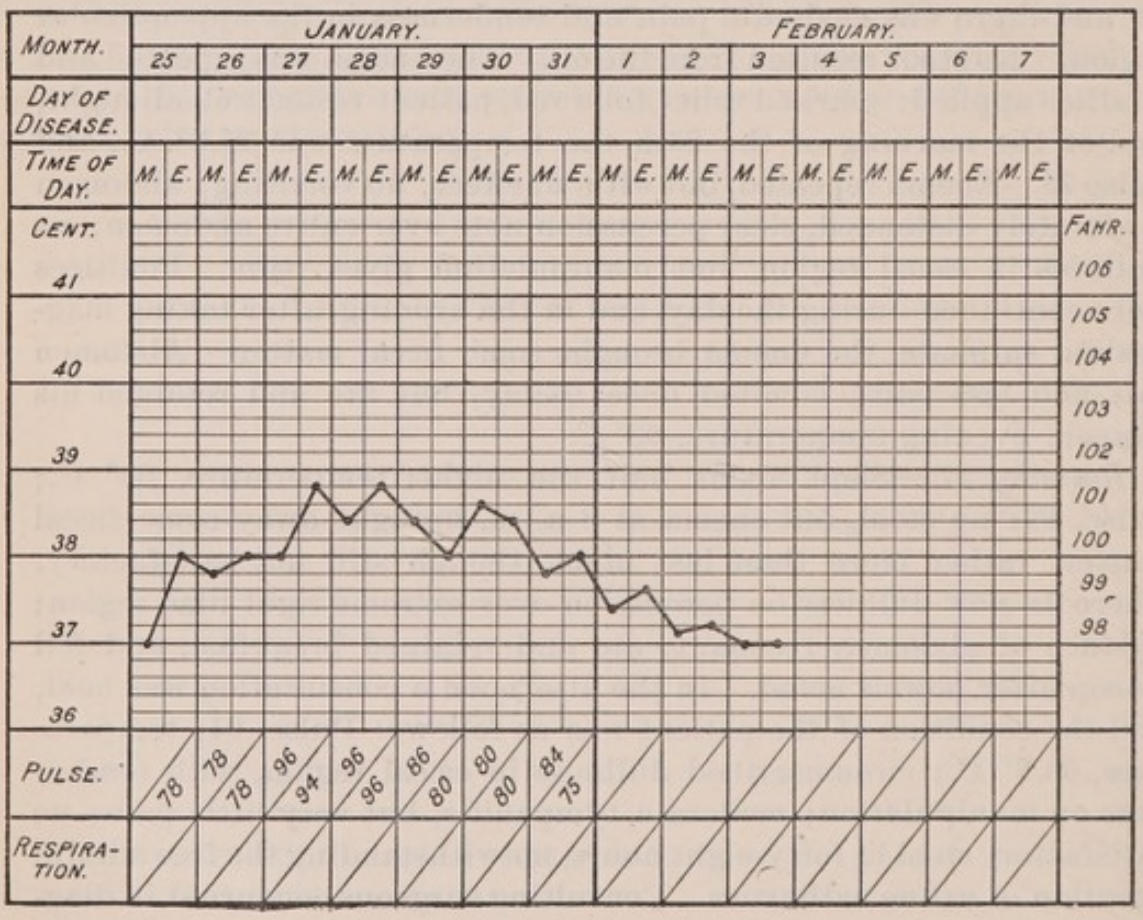
J. E., a negro roustabout, 22 years of age, was admitted to the United States Marine Hospital, Evansville, Ind., on January 20, 1896, with a well-defined case of constitutional syphilis of recent origin. The protoiodide of mercury, in pill, was ordered, with local treatment of the various lesions present. On the 25th the patient complained of abdominal pain, which was thought to be due to the remedy. This was discontinued, an enema administered, and followed by a dose of castor oil. The pulse and temperature at this time were normal, and the enema produced a fair-sized stool and gave some relief. In the evening the temperature had risen to 38° C., the pulse was regular at 78, and there was moderate pain and tenderness in the appendicular region. No stool resulted from the oil. The enema was repeated and poultice applied; marked relief followed, patient rested well all night, and on the morning of the 26th the temperature was 37.8° C., and pulse 78. Enema repeated, but without effect; no vomiting; abdomen moderately distended, clear percussion note over entire abdomen; no dullness in cæcal region, but manipulation gives pain. Poultices were continued during the day, and in the evening, after taking magnesium sulphate, the enema brought some fæcal matter. Abdomen soft and less pain; vomited once to-day, but ate and retained his supper; evening temperature, 38° C.

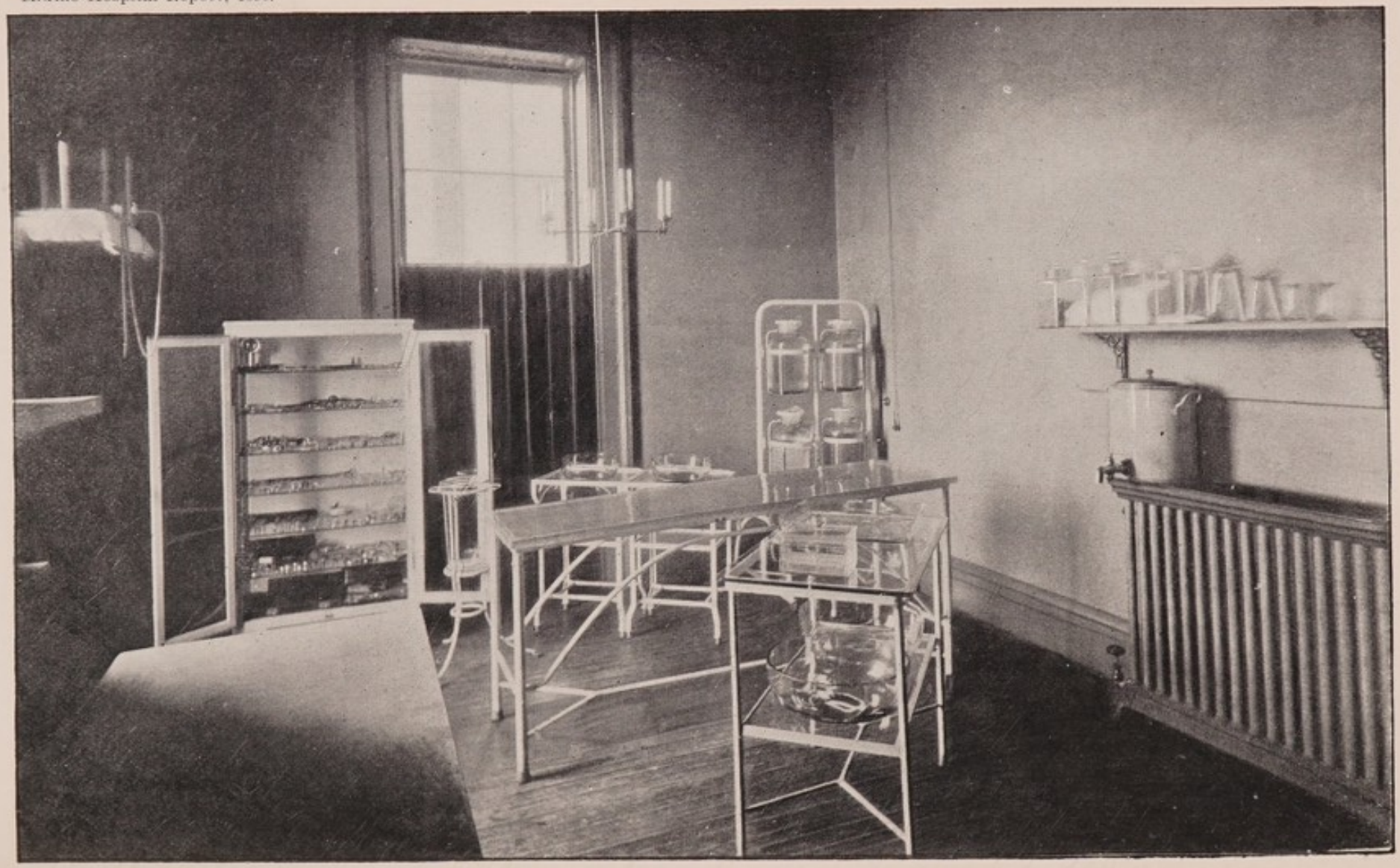
January 27.—Slept about half the night; temperature, 38° C.; pulse, 96; no stool, but enema at 8 a. m. brought away some fæcal matter, rather more than last night, though still not satisfactory. There is now dullness on percussion over extreme right iliac region; balance of abdomen resonant; ate and retained breakfast, and fell asleep after bowels acted. In the afternoon a consultation was held, and the condition of the patient was as follows: Pulse, 94; temperature, 38.8° C.; circumscribed dullness in cæcal region, with tenderness on manipulation; moderate tympanitis, but very little pain; no satisfactory stool in forty-eight hours, notwithstanding the free administration of saline cathartics. Consulting surgeons concurred in diagnosis of appendicitis, and were of opinion that delay was justifiable in view of the mildness of the symptoms, but as patient was willing to submit to an immediate operation, it was, after further consultation, agreed on. A laparotomy was accordingly done at 5.30 p. m. The incision was made directly over the site of the dullness, and the

gangrenous, already perforated appendix presented itself at the upper angle of the wound.

The appendix was adherent to the cæcum by a thick white exudate, and there was a small quantity of pus. The appendix was ligated and removed, its cut end inverted, and the peritoneal coat sutured. Limiting adhesions existed only on the right, and general infection of the peritoneal cavity was feared. After dry sponging, the upper portion of the wound was closed, and a gauze drain introduced into the lower part. The bowels were moved on the day after the operation by calomel, then kept open by occasional doses of magnesium sulphate. The temperature gradually fell, reaching normal on February 2. As was expected, pus flowed from the wound on removal of the drain, and the case was then treated as an ordinary abscess, the cavity gradually filling by granulation, and the patient was discharged fully recovered March 9, 1896.

It will be noticed that there was marked disparity between the symptoms and the local condition revealed by operation, and this case is reported as an argument in favor of operating immediately on all cases where a positive diagnosis of appendicitis is made.





OPERATING ROOM, U. S. MARINE HOSPITAL, CLEVELAND, OHIO.

A RÉSUMÉ OF THE SURGERY DURING THE PAST TWO YEARS AT THE PORT OF CLEVELAND, OHIO.

By P. A. Surg. R. M. WOODWARD.

During the fiscal years 1895 and 1896, 182 surgical operations have been recorded. Of these cases, 2 have died, 1 oöphorectomy from secondary hæmorrhage, and one injury to the head and face, requiring the removal of nearly all the bones of the face and the enucleation of one eye. The patient was unconscious when brought to hospital, and died nine hours after the receipt of the injury.

I beg leave to submit a few comments upon the more interesting cases.

RADICAL OPERATION FOR HERNIA.

(Seventeen cases.)

Of these cases, 7 were of the incomplete variety, 6 were complete or scrotal, and 4 were congenital, the testicle being in the sac. The cases varied in duration from a few weeks to twenty-seven years. In 2 cases, where the hernia was small and no elongated sac had formed, the old operation of stitching the pillars of the ring was performed. In all the others Kocher's method was employed. The peculiar features of this method consist in dissecting out the sac, making an artificial external ring in the conjoined muscular fibers of the internal oblique and transversalis just above the natural ring, bringing the twisted sac through this new opening, and stitching it down as a pad over the old ring. The sac atrophies and becomes a firm band of cicatricial tissue over the former weak spot. This may be likened to the means employed by divers in nailing boards and canvas over a hole in a sunken ship before attempting to raise her.

The operation is simple, rational, and does away with that mooted point, "What shall be done with the cord?" The cord is untouched and is left in the position it was designed by nature to occupy. In the congenital variety, where the testicle lies in the sac, the operation has to be modified by slitting the sac up at either side of the cord, like a radical operation for hydrocele, except that these two flaps are left attached above. They are then twisted and brought through the artificial ring in the usual way. Generally the entire sac can be saved, but if it is unusually long or thin it is better to cut off the lower end. The stitches are removed about the eighth day and union by first intention is almost universally found. In three or four days more the patient is allowed to sit up, and in two weeks he is generally

walking about the house. No truss is worn after the operation. The average time of treatment after operation in these cases has been 34+ days.

I have been unusually fortunate in tracing these cases after operation, and so far but two are known to have shown any tendency to relapse. Both of these were enormous scrotal hernias, in one of which I had previously performed an ordinary herniotomy for strangulation. One case, operated upon in July, 1894, for a very large scrotal hernia of ten years' standing, is now in hospital here for chronic nephritis, and there is no indication whatever of a relapse of the hernia.

RADICAL OPERATION FOR HYDROCELE.

(Two cases.)

In these cases the entire sac was dissected out and excised by cutting up either side of the cord. The wound in the scrotum was closed by continuous catgut suture, a small piece of gauze being passed for drainage through a counter opening made in the most dependent portion of the scrotum. After this operation considerable new tissue is thrown out about the testicle and cord, but it is all absorbed in the course of a few months.

RADICAL OPERATION FOR VARICOCELE.

(Four cases.)

The veins are rendered prominent by surrounding the base of the scrotum with a sterilized rubber band. After dissecting them out those accompanying the cord are separated from the others and allowed to remain. The larger mass is then ligated above and below, excised, and the stumps approximated by tying the ligatures together. A counter opening for drainage is made, as in the operation for hydrocele.

EXCISION OF VARIX.

(Five cases.)

Indolent leg ulcers and other unpleasant complications of varicose veins are constantly met with in hospital practice. Any operative measure short of actual excision of the veins appears to be only palliative. An Esmarch bandage is applied with moderate pressure to the thigh to render the veins prominent when the patient is recumbent. Generally the internal saphenous at or above the knee joint is selected, and a linear incision about 8 inches long made through the skin. The tortuous vein is carefully dissected out, which is easily accomplished, firmly ligated above and below, and excised. The blood can no longer return by this route, and the veins below atrophy, while the small anastomosing branches become developed sufficiently to carry on the function of the part. In one case operated upon the patient had pre-

viously been treated by the harelip-pin method in a hospital in Germany. The vein, when removed and opened, showed cicatricial constrictions at regular intervals where the pins had been applied, but the lumen was completely reestablished, showing that the former operation had absolutely failed of its purpose.

INFLAMED AND SUPPURATING BUBOES.

(Twenty-two cases.)

Upon the table nearly all these cases will be found to have pus at the center of the mass. In 3 cases simple deep incision and packing was practiced; 3 were incised and curetted, while in the remaining 16 the entire bubo was removed. Generally the wound was packed with gauze and allowed to granulate. In a few cases the edges were approximated with sutures, but while the skin would occasionally heal by first intention, it would leave below a cavity filled with serum, which would lead to a sinus, and finally the wound would have to be opened up and packed as in the other cases. The average duration of treatment after operation in these cases is 37+ days. They are unsatisfactory and tedious, and I am free to confess that the ideal way of treating buboes has not yet been discovered.

EXTERNAL URETHROTOMY WITHOUT A GUIDE.

(Two cases.)

Gradual dilatation is, in my judgment, the safest method of treating all strictures that will permit of it; and prolonged effort is made to pass a sound of some kind, even though it be only a corkscrew filiform, before resorting to the knife either externally or internally. In seven cases this method was practiced. In one case internal urethrotomy in a stricture near the meatus was performed. In two cases, where nothing could be introduced, the external operation without a guide was resorted to. Both cases made an uninterrupted recovery, and when discharged a No. 16 English sound could be readily passed.

STRETCHING THE SCIATIC NERVE.

(Three cases.)

This expedient was resorted to after all else had failed to relieve the intense neuralgia, and the patients were incapacitated for active work. The operation is exceedingly simple, and while in one case the wound became infected, complicating matters for a time, the result in all of the cases was very satisfactory.

SKIN GRAFTING, HUMAN AND FROG SKIN.

(Eleven cases.)

In seven of these cases, Thiersch's graft was employed, usually taken from the anterior face of the thigh. In one case the mosaic

graft was used. In three cases frog skin was the agent. After curetting the ulcerated surface to be grafted, checking the hæmorrhage, and irrigating with distilled water, several large bullfrogs were bound to a board, belly up, scrubbed and anæsthetized. The white skin of the entire belly and insides of the thighs was then excised, cut in strips, and accurately fitted to the surface to be covered. A lattice-work of Lister's protective covered this, and then a dressing without any antiseptics. The series of experiments was not long enough to furnish conclusive evidence, and the most interesting case deserted the day after operation. The results obtained, however, were satisfactory to such a degree as to warrant me in repeating the operation if occasion should occur.

APPENDICITIS.

(One case.)

The usual incision was made, and a cavity containing about 50 c. c. of very foul-smelling pus, filled with scybalous masses, found. The appendix was perfectly white, gangrenous, and simply hanging by a shred. It was excised, and the stump sterilized and turned in upon itself by repeated layers of superimposed sutures. The cavity was irrigated, and the wound partially closed, gauze drainage being left at the lower angle. The patient made an uneventful recovery, and was discharged strong and hearty.

DEPRESSED FRACTURE OF SKULL.

(One case.)

The depressed bone was removed, leaving an irregular opening in the skull over the right eye about as large as a half dollar. A soft clot was removed from the brain, the edges of the opening filed smooth, and the semilunar incision in the scalp closed without drainage. The callous covered the opening so that it was almost impossible to detect its location, and the patient went out without a sequela of any kind twenty-two days after admission.

MISCELLANEOUS.

Among the other operations I would mention seven amputations, one of the leg, the others of fingers and toes; three ischio-rectal abscesses; one excision of epithelioma of lip; seven cases of external piles removed by the clamp and cautery method; one operation lengthening the flexor tendon of the hand in a case of Dupuytren's contraction; four cases of curretting for catarrhal inflammation of the uterus; one plastic operation for prolapse of the vagina and cystocele; one case of wiring ununited fracture of femur; one reduction of dislocated shoulder; and two plastic operations upon fistula in ano, i. e., exercising the fistula and suturing the wound.

SELECTED CASES FROM A YEAR'S SURGICAL WORK IN PHILADELPHIA.

By P. A. Surg. GEORGE TULLY VAUGHAN.

These cases are selected as being of special interest, and will be divided into groups as follows:

INGUINAL HERNIA (17).

The operations for inguinal hernia may be divided into three classes, according to the method used, namely, (1) the method of Halsted; (2) the method of Bassini; and (3) the method by dividing the conjoined tendon, devised by myself.

THE HALSTED METHOD.

(Seven cases.)

This operation is thus performed: An incision is made over the inguinal canal from a point opposite or a little above the anterior superior spine of the ileum to the inferior ring, down to the cord dividing above, transversely, the fibers of the internal oblique and transversalis muscles for an inch or less. After freeing the sac, amputating and sewing it up and resecting the spermatic veins if dilated, the cord is brought out at the upper angle of the wound and the surfaces of the cut muscles, including the aponeurosis of the external oblique muscle are brought together beneath the cord by means of mattress sutures, usually six in number, the outermost being just outside of the opening for the cord, which is thus embraced between the two outermost stitches. The skin is closed with uninterrupted suture over the cord.

Case 1.—J. B.; aged 27 years; nativity, Russia; had a small oblique hernia of the right side, caused a year before by straining. Operated on September 14, 1895, under ether. Highest temperature after operation, 37.8° C. First dressing eleven days after operation, when primary union was found to have taken place, but there was a large stitch abscess at the outer angle of the wound. This soon healed, and he was allowed to get up on the seventeenth day after operation. Discharged recovered October 17, thirty-three days after operation. Through the courtesy of Surg. H. W. Austin I learn that this patient applied at Boston in December following on account of a small sinus, from which a long silk thread was extracted, after which there was some bulging.

Cases 2 and 3.—T. W.; aged 36 years; nativity, New York; had suffered with hernia on left side for one year, on right six months; both

scrotal; does not know the cause. Operation September 23, 1895; chloroform, then ether. Right epigastric artery was punctured with a needle and had to be ligated. Highest temperature, 38.8° C., on fourth and fifth days; soon became normal. First dressing on the eighth day. Primary union, but a stitch abscess on each side, which was slow healing. Kept in bed three weeks and discharged recovered November 14, fifty-two days after operation.

Both herniæ returned in December as soon as the patient returned to work. They were no longer oblique, but direct, coming straight through the abdominal wall with the cords at outer angles of the wounds like a ventral hernia. A truss was prescribed until a favorable opportunity for another operation.

Case 4.—R. S.; aged 18 years; nativity, West Indies; had a left oblique scrotal hernia, caused suddenly by straining two years before. Operation November 4, 1895, under ether. Continuous catgut suture used to close wound instead of silk. Highest temperature, 38.4° C., on sixth day, occurring only one day. First dressing on seventh day. Primary union; no pus. Allowed to get up on eighteenth day. Discharged recovered December 2, twenty-eight days after operation. April 18, 1896, patient was seen. Hernia had returned, and was no longer oblique, but came straight through the superior ring with cord. A truss was furnished.

Case 5.—W. P. L.; aged 31 years; nativity, New Jersey; had left oblique hernia for eighteen months; came on gradually. Operation November 25, 1895, under ether. Highest temperature, 38.6° C. First dressing on tenth day; primary union; but two small stitch abscesses, which soon healed. Kept in bed sixteen days after operation. No relapse when last heard from a few months later.

Cases 6 and 7.—J. H. S.; aged 50 years; nativity, New Hampshire; had double oblique hernia, caused by coughing and straining nearly a year before. Operation September 16, 1895, under ether. Highest temperature, 38.5° C., and remained so for four days. First dressing on the ninth day; primary union, but a stitch abscess on each side, which refused to heal, so that December 9 the sinuses were enlarged, a few knots of silk removed, and the wounds allowed to heal by granulation. Discharged recovered, with apparently good result, March 2, 1896. Has not been heard from since a short time after his discharge, when there was no relapse.

The Bassini Method.

(Five cases.)

The operation is performed thus: Make an incision over the inguinal canal from a point slightly above the superior down to the inferior abdominal ring through skin and fascia to the aponeurosis of the external oblique muscle, tying each vessel as divided. Divide the aponeurosis of the external oblique muscle, exposing the

spermatic cord between the two rings; separate the hernial sac from the cord to a point within the superior (internal) ring, then twist the sac, ligate, or sew it across if large, and cut off. Hook back the tissues, including the divided aponeurosis, remove the cord from its bed, hold to one side and unite Poupart's ligament to the conjoined tendon and rectus muscle with interrupted sutures beneath the cord from the spine of the pubes to the superior ring, making the latter as small as may be consistent with the safety of the cord. Replace the cord and unite the aponeurosis from above downward as far as the inferior ring. Last unite the skin and fascia. Bassini uses silk throughout, closing the wound with a continuous lock stitch of silk. I sometimes use catgut, but prefer kangaroo tendon to any other material, closing the skin with a subcuticular suture.

Case 1.—B. S.; aged 31 years; nativity, Pennsylvania; had been wearing a truss for several years on account of a left scrotal hernia. Four days before admission it came down and was strangulated. A hard tumor was felt in scrotum with a pedicle leading into the inguinal canal. From absence of very serious symptoms, a diagnosis of strangulated omental hernia was made. Operation July 16, 1895, under ether. A piece of omentum size of a walnut was found black and gangrenous attached to a pedicle 8 cm. long, which had two complete twists in it from left to right, which effectually cut off the circulation. A ligature was applied to the healthy part of the pedicle, the remainder cut away, and the operation completed according to Bassini, using silk throughout. Highest temperature, 38.5° C. First dressing on ninth day; primary union, but one or two small stitch abscesses. Kept in bed twenty days. Discharged recovered August 14, twenty-nine days after operation. Patient seen several times, and a year after operation, though he had been following his calling as sailor, there was no indication of a relapse.

Case 2.—A. W.; aged 22 years; nativity, Germany; had an oblique left hernia, produced by straining just a week before. Operation September 2, 1895, under ether. Silk used except for closing wound, which was done with subcuticular catgut. Highest temperature, 37.7° C. First dressing on seventh day; primary union, with very small stitch abscess, which gave no trouble. Kept in bed eighteen days. Discharged recovered October 14, forty-two days after operation. Has not been heard from since.

Case 3.—N. M. (negro); aged 26 years; nativity, North Carolina Had a large oblique left scrotal hernia, which came on gradually eighteen months before. Operation October 14, 1895, under ether, using subcuticular catgut suture, and silk for the other steps. Highest temperature, 39° C., on twelfth day; cause unknown. First dressing on seventh day; primary union, without pus. Kept in bed three weeks and discharged recovered November 12, twenty-nine days after the operation. No report since.

Case 4.—J. W. (negro); aged 39 years; nativity, Maine; had a hernia on each side. Bassini's operation was done on the right side, and the method by dividing the conjoined tendon on the left (see list of cases under that method). Had had the one on right side two months. Operation February 14, 1896, under ether. Three silver wire sutures were used to unite the structures beneath the cord, and kangaroo tendon for the rest. Highest temperature, 38° C. First dressing on tenth day; primary union, no pus. Kept in bed twenty-four days, and discharged recovered March 20, thirty-five days after operation. No report since.

Case 5.—F. L.; aged 24 years; nativity, Finland; had right direct inguinal, which came on suddenly fourteen months before while lifting a heavy weight. Operation March 19, 1896, under ether. Sac came into inguinal canal just below the conjoined tendon. Kangaroo tendon used throughout, closing with subcuticular suture of same material. Highest temperature, 39° C. First dressing on eleventh day; primary union, no pus. Kept in bed sixteen days, and discharged recovered April 11, twenty-three days after operation. No report since.

The Method by Dividing Conjoined Tendon.

Description of the operation:

(1) Make an incision over the inguinal canal from the superior abdominal ring to the center of the symphysis pubis through the skin and fascia; then split the fibers of the aponeurosis of the external oblique, exposing the cord and hernial sac.

(2) Separate the sac from the cord, ligate or sew across well within the superior (internal) ring, and cut off the redundant part.

(3) Divide the conjoined tendon through its muscular part 4 or 5 cm. above its insertion, including the internal pillar of the ring, down to the peritoneum, avoiding the deep epigastric artery. Separate by blunt dissection the conjoined tendon from the rectus and pyramidalis muscles down to the pubic bone, and place the cord in this position between the conjoined tendon and rectus. The cord still passes through an oblique canal, as the conjoined tendon overlaps the rectus and pyramidalis for 2½ cm. or more, being inserted in front of these muscles. Unite the divided ends of the conjoined tendon and of the internal pillar with mattress sutures and carefully approximate them with continuous or interrupted sutures.

(4) Close the old inguinal canal with interrupted sutures, uniting Poupart's ligament to the conjoined tendon, including the transversalis fascia externally, over the cord. I usually pass two or three sutures through the conjoined tendon to include the edge of the rectus.

(5) Unite the superficial structures with a continuous suture and

the skin with a subcuticular suture. Kangaroo tendon is the best suture material to be used throughout the operation. The cord is thus placed next the peritoneum and brought obliquely through the abdominal wall at the strongest point.

Case 1.—W. A. F. (negro); aged 23 years; nativity, Nova Scotia; had an oblique right scrotal hernia, caused two years before by a blow on the abdomen by the spoke of a wheel. Operation December 16, 1895, under ether. Highest temperature 38° C., next day. First dressing on fifteenth day; primary union without pus. Kept in bed twenty-two days. Discharged recovered January 18, 1896, twenty-eight days after operation. Patient was seen eight months after operation, having been to sea. There were no indications of a relapse.

Case 2.—J. N.; aged 50 years; nativity, Sweden; had had a right oblique inguinal hernia ten years, produced by straining. Operation January 13, 1896, under ether. Highest temperature afterwards 37.6° C. First dressing on twelfth day; primary union; no pus. In bed twenty-four days and discharged recovered March 20, thirty-five days after operation. Not heard from since.

Case 3.—J. W. (negro); aged 39 years; nativity, Maine; had a hernia on each side, the right being operated on by Bassini's method, and the left by the method of dividing the conjoined tendon; both same day (see case No. 4 under the Bassini method). The hernia on the left side appeared seventeen years before and was operated on soon after by some cutting operation, but returned three months after the operation. Operation February 14, 1896, under ether. Highest temperature, 38° C. First dressing on tenth day; primary union; no pus. In bed twenty-four days and discharged recovered March 20, thirty-five days after operation. Not heard from since.

Case 4.—C. H.; aged 23 years; nativity, Sweden; had a right oblique inguinal hernia for two weeks; does not know the cause. Operation under ether April 20, 1896. Highest temperature, 38.2°. First dressing on seventh day; primary union except at outer angle, where a little bloody serum escaped. A few days later pus was discharged from the wound, which did not heal till May 20, thirty days after operation. Kept in bed nineteen days. Discharged recovered June 15, fifty-six days after operation. Nothing heard from him since.

Case 5.—J. D.; aged 42 years; nativity, New York; had suffered from a right oblique inguinal hernia for fifteen years, caused by straining. Operation May 11, 1896, under ether. Highest temperature, 38.4° C., evening of operation. First dressing on eighth day; primary union without pus. Kept in bed sixteen days, and discharged recovered June 15, thirty-five days after operation. Not heard from since. Of the seventeen operations four relapsed, and it is interesting to note that all four belonged to the Halsted method of operating.

VENTRAL HERNIA (1).

The first patient was operated on twice, the first operation proving a failure, but there is reason to think the second has proved a success. The operation on the second patient was impossible of completion for reasons which will appear.

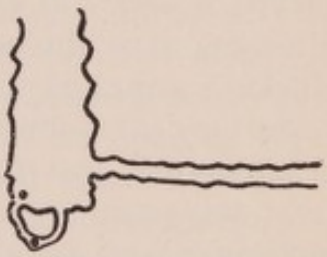
Case 1.—C. B.; aged 42 years; nativity, Massachusetts; had suffered with ventral hernia for ten years, caused by violence—being dragged across the crosstrees of a vessel. The protrusion was in the median line, about 5 cm. above the navel. Operation July 15, 1895, under ether. An omental hernia was found, reduced, the sac ligated and cut off, and recti united with silk without opening their sheaths. Wound healed in ten days, but patient was not discharged till August 19. By the following October the hernia had returned. In May, 1896, patient requested another operation. Accordingly, on May 18, under ether, an incision was made down to but not through the peritoneum; the muscles united without the intervention of other tissue by eight interrupted sutures of kangaroo tendon. Other tissues closed with same kind of sutures. Highest temperature, 38.2° C., on day after operation. First dressing on the fourteenth day; primary union; no discharge. Kept in bed eighteen days and discharged recovered June 15, twenty-eight days after operation. September 25 the patient reported at the office to show the result. He had been at work requiring severe straining ever since leaving the hospital, and there was no evidence of relapse.

APPENDICITIS, CHRONIC RECURRING (2).

Case 1.—S. S. M.; aged 37 years; nativity, Pennsylvania; had suffered several mild attacks of appendicitis during the preceding year, characterized by pain over McBurney's point, vomiting, and diarrhœa. At the time of his last attack he was under treatment for malarial fever, which to some extent masked the symptoms of appendicitis so far as temperature and diarrhœa were concerned, but there was pain, subjective and to pressure, over the appendix, and the swollen organ could be felt by rectal examination. Operation December 16, 1895, under ether. Incision parallel with the outer border of the right rectus muscle, through skin, fascia, and muscular aponeuroses, was made down to the peritoneum. After stopping all bleeding this was opened by an incision 3 cm. long. The appendix was easily found, its mesentery secured by two catgut ligatures before cutting away from the appendix, and the latter removed by making a circular incision through the peritoneum half a centimeter from the cæcum, stripping the peritoneum up sufficiently to make a flap, ligating with silk, cutting off, and then stitching the peritoneal cuff over the end. There were no adhesions. The wound was closed with interrupted silkworm sutures through all the tissues. The appendix was swollen,

congested, and contained a little pus and extravasated blood. No substantial elevation of temperature afterwards. First dressing fifteen days after operation, when the stitches were removed. Healing was complete by primary union. Kept in bed three weeks, and was well enough to be discharged, when the malarial trouble again appeared and kept him under treatment till March 2. Patient was seen eight months after operation, in good health and had no further bowel trouble.

Case 2.—E. N.; aged 23 years; nativity, Sweden; was sent to me for operation by P. A. Surg. C. P. Wertenbaker, having just passed through an attack of appendicitis in the hospital under his command. He had an attack in August, 1895, with vomiting and the characteristic pain and was in bed three days, and several mild attacks between that time and July 11, 1896, when the last attack came on. Operation August 14, 1896, under ether, by McBurney's method. On deep palpation the appendix could be felt through abdominal walls. First incision made nearly parallel with Poupart's ligament over the appendix down to the aponeurosis of the external oblique muscle, whose fibers were separated with the handle of the knife, exposing the fibers of the internal oblique and transversalis running transversely. After separating their fibers in the same way (not cutting across any muscular tissue) the transversalis fascia and peritoneum were divided to the extent of about 4 cm. There were many adhesions, but the appendix was found behind and to the outer side of the cæcum, its distal end curled on itself and loosely attached to an opening in the cæcum from ulceration about 1 cm. from the origin of the appendix. On removing the appendix from this opening a small hard fæcal ball (coprolith) escaped from the cæcum and another was found tightly wedged about the middle of the appendix, which was swollen, gangrenous, and perforated at the distal end. The appendix was cut off close to the cæcum, the edges inverted, and the opening closed by two rows of sutures of the Czerney-Lembert kind. The other opening in the cæcum, which was 18 mm. in diameter, was scraped and closed in the same way with fine silk sutures. The wound was closed with catgut for peritoneum and each layer of muscular fibers separately, leaving only room for a small piece of gauze as a drain. Skin was closed with silkworm gut, leaving two sutures, which included the deep structures, untied, to allow space for the gauze drain. Dressed with sterile gauze. Highest temperature, 38.4° C. on second day. Gauze drain removed after forty-eight hours, as there was no discharge, and the two sutures tied. Stitches removed on the seventh day; primary union; no pus. Kept in bed ten days. Discharged recovered September 7, twenty-four days after operation.



Showing opening in cæcum from ulceration, with perforated end of appendix attached. The two black clots—one in the middle of the appendix and the other at periphery.

NEURECTOMY OF THE SECOND DIVISION OF THE FIFTH NERVE AT THE FORAMEN ROTUNDUM AND OF THE SUPRAORBITAL AT THE SUPRAORBITAL FORAMEN.

C. H.; aged 46 years; nativity, Sweden; had suffered excruciating pain for three years in the right side of his face from the upper jaw to the top of his head. Extraction of the teeth and medicines had produced no relief. Operation February 11, 1896, under ether. A T-shaped incision was made under the right eye, exposing the infra-orbital as it escaped from its foramen, at which point a silk ligature was tied around the nerve. The anterior wall of the maxillary antrum was then opened just beneath the nerve by means of a gouge sufficient to permit the entrance of the index finger. The layer of bone beneath the nerve was gouged off, using the nerve as a guide, back to the posterior wall of the antrum, which was opened the same way as the anterior wall into the spheno-maxillary fossa. The nerve was then traced to its exit from the foramen rotundum, cut off with curved scissors at this point, and withdrawn. The three anterior divisions were plucked out by gradually drawing on the main trunk. Meckel's ganglion was not removed, but portions of the orbital and posterior dental branches were found attached to the trunk. A mass of muco-pus was found in the antrum, probably having entered from the nasal cavity. The supraorbital nerve was exposed by an incision in and parallel with the eyebrow, cut off at its escape from its foramen and its peripheral branches extracted by firm traction. The wounds were closed with catgut, except a space left below the eye through which the antrum was packed with iodoform gauze. Highest temperature after operation, 38.6° C. There was conjunctivitis of the right eye, which subsided in ten days. Patient was kept in bed a week. The wound suppurated and was dressed every two days. Patient was discharged recovered April 11, two months after the operation.

There was no pain after the operation, except an occasional twinge, which the patient said he did not mind. There was slight facial paralysis of the right side of the mouth for a week after operation, the mouth being drawn to the left. This must have been caused by injury to communicating branches of the facial nerve on extracting the infraorbital. The patient was seen in August, and had been entirely free from pain since his discharge.

GUNSHOT WOUND RIGHT FEMUR; FRACTURE; TRAUMATIC ANEURISM OF FEMORAL ARTERY ON THIRTY-EIGHTH DAY; LIGATION; NEPHRITIC COLIC ON NINETY-FOURTH DAY.

J. H.; aged 30 years; nativity, New Jersey; was shot in right thigh from behind May 27, 1895. Next day, under ether, I examined him. There was only one wound, as if made by a .48-caliber ball, about

20 cm. above the knee on the posterior surface. A probe passed easily forward and downward through the bone, which had sustained a complete fracture, to the front of the thigh, where the point could be felt beneath the skin about 8 cm. above the border of the patella. The synovial cavity of the knee was distended with fluid, which floated the patella, but the ball could not be located. After cleaning and dressing the wound a Buck's extension apparatus and sand bags were applied. June 19, the swelling having subsided, a plaster bandage was applied to the extremity, leaving a window over the wound. July 4, about noon, he had severe pain in the leg about the point of fracture, which continued until 10 a. m. next day, when the plaster was removed, revealing considerable swelling on the inner side of the thigh opposite the fracture, with deep fluctuation. Under the impression that it was pus, although the wound had not suppurated, ether was given, an incision made through the skin, and a grooved director bored through the muscle into the supposed abscess, when, instead of pus, blood and clots came forth. A tourniquet was applied and the opening enlarged, exposing a cavity apparently in the vastus internus muscle, from which about 1,000 c. c. of clots and blood were evacuated, revealing at the bottom the femoral artery just above the opening in the abductor magnus with an opening in it between 1 and 2 cm. long. The artery was ligated above and below this opening, the wound and cavity packed with iodoform gauze, and dressed. There was considerable callus about the ends of the bone, though union was not firm, but nothing could be seen of the ball nor were any sharp pieces of bone in a position to indicate their ability to wound the artery. Patient was extremely weak, and 500 c. c. of normal salt solution were injected subcutaneously. The leg was cold, but four hours after operation its circulation was almost as good as that of its fellow. The gauze packing was allowed to remain in nine days and the wound then closed with adhesive plaster, and healed without suppuration.

August 29.—The leg was well, when the patient was taken with symptoms of renal colic on the right side. The pain was not severe till about September 3, when it became located chiefly at McBurney's point. This, with tenderness on pressure, vomiting, and constipation, would have aroused grave suspicion of appendicitis had it not been for the history and the pus in the urine. There was no pain in the testicle. Pain was much less on the 4th, still better on the 5th, when a considerable quantity of pus appeared in the urine, and on the 6th a jagged gravel about the size of a large pea was passed. Patient was discharged recovered October 12, with 4 cm. shortening of right femur. Three months later patient was at work and enjoying good health. In this case the artery must have been bruised or slightly wounded by the ball or a fragment of bone, causing the coats at last to give way.

SCHEDE'S OPERATION FOR VARICOSE VEINS (3).

This operation for varicose veins of the lower extremities was devised by Schede, of Hamburg, who has used it in about forty cases with excellent results. It is radical and rational, as it obliterates the dilated superficial veins and forces the blood into the deep veins, which have the advantage of muscular compression to aid in propelling the current of blood, and thus preventing stagnation. For varices of the lower extremity, in which the stocking fails to give relief, or when for some reason it can not be worn, and in chronic ulcers arising from this cause, I know of no better method of treatment than this operation.

Description.—After making the parts aseptic and applying an Esmarch bandage to render the extremity and field of operation bloodless, a circular incision is made around the leg 10 to 12 cm. below the knee joint, through the skin, superficial fascia, and superficial veins and nerves, down to the fascia covering the muscles, just as if a circular amputation was intended. The cut ends of the veins above and below, and any small arteries which may have been cut, are then picked up and tied with catgut, and the wound closed with a continuous suture of catgut. A little numbness is complained of afterwards along the course of the internal saphenous nerve, though according to my experience this disappears in less than a year; but in my last operation I avoided cutting this nerve by separating it from the internal saphenous vein before dividing the latter, so that the patient was free from the numbness which usually occurs. The other nerves divided at this point are small and unimportant, as may be seen by glancing at the cutaneous nervous supply of the leg and foot. The veins divided are the internal and external popliteal and their branches, which are numerous, usually requiring twenty to forty ligatures to secure both ends of every vessel. The arteries divided are small and unimportant, consisting principally of cutaneous branches from the popliteal or its branches. The following is a synopsis of three cases in which I have performed the operation.

Case 1.—Sailor; 42 years old; had suffered from varicose veins and ulcers of left leg for seven years. Operated on July 15, 1895; between twenty-five and thirty ligatures applied. Healed by primary union in ten days. A few stitch abscesses. Highest temperature after operation, 38° C., on day after operation. Entirely healed by August 1, seventeen days. Complained of numbness along inner side of leg and foot. Was seen again eleven months after operation, when he said that all numbness had disappeared. There were no sores or swelling, and his leg was as well as ever. He had been following his vocation.

Case 2.—Sailor; aged 50 years; had varicose veins of leg for several years. Operation August 19, 1895. Healed by primary union, and

well enough to discharge in three weeks. Seven months later the leg was in excellent condition, though there was still a little numbness along the course of the saphenous nerve.

Case 3.—Sailor; aged 33 years; had suffered from varicose veins of left leg for five years, getting worse all the time. Bruised the veins recently and had to stop work on account of it. Operation June 18, 1896, taking care not to cut the internal saphenous nerve. Veins numerous and enormously dilated, internal saphenous being as large as the index finger. Forty-six ligatures were applied. Temperature rose to 40° C. on third day after operation, but fell next day. On removing the dressing on the 24th, six days after the operation, one half of the wound was found to have healed by primary union, while the other half, including the region of the bruised veins, had suppurated profusely, the catgut sutures had given way, and the wound was gaping. Recovery was not complete until August 4, forty-seven days after the operation. There was no numbness along the inner side of leg and foot. Patient was seen August 26 and the leg was in good condition. The trouble in this case was no doubt caused by bruising of the veins before the operation. It would also have been better to have removed the dressing and inspected the wound earlier.

PERINEAL SECTION—EXTERNAL URETHROTOMY (3).

Case 1.—T. T.; aged 32 years; nativity, Sweden; had a perineal fistula, through which urine escaped, caused by a gonorrhæal abscess nine years ago. Had been operated on twice, but unsuccessfully. The fistula was just to the right of the median line behind the scrotum and led into the membranous urethra. January 13, 1896, under ether, with a grooved staff in the bladder, a long-bladed knife was passed through the fistula into the urethra and the fistula enlarged by cutting downward and outward as in lateral lithotomy. The tract of the fistula was then dissected out, three arteries tied, and the wound packed with iodoform gauze. There was no stricture of the urethra. There was no substantial elevation of temperature afterwards, only 37.4° C., and patient passed water naturally as well as through the wound, which was packed daily. Discharged recovered March 2, forty-five days after operation, passing urine naturally.

Case 2.—C. J.; aged 44 years; nativity, Delaware; had suffered from strictures of the urethra for twenty-three years, the result of gonorrhœa. Had been twice treated in hospital by dilatation, beginning with filiforms. For several years he has had incontinence, with constant dribbling day and night of ammoniacal urine. The pendulous urethra had three hard lumps in its course. A Bank's filiform was the only instrument that could be introduced into the bladder, after which steel sounds were passed to No. 10 F., beyond which it was impossible to go without producing chills and fever. February 3, 1896, without an anæsthetic, the urethra not being very sensitive,

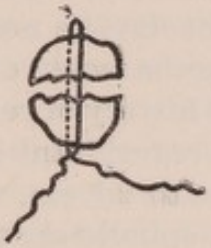
internal urethrotomy was done on the three anterior strictures so that No. 26 could pass, but the urethrotome could not pass the membranous portion. Attempts were made from this time to dilate this stricture of the membranous portion, but without success. February 17, under ether, external urethrotomy was done, and the stricture cut and dilated till No. 30 F. could be passed from meatus to bladder. The wound was packed with gauze. There was less reaction than after internal urethrotomy, temperature reaching only 37.4° C., while after the latter there was a chill and temperature of 39° C. Sounds were passed every four or five days, then once a week. The perineal wound healed in one week so that urine no longer came through. April 9, patient was discharged much improved, fifty-two days after the last operation. He had perfect control of his bladder during the day, but at night there was still a little incontinence. He was told to pass a sound once a week the rest of his life.

Case 3.—P. M.; aged 43 years; nativity, Austria; was admitted with extravasation of urine in tissues of scrotum and abdomen, result of stricture of urethra. Could not pass water, and at the bottom of the left side of the scrotum there was a gangrenous spot about 2.5 cm. in diameter. Operation May 19, 1896, under ether. Incision in the perineum evacuated a quantity of urine and pus. A stricture of the membranous urethra was cut and dilated and numerous incisions were made in the distended scrotum, through which urine and pus escaped. Perineal wound was packed with iodoform gauze, which was changed twice daily at first. Patient reacted well and had no fever of importance, though when the gangrenous spot on the scrotum separated the left testis hung through the opening. Sounds were passed regularly through the urethra from the meatus about every five or six days, the wounds soon healed, the opening in the scrotum granulating over, and the patient was discharged recovered July 13, fifty-five days after operation—a short time considering the extent and severity of the damage.

BARKER'S OPERATION FOR FRACTURED PATELLA.

J. G.; aged 47 years; nativity, Ireland; fell with a heavy bag on his back and struck his right knee on the floor. He was still able to walk with the aid of a cane. On examination next day the knee was much swollen and there was a transverse fracture of the patella, the fragments being separated 5 cm. Agnew's splint was kept on seven days, but did not bring the fragments together. May 27, 1895, eight days after the fracture, Barker's operation was done. Two incisions were made through the skin and fascia down to the tendon, one above the upper border of the upper fragment and the other below the lower border of the lower fragment. A strong needle, curved, 10 to 12 cm. long, set in a handle, with the eye near the point, is entered at the lower incision and passed beneath both fragments through the joint till the point appears in the upper incision, where it is threaded with

one end of a strong silk ligature and the needle is withdrawn, bringing the thread out below. The needle is again inserted at the lower incision and passed up beneath the skin over the two fragments to the upper incision, where it is threaded with the other end of the silk ligature and withdrawn, so that the two ends of the ligature encircling the fragments may be tied together in the lower incision after bringing the two fragments of the patella into accurate apposition. Thus:



The ends of the ligature are cut off short and the incisions in the skin closed. The patient was put to bed with the leg on a splint. Temperature rose to 39° C. on the evening of the operation, but there was no fever afterwards. The wounds soon healed without suppuration, except a small stitch abscess. Patient was kept in bed seven weeks, when there was ligamentous union with a separation of 1 cm., with good use of the limb. The failure to get bony union was probably owing to some shreds of soft tissue having intervened and prevented contact of the fragments.

EXCISION OF UPPER HALF OF BICEPS MUSCLE OF ARM FOR SARCOMA.

J. G.; aged 53 years; nativity, Austria; was admitted to hospital August 31, 1895, in order to have a tumor removed from his right arm.

History.—Two months before he had noticed a hard lump in the muscle of his arm about half way between the middle and upper end. This tumor was painful, especially on using the arm, and in spite of treatment had grown rapidly, until at the time of admission it had reached the size of a hen's egg. September 2 the patient was anæsthetized and an exploratory incision made in order to examine the tumor. It had the macroscopic appearance of sarcoma; so the upper half of the muscle, with the tumor in the middle, was excised by dividing the short head near its origin from the coracoid process, the long head as high as possible without opening the capsule of the shoulder joint, and the belly of the muscle about the middle. Bleeding was arrested by the application of catgut ligatures, and the wound closed, leaving a few strands of catgut in the lower angle for drainage. There was no fever afterwards, the highest temperature being 37.8° C., and the wound was well in two weeks without suppuration. October 2, when discharged, the patient had good use of the arm, though it was much weaker than before. February 4, 1896, the patient was again seen, five months after operation. He had been to sea, and stated that his arm was as strong and the motions as perfect as before the operation.

Examination apparently confirmed his statement. There was certainly no trouble nor weakness in the motions of flexion and extension of the forearm. The remaining portion of the biceps seemed to have formed attachments to the adjacent tissues, which no doubt enabled it to assist the brachialis anticus in its action.

SARCOMA OF THE RIGHT CLAVICLE—EXCISION.

W. S.; aged 28 years; nativity, New Jersey; seven months before noticed swelling of the right clavicle near the sternal end, with a good deal of pain of a dull, aching character, extending to the mastoid process and down to the chest. No history of venereal disease nor rheumatism, though there was a mitral regurgitant heart murmur. On admission inner two-thirds of clavicle to 2.5 cm. from the inner end were occupied by a bony tumor of a spindle shape. The external jugular vein on that side was distended. Operation October 22, 1895, under ether. Entire clavicle with tumor removed by an incision over the clavicle from one end to the other. Acromial end disjointed first. Over twenty ligatures applied to bleeding vessels. In order to keep the shoulder from dropping the trapezius and sterno-mastoid muscles were sewed to corresponding parts of the deltoid and pectoralis major with catgut. Wound was closed with catgut except at the middle, where a gauze drain was placed. Wound healed by primary union, except the place where the gauze was inserted, which soon healed by granulation; no suppuration. Highest temperature 39° C., only once, one day after operation. Kept in bed fourteen days. Discharged recovered December 2, 1895, forty-one days after operation, with perfect use of the arm. The tumor measured 11.25 cm. in circumference, and after microscopic examination by the pathologist, Dr. Stengel, was pronounced a mixed-cell sarcoma.

April 27, 1896, the patient appeared at the office, having been following his business as fireman on a steamboat. He stated that he had no difficulty in performing his duties and that the arm felt as strong as ever. There was no discomfort, except after long walks with the arm hanging down there was a tired feeling in the shoulder. No dropping of the shoulder was apparent on inspection with his clothes on, but after stripping the right was seen to be possibly 1 cm. lower than the left. This difference may have been normal.

TUBERCULOSIS OF SHOULDER JOINT—EXCISION OF HEAD OF HUMERUS.

Capt. W. T. G.; aged 53 years; nativity, New Jersey; gave a history of hip disease when a child, and later of trouble with right eye; still having occasional attacks of keratitis. Eight years before admission he had "rheumatism" of right shoulder and has had pain and stiffness in the joint ever since. In August, 1894, an abscess burst just below the shoulder joint and has been discharging at intervals since. Recently he has had chills, fever, night sweats, much pain, but no cough, and has lost very much in weight. There were two fistulæ

leading into the joint, one on the arm and one on the chest, both near the axilla. Anchylosis of the joint. Operation April 6, 1896, under ether; a straight incision was made through the deltoid muscle, and the bone sawed in two just below the surgical neck, the glenoid cavity scraped out, diseased parts of the capsule removed, and the fistulous tracts curetted. The cavity was packed with iodoform gauze and the wound closed with silkworm gut sutures, leaving only sufficient space for the projection of the gauze. The gauze was changed after forty-eight hours. There was suppuration, and the wound was treated with injections of iodoform emulsion. Patient was kept in bed only ten days, and May 15, thirty-nine days after operation, the wound was practically well, only two small granulations remaining. May 20 he was discharged recovered, with very good use of the arm, but not quite perfect. He had fattened 25 pounds since the operation. August 18 patient was seen; had made two trips as captain of a vessel and was in apparently excellent health, the arm steadily improving in strength and range of motion. The bone removed was eroded, softened, and contained numerous foci of suppuration in the neck, the head having almost disappeared from the erosion.

LYMPHOMA OF THE NECK—EXCISION.

F. O.; aged 24 years; nativity, Denmark; had an orange-sized tumor on the left side of the neck beneath the sterno-cleido-mastoid muscle which had been growing steadily for three years. Voice has been hoarse for two years. Laryngoscopic examination showed paralysis of the left vocal band, and patient complained of a sense of pressure in his throat on swallowing. Examination of blood showed red cells 4,750,000 and white cells 25,000. Operation April 20, 1896, first chloroform and then ether. The external jugular vein was ligated and divided and the tumor exposed by an incision along the anterior border of the sterno-mastoid muscle and removed with its capsule by dissecting it from the adjacent tissues, laying bare the phrenic nerve, internal jugular vein, common carotid artery, œsophagus, trachea, and thyroid cartilage. Enlarged and thickened lymphatic vessels extended from each end of the tumor above and below and were divided in the jugular fossa and root of the neck respectively. The recurrent laryngeal nerve was not seen. Wound closed with subcuticular catgut suture, except small space at lower angle for gauze drain, which was removed two days later. Highest temperature was 38° C. Wound healed in seven days by primary union; no pus. For a few days after operation the hoarseness was worse, but later on the same as before. On the day of his discharge, May 18, the left vocal cord was still paralyzed, though it is hoped that the nerve will regain its function since the source of pressure has been removed. Microscopic examination showed the tumor to be a lymphoma with partial fibroid changes.

TUBERCULOSIS LEFT KIDNEY—NEPHRECTOMY.

R. Y.; aged 51 years; nativity, Pennsylvania. Mother died of consumption. Patient says he has had rheumatism in the right hip five times in twenty years. Had gonorrhœa three times in the same time. A month before admission he had a cough, expectoration, night sweats, shortness of breath, and swelling of the feet. Has had trouble passing water for several years and a fistula in ano for six years. On examination the patient appeared thin and delicate; nothing noteworthy found about the lungs, but there was chronic pharyngitis and laryngitis, two strictures in urethra, and a fistula in ano. Urine was acid, sp. gr. 1.022, contained some pus, a trace of albumen, cylindroids, and bladder epithelium. February 3, 1896, the strictures and fistula were operated on, the former by internal urethrotomy and dilatation, and the latter by cutting out the fistulous tract and closing with sutures. The fistula soon healed and the patient was considered almost well, sounds being passed every four or five days without producing any fever, when on March 1, several days after using a sound, he had a severe chill, with temperature of 40° C., followed by profuse sweating. These chills recurred about once a week; sometimes the interval was shorter and sometimes a little longer. There was frequent urination, and the urine contained pus, blood cells, and kidney and bladder epithelium, but the reaction was always acid. There was pain in the left side extending from the bladder to the kidney, worse on urinating, but always present, of a dull, aching character, some tenderness on pressure over the left kidney, and later a slight fullness of the flank was perceptible. The quantity of pus increasing, the chills and sweats continuing, and the patient growing worse, it was considered justifiable to make an exploratory incision over the left kidney in order to see if it were necessary to do a nephrotomy or nephrectomy.

June 22, 1896, under ether, an incision parallel to and just below the last rib was made, exposing the left kidney, which was found so much diseased, being about twice the usual size, the pelvis and calyces being dilated and suppurating, while the parenchyma was found transferred into fibrous tissue (as shown subsequently by the microscope), that the removal of the organ was decided on. The ureter, artery, and vein were ligated separately with silk, the kidney removed, and the wound closed, except a small opening, through which a piece of gauze was packed into the cavity and allowed to project for drainage. There was no substantial diminution in the quantity of urine passed. For the first twenty-four hours it was about 150 c. c. less than before, but such slight variations often occurred from no apparent cause. The quantity usually passed in twenty-four hours was from 1,000 to 1,500 c. c., and this continued after the operation undiminished. There was no further chill, except a slight chilly sensation on the day after the operation, but the wound suppurated, and three

weeks after the operation urine began to pass through the wound in the back whenever the patient would urinate, sometimes as much as 120 c. c. passing this way in twenty-four hours.

Four weeks after the operation the patient was allowed to get up. He is still in hospital, but will probably soon be well enough to leave, as the wound in the back is almost closed, only a few drops of urine escaping in twenty-four hours. There is a very little pus in the urine, and the patient is walking about free from pain and growing daily in strength.

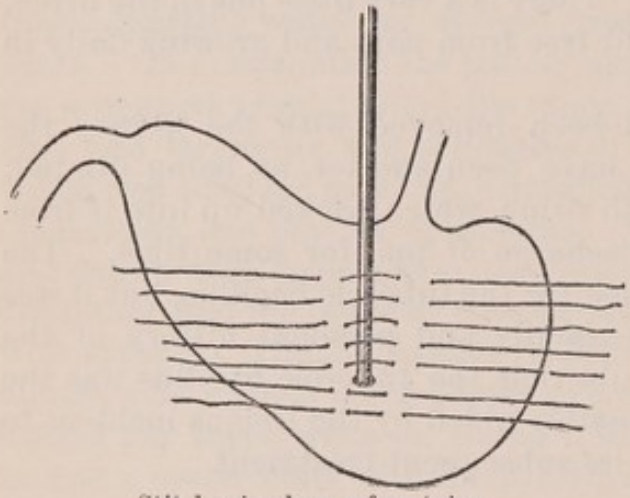
Remark.—If the ureter had been removed with the kidney the period of convalescence would have been shorter, as, being dilated, suppurating, and distended with urine, which backed up into it from the bladder, it kept up the discharge of pus for some time. The urine was several times examined for the tubercle bacillus, but it was not detected, though from the family and personal history of the patient there could be little doubt that the tubercle bacillus was the cause of the kidney disease, possibly aided by the lesions incident to the operation for stricture and its subsequent treatment.

CANCER OF THE ŒSOPHAGUS—GASTROSTOMY BY WITZEL'S METHOD.

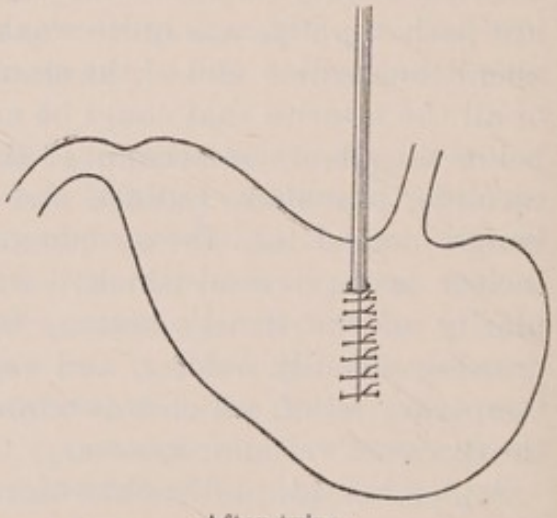
J. W. (negro); aged 67 years; nativity, Nova Scotia. Had suffered nearly a year with symptoms of dyspepsia, and for two months with difficulty in swallowing, especially solid food, though there was some difficulty in swallowing liquids. Frequent vomiting after eating; patient says the food would lodge in his throat and come up. About a month before admission he vomited a good deal of blood. He had lost flesh rapidly, was quite weak, and complained of a burning pain about the cardiac end of the stomach. There was marked atheroma of all the arteries that could be examined, no pulse being perceptible below the elbows on account of the hardness of the arteries, and the carotids, brachials, radials, and femorals felt like solid cords. A bougie passed into the œsophagus to a point 32 cm. from the upper incisor teeth, beyond which it would not go. There was also irregularity of the heart's action, but no murmur. The patient was growing steadily weaker, and readily accepted the chance of even temporary relief, which was offered after serious reflection, owing to the diseased vascular system.

September 14, under chloroform, gastrostomy by Witzel's method was done. An incision was made through skin and fascia on the left side, beginning at the median line and extending downward and outward parallel with and 1 cm. from the costal cartilages to a distance of 10 cm. The edges of the wound being held apart with retractors, the rectus muscle and its sheath were divided in the direction of its fibers for about 7 cm., held apart with retractors, and the transversalis, fascia, and peritoneum opened in the same

direction as the external incision, parallel with the line of the costal cartilages, for about 5 cm. Two fingers were introduced, the stomach was pulled out, and a small opening made through its anterior walls near the cardiac end and the greater curvature. Through this opening a rubber tube about 20 cm. long and about the size of a No. 30 French catheter was introduced, allowing it to project into the stomach about half a centimeter, where it was fastened by a stitch through it and the outer walls of the stomach, excluding the mucous membrane. The tube was then laid against the anterior wall of the stomach in a direction upward and inward and covered for 3½ cm. by approximating over the tube a fold of the stomach wall from each side by means of interrupted silk sutures passed through the stomach wall, not including the mucous membrane, and tied over the tube, thus making a sheath for it. Nine sutures were used, two of them being used below the opening in the stomach in order to guard against leaking, and all were passed through the tissues before any were tied (see drawing). The wound was then closed by stitching the peritoneum to the stomach along the line of the tube, uniting the rectus and sheath with catgut and skin with silkworm gut. A short section of a larger rubber tube with a safety pin through it had been passed over the smaller tube, and through this pin adhesive plasters were passed in order to hold the tube in place. Patient stood the anæsthetic well, and rallied quickly from the operation. He was first given 750 c. c. of milk the morning after the operation and regularly every three hours after, sometimes with an egg. Wound was first dressed eight days after the operation, and found all healed by primary union, though there was a little pus around the tube. There has been no leakage and the patient has been much more comfortable since the operation, but at this writing, ten days after the operation, it is impossible to say whether the patient's life will be much prolonged by means of it.



Stitches in place before tying.



After tying.

A STATISTICAL STUDY OF PERFORATION OF THE INTESTINES IN ENTERIC FEVER, WITH REPORT OF A CASE OF PERFORATION OF THE CÆCUM.

By P. A. Surg. J. C. PERRY.

No complication in disease makes a physician feel more helpless than that of perforation of the intestines in enteric fever. No other accident occurring during the course of the disease adds so much to its fatality, and in none are remedial measures so ineffective.

Perforation generally takes place after the third week, but may be as early as the eighth day or as late as the seventieth. It is rare in children and after 40 years. Men more frequently suffer from this complication than women.

Fortunately perforation does not occur very frequently, its percentage being shown by the following tables:

Table 1. (Murchison.)

Total number of cases of enteric fever	1,580
Total number of cases of perforation	48
Percentage of perforation to total number	3

Table 2. (Hoffman.)

Total number of fatal cases	250
Total number of cases of perforation	20
Percentage of cases of perforation to total number	8

Table 3. (Murchison.)

Total number of autopsies	1,721
Total number of cases of perforation	196
Percentage of cases of perforation to total number	11.38

Table 4. (Osler.)

Total number of autopsies	64
Total number of cases of perforation	15
Percentage of cases of perforation to total number	23

The following table (No. 5) is compiled from the published necropsies in the United States Marine Hospital reports for the past ten years.

Table 5.

Total number of autopsies	150
Total number of cases of perforation	41
Percentage of cases of perforation to total number	27.3

The larger per cent of perforations in the tables I have compiled is due to the fact that all the patients were males. Of 73 cases observed by Murchison, 51 were men; and of 106 cases reported by Mäcke, 72 were males.

The perforation is nearly always in the small intestine, the lower part of the ileum, although it may occasionally occur in the large gut. It occurred in the cæcum in one of the 41 cases reported in Table No. 5.

Table No. 6 will show the site of the perforation.

Table 6.

Distance above ileocæcal valve.	Cases.	Distance above ileocæcal valve.	Cases.
3 centimeters	6	30 centimeters	2
5 centimeters	9	35 centimeters	1
8 centimeters	3	40 centimeters	1
10 centimeters	6	92 centimeters	1
15 centimeters	7	1 meter	1
20 centimeters	1	Cæcum	1
25 centimeters	2		

The perforation is most often single, and the following table will show the relative frequency of one or more perforations:

Table 7.

	Cases.
One perforation	32
Two perforations	4
Three perforations	2
Four perforations	2
Five perforations	1

In addition to the typical infiltration and ulceration of the agminated and solitary glands of the ileum, the glands of the cæcum and colon are occasionally affected, although in the vast majority of the cases the color and consistence of the mucous membrane of the large intestine are normal. When affected the ulcers are usually small and round.

The following table will show the frequency of the involvement of the cæcum and colon in the 150 necropsies reported above:

Table 8.

Total number of autopsies	150
Ulcers in the cæcum	5
Ulcers in the cæcum and colon	16
Percentage of involvement of the large intestine to total number of cases	14

A few words concerning the treatment of perforation may not be amiss, but in this connection I will only speak of the surgical treatment. There is no doubt but what a few cases of perforation end in recovery without surgical aid, the inflammation being circumscribed by the adhesion of coils of the intestines, etc. But this favorable termination is so rare that formerly this accident was considered as rendering the case hopeless.

Although the results of laparotomies for this affection have not been brilliant, still they have rescued a few from the grave, and all patients who do not die immediately following the accident from shock should be given the benefit of it. It has only been in recent years that surgeons have attempted to do something for these cases.

Dr. Abbe (Medical Record, January 5, 1895) reports a successful operation, and gives the statistics of 17 laparotomies by different surgeons for perforation, with three recoveries.

I think a brief report of the following case will be of interest:

G. J.; aged 35 years; nativity, Sweden; was admitted to the marine ward St. Vincent Hospital, Portland, Oreg., July 9; died August 4, 1895.

The patient upon admission gave a history of having been sick for seven days. At this time he was suffering from fever, diarrhœa, and upon examination a few rose-colored spots were found on the abdomen, and some tenderness was elicited by pressure in the right iliac fossa. His temperature ran a typical typhoid course, the fever being 38° to 39° C. in the morning and 1° to 2° C. higher in the evening. The nervous symptoms were not pronounced, and tympanites was slight throughout the disease.

The treatment consisted of cold baths, which easily controlled the hyperpyrexia; strychnia in full doses for its tonic action on the heart; salol internally, and milk diet.

The fever commenced to fall by lysis on the twenty-fourth day of the disease, and his general condition was good. On the thirty-fourth day he was suddenly seized with severe pain in the abdomen, passed into a condition of profound collapse, from which he never reacted, and died one hour later. Although perforation was diagnosed his condition rendered an operation inadmissible.

Necropsy (*twelve hours after death*).—External appearances: Body fairly well nourished; rigor mortis and post-mortem lividity slight. Thoracic cavity: Heart was normal, weighing 290 grams. The pericardium was healthy. Lungs were congested in the lower lobes; the right weighed 430 grams and the left was 20 grams lighter. Abdominal cavity: Stomach normal. The small intestine presented the typical lesions of enteric fever in a severe form. Peyer's patches were much ulcerated, the diseased condition extending 1 meter above the ileocæcal valve. The glandular structure in the mucous membrane of the cæcum was much ulcerated, there being six ulcers, each of which was about 3.5 cm. long and 2 cm. in breadth, at the base of one of which there were found four small perforations. The colon was healthy. The liver was much enlarged, weighing 2,350 grams. The spleen was twice its normal size, and the pancreas was healthy. The kidneys were slightly congested; the left weighed 170 grams and the right weighed 185 grams. Brain not examined.

SMALLPOX—SOME PECULIARITIES OF THE CAMP JENNER EPIDEMIC—A CLINICAL STUDY OF ONE HUNDRED AND THIRTY-SEVEN CASES.

By P. A. Surg. M. J. Rosenau.

The epidemic of smallpox, which attacked the negro refugees from Mexico, presented three peculiarities which merit record: (1) The disease was mild in the children. (2) The death rate was moderate. (3) The preeruptive stage was frequently vague and without noticeable symptoms.

These negroes[1] were, for the most part, pure blooded and only a few had ever been vaccinated before arriving at Camp Jenner, near Eagle Pass, Tex.

(1) The most marked peculiarity of the epidemic was the mildness of the disease in the young. Smallpox is usually very fatal in children under 10 years of age.

Of the 78 discrete cases recorded, 30 were under 10, and 20 under 20 years old.

Only 3 of the 25 fatal cases were under 10, and only 2 of the 35 confluent cases were in children under 10 years old.

The most virulent cases were in those between 15 and 25.

The following table summarizes the ages in relation to the severity of the disease, and it will be noticed that the fatal and confluent cases were largely in the adolescent, whereas the discrete cases were

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[1] * * * A large number of negroes (about 1,000) from Alabama and Georgia were induced by agents of the Hahuialila Company, a syndicate owning large plantations about 30 miles east of Mapini, in the State of Durango, Mexico, to settle upon their lands for the purpose of growing cotton and corn. After a few months' work the negroes, discouraged by the appearance among them of a disease which was called "cotton pox" by their employers and their physician, began to leave the colony in large numbers. Traveling slowly in crowded freight cars, subjected to numerous and vexatious delays, insufficiently supplied with provisions, without money, and in many instances suffering from smallpox in its different stages, they finally reached the frontier in a condition truly pitiable. About 300 of them arrived at Eagle Pass from July 23 to July 30. * * * The prevalence of smallpox among them was detected by the State quarantine officers, and the entire number placed in quarantine.—P. A. Surg. G. M. Magruder, in abstract of Sanitary Reports, Vol. X, No. 45.

mostly in the young, and most of these children had never been vaccinated:

	Discrete.	Confluent.	Fatal.
Under 10 years	30	2	3
Between 10 and 20 years	20	15	9
Between 20 and 30 years	18	13	6
Between 30 and 40 years	6	1	2
Over 40 years	4	4	5
Total	78	35	25

(2.) The death rate was 28 per cent, a total of 178 cases and 51 deaths. A very moderate death rate when the facts are taken into consideration. Smallpox is supposed to be a more fatal disease in the negro. This epidemic had favorable soil to work upon, viz: A number of pure-blooded, unvaccinated negroes with vitality depressed from bad and insufficient food, and exhausted with traveling in crowded freight cars.

(3.) The preeruptive stage was often mild and the diagnosis frequently undetermined until the eruption made its appearance. Many of the cases only had fever and a coated tongue. Backache was present in about half the cases, but not severe enough to cause complaint. Headache was more frequent and was often severe enough to be complained of. Several of the cases did not suspect they were sick, nor was their sickness detected until the eruption was well out, and this despite the fact they were carefully inspected every morning and evening. In several cases with well-defined onset. the eruption appeared on the morning of the third day, but within forty-eight hours of the initial symptoms.

To what degree the excessive heat and extreme dryness of a Texas summer modified this outbreak can not be stated until more is known definitely of the specific contagium. These conditions, however, had no restraining influence upon the spread of the disease, for few of those exposed escaped an attack.

FATAL CASES.

It is noticable that most of the fatal cases had never been successfully vaccinated. However, 5 of the 25 deaths were in those who had been recently vaccinated.

It must be observed that the vaccine matter used at first was old, and had been exposed to the heat. Many of the primary vaccinations with this virus were unsuccessful, and some of the takes were poor and atypical. Of all the physicians, nurses, and guards who had been previously protected by vaccination, only one (a nurse) took the disease, a mild case of varioloid.

Many of the fatal cases began insidiously, and their grave character

was not suspected until the abundant eruption and severe constitutional involvement manifested themselves, thus emphasizing the observation that it is not possible to foretell the severity of an attack from the preeruptive stage.

Three of these 25 fatal cases (12 per cent) had a distinct initial chill. Eleven of them (44 per cent) vomited as an initial symptom. Backache was complained of in only 13 of the 25 cases—52 per cent. Headache was more common and was present in 17 of the cases—68 per cent. Three of the cases had no pain at all. Death came, as a rule, as the pustules ripened, between the tenth and twelfth day of the disease.

The following table shows the 25 cases in detail:

Analysis of twenty-five fatal cases.

Name.	Age.	Sex.	Vaccination.	Initial.			Variety.	Result.	Remarks.
				Chill.	Vomiting.	Pain.			
	Years.								
William Ellis	21	Male	Never	No	No	Headache	Confluent	Death	Died on tenth day.
Betty Wilson	38	Female	do	No	Vomited	Head and back ache	do	do	
Arthur Wilson	9	Male	do	No	do	do	do	do	
Allen Rosebun	66	do	Claims he was vaccinated in childhood; no scar.	No	No	Back ache	do	do	
William Merritt	14	do	Never	No	Vomited twice.	Headache		do	
Bessie Rosebun	17	Female	do	No	Vomited	Head and shoulders	Confluent	do	
Jenner Moore	(a)	Male	do		No		Discrete	do	A premature baby; born in camp.
Rufus Thompson	18	do	do	Chilly creeps.	No	Head and back ache	Confluent	do	
Olly Johnson	25	Female	do	No	No	No		do	
Clark Stillman	49	Male	do	No	Vomited	No	Confluent	do	
Aida Stillman	12	Female	Unsuccessfully vaccinated 5 days before initial symptoms.	No	No	Head and back ache	do	do	Died on the tenth day.
Mitchell Lewis	33	Male	Unsuccessfully vaccinated a few days before taking sick.	Chill	No	Back ache	do	do	
Ed Hood	22	do	Successfully vaccinated 16 days and again 7 days prior to onset.	No	No	Head and back ache	do	do	Died on the eleventh day.
Henry Thompson	65	do	Says he was vaccinated when a child; no scar; unsuccessfully vaccinated 3 times in camp.	Chill	Vomiting	do	do	do	
John Watson	25	do	Vaccinated 2 days prior to onset.	No	No		do	do	
Ridley Bonnet	48	Female	Unsuccessfully vaccinated about 17 days prior to onset.	No	Vomited	Headache	do	do	
Jim Lewis	12	Male	Vaccinated on the day of onset. Did not take.	No	do	Back and side		do	
Roxey Harris	38	Female	Successfully vaccinated 2 weeks prior to onset.	No	No	Headache		do	Miscarriage.
Rosa Carpenter	19	do	Vaccinated 2 days prior to onset.	No	No	do		do	
Alec Bryant	31	Male	Unsuccessfully vaccinated twice shortly prior to onset.	No	No	Head and back ache	Confluent	do	Died on the eleventh day of disease.
Ella Harris	23	Female	Vaccinated in childhood; the scar is scarcely visible.	No	Vomited	No pain	do	do	

a 1 month.

Analysis of twenty-five fatal cases—Continued.

Name.	Age.	Sex.	Vaccination.	Initial.			Variety.	Result.	Remarks.
				Chill.	Vomiting.	Pain.			
Suberta Wilson	*Years.* 4	Female	Successfully vaccinated twice—17 days and about 10 days prior to onset; both good takes.	No	No	Head and back ache	Confluent	Death	Died on the eleventh day of disease.
Aleck Means	14	Male	Successfully vaccinated 14 days and again 10 days prior to onset.	Chilly creeps.	Vomited	do	do	do	Died on the twelfth day of disease.
Mary Sauder	23	Female	Unsuccessfully vaccinated 3 days prior to onset.	No	Vomiting	do	do	do	Died on the forty-first day.
Tilly Thompson	45	do	Successfully vaccinated twice within 9 days of taking sick.	Chill	No	Headache	do	do	Died on the tenth day.

THE CONFLUENT CASES.

The confluent cases were mainly in those between 10 and 30 years old. Only 2 of the 35 confluent cases were under 10 years old. Nine of these 35 cases (26 per cent) had an initial chill. Vomiting was a premonitory symptom in 12 cases (34 per cent). Backache was present in 25 of the 35 cases (71 per cent). Headache was also present as an initial symptom in 25 of the cases (71 per cent). In one case there was no pain, and one case complained of general pains at the onset.

The following table shows the 35 confluent cases in detail:

Analysis of thirty-five confluent cases.

Name.	Age.	Sex.	Vaccination.	Initial.			Result.	Remarks.
				Chill.	Vomiting.	Pain.		
	Years.							
Albert King	22	Male	Vaccinated on day of onset	No	No	Headache	Recovery	
E. J. Jackson	25	do	do	No	No	do	do	
Mary Richardson	24	Female	Vaccinated shortly prior to onset.	No	Vomited	Head and back ache	do	
Mary Lewis	15	do	Vaccinated 2 days prior to onset; small, doubtful take.	No	do	do	do	Mild.
Annie Martin	22	do	Vaccinated in childhood; no scar.	No	No	do	do	
Warren Miller	11	Male	Never	No	No	Back ache	do	
Mac Moore	12	do	Vaccinated 9 days prior to onset; good take.	No	Vomited	do	do	A very severe case.
Caroline Thompson	45	Female	Never	2 chills	No	Head and back ache	do	Ordinary.
Jack Morris	18	Male	do	Chilly	Nauseated	do	do	Mild.
Mary Todd	26	Female	do	No	Vomited	do	do	Severe.
Clara Thompson	28	do	do	Chill	No	Headache	do	Ordinary.
Ada Johnson	14	do	do	No	Vomited	Back ache	do	Do.
Bella Smith	40	do	Unsuccessfully vaccinated 3 or 4 days prior to onset.	No	No	Head and back ache	do	Do.
Caroline Lewis	19	do	Unsuccessfully vaccinated 3 days prior to onset.	No	No	Headache	do	Severe.
Henry Gaston	34	Male	Vaccinated 2 days prior to onset.	No	No		do	
Nancy Moore	25	Female	Successfully vaccinated 15 days prior to onset.	No	No	Headache	do	Do.
Cleveland Moore	13	Male	Vaccinated 15 days prior to onset; good take.	No	No	No pain	do	Do.
Lilly Wilson	14	Female	Never	No	Vomited	Head and back ache	do	Do.
Morgan Wilson	10	Male	do	No	No	Back ache	do	Mild.

Analysis of thirty-five confluent cases—Continued.

Name.	Age.	Sex.	Vaccination.	Initial.			Result.	Remarks.
				Chill.	Vomiting.	Pain.		
	Years.							
Adeline Cardwell	24	Female	Never	No	Vomited	Back and head ache	Recovery	
Jim Phillips	12	Male	do	No	do	Back ache	do	Mild.
E. P. Phillips	46	do	do	Chill	No	Head and back ache	do	Ordinary.
Lem Hamler	27	do	do	No	No	do	do	
Gesner Smith	7	Female	do	No	No	do	do	
Charles Cook	41	Male	Vaccinated in childhood; scar	Chill	Vomited	do	do	
Caroline Coleman	9	Female	Vaccinated 3 or 4 days prior to onset.	No	No	do	do	Mild.
Mollie Cardwell	14	do	Never	No	No	do	do	Do.
Elizabeth Eatman	14	do	Successfully vaccinated 8 days prior to onset.	Chill	Vomited	Back ache and general pains.	do	Severe.
Lila McAlpin	24	do	Successfully vaccinated 16 days prior to onset.	Chilly	do	Head and back ache	do	Do.
Nath. Hicks	16	Male	Vaccinated 4 times within 13 days prior to onset. 3 of them were good takes.	No	do	Head and stomach ache.	do	Do.
Lizzie Means	18	Female	Successfully vaccinated twice within 24 days prior to onset.	Chill	No	Back ache and pain in chest.	do	Severe (subsequently died of tuberculosis).
Albert Lewis	22	Male	Vaccinated 10 days prior to onset.	do	No	Head and back ache	do	Severe.
Houston Cardwell	18	do	Vaccinated 1 day before initial symptoms.	do	No	do	do	Do.
Toby Carpenter	27	do	Vaccinated 3 days prior to onset.	No	No	do	do	Do.
Liz Bradey	22	Female	Vaccinated 14 days prior to onset; did not take.	No		General pains	do	

THE DISCRETE CASES.

Of the 78 discrete cases, 30 were under 10 and 20 under 20 years old. This is perhaps the most remarkable vagary of the epidemic, and the more surprising when it is noted that most of these children had never been vaccinated. Only 9 of the 78 discrete cases (11½ per cent) were ushered in with a chill. Vomiting was an initial symptom in 18 of the cases (23 per cent). Backache was complained of in 36 cases (46 per cent). Headache was present in 52 cases (66½ per cent). No pain in 13 cases (16½ per cent). Convulsions in one case.

The following is an analysis of the discrete cases in detail:

Analysis of 78 discrete cases.

Name.	Age.	Sex.	Vaccination.	Initial.			Result.
				Chill.	Vomiting.	Pain.	
	Years.						
Clara Miller	9	Female	Never	No	No	None	Recovery.
Ed Miller	6	Male	do	No	No	do	Do.
Manda Martin	11	Female	do	No	No	Headache	Do.
William Mitchell	10	Male	do	No	No	do	Do.
Sarah Means	32	Female	Vaccinated in childhood; no scar. Vaccinated again 1 week before present attack; did not take either time.	Chilly	Vomited	Head and back ache	Do.
Virginia Martin	7	do	Never	No	No	None	Do.
Sue Purcell	41	do	Vaccinated in childhood; scar	No	No	Back and head ache	Do.
Griffin Waldin	23	Male	Never	No	No	do	Do.
Joe Toby	7	do	Vaccinated after taking sick	No	No	Back	Do.
Sarah Harris	4	Female	Vaccinated the day prior to onset; did not take.	No	No	Head and back ache	Do.
Nedham Purcell	12	Male	Vaccinated shortly prior to onset	Chill	Vomited	do	Do.
Anklin Harris	8	do	Vaccinated 8 days prior to onset; good take.	No	No	do	Do.
James Harris	10	do		No	Vomited	Headache	Do.
Jennie Carpenter	14	Female	Successfully vaccinated 4 days prior to onset.	No	do	do	Do.
Lulu Watkins	7	do	Successfuly vaccinated 6 days prior to onset.	No	No	None	Do.
Rebecca Carpenter	34	do	Vaccinated in childhood; scar	No	Vomited	Head and back ache	Do.
Amanda May	17	do	Never	No	No	do	Do.
Julie Watson	36	do	Vaccinated when 12 years old; good scar	No	No	do	Do.
Sallie Gaston	20	do	Never	No	No	do	Do.
Carrie Jones	20	do	Vaccinated 7 days before onset; good take.	No	No	do	Do.
John Watkins	46	Male	Vaccinated in childhood	No	Vomited	do	Do.

Analysis of 78 discrete cases—Continued.

Name.	Age.	Sex.	Vaccination.	Initial.			Result.
				Chill.	Vomiting.	Pain.	
	Years.						
Flanders Jarvis	8	Male	Never	Chill	Vomited	Back ache	Recovery.
Betsy Ann Horton	14	Female	Vaccinated shortly prior to onset	No	do	Head and back ache	Do.
Leona Horton	2	do	Never		No		Do.
Lucinda Horton		do	do		Vomited	Headache	Do.
Edward Horton	13	Male	do	No	No	Head and back ache	Do.
Flanders Richardson	8	do	do	No	No	do	Do.
Sammy Wilson	16	do	do	No	Vomited	do	Do.
Mary Williams	10	Female	do	No	No	Headache	Do.
Harrison Williams	7	Male	do	No	Vomited	do	Do.
Besta Wilson	12	do	do	No	No	Back ache	Do.
Mary Morris	7	Female	do	No		No pain	Do.
Stella Hellman	34	do	do	No	No	do	Do.
Doc Gillam	23	Male	do	No	No	do	Do.
Pleas Owens	27	do	Vaccinated when 13 years old	Chill	No	do	Do.
Willie Wilson	22	do	Vaccinated shortly prior to taking sick	No	Vomited	Head and back ache	Do.
Fanny Stillman	42	Female	Vaccinated when a child; no scar	Chill	No	Headache	Do.
Ella Watson	25	do	Vaccinated 2 days prior to onset	No	No	Head and back ache	Do.
Lister Cardwell	10	do	Never	No	No	No pain	Do.
Mary Gibson	15	do	Vaccinated on day of initial symptoms	No	No	Back and head ache	Do.
Sella Holman	34	do	Never				Do.
Ed Haley	12	Male	do	No	No	Head and back ache	Do.
James Sogan	23	do	do	No	No	Headache	Do.
Lovett Phillips	6	Female	do	No	Vomited		Do.
Wm. Pierson	13	Male	do	Chill	No	Headache	Do.
Milly Phillips	2½	do	do				Do.
Ernest Phillips	10	do	do	No	Vomited	Head and back ache	Do.
Jenny Rosebun	10	Female	do	No	No	No pain	Do.
Nettie Richardson	17	do	Successfully vaccinated 7 days before onset	No	No	Back and head ache	Do.
Jno. Watkins	43	Male	Vaccinated 17 years ago; good scar	No	No	do	Do.
Burding Smith	37	do	Never	No	No	do	Do.
Martha Hamler	26	Female	Vaccinated when a child; no scar	No	No	do	Do.
Daisy Hamler	7	do	Never	No	No	do	Do.
Olly Johnson	25	do	do	No	No	No pain	Do.
Mat Taylor	30	Male	do	Chill	No	Head and back ache	Do.
Bill Thompson	16	do	do	No	No	No pain	Do.
Wm. Jordan	20	do	Vaccinated the day following initial symptoms.	No	No	Head and back ache	Do.
Lee Walker	23	do	Never	No	No	do	Do.
Wm. Foster	21	do	do	No	No	Headache	Do.
Charley Johnson	12	do	do	No	No	do	Do.
Wm. Merritt	14	do	do	No	Vomited	do	Do.
Henry Moore	22	do	Vaccinated the day before taking sick	Chill	Vomited second day.	Head and back ache	Do.

Mary Moore	20	Female	Never	No	Vomited	do	Do.
Emma Brown	26	do	do	Chill	No	Headache	Do.
Robt. Lee Brown	7	Male	do	No	No		Do.
Asa Corsey	13	do	do				Do.
Ernest Cane	1½	do	do				Do.
Ellen Collins	30	Female	Vaccinated 3 days prior to onset	Chill	No	Head and back ache	Do.
Starling Cardwell	9	Male	Never	No	No	No pain	Do.
Lovey Cardwell	3	do	Vaccinated 3 days prior to onset	No	No		Do.
Emma Owens	7	Female	Successfully vaccinated 4 days prior to onset.	No	No	Headache	Do.
Sam Means	10	Male	Successfully vaccinated 3 weeks and again 2 weeks prior to onset.	No	No	Head and back ache	Do.
Lulu Means	10	Female	Vaccinated 18 days and again 10 days prior to onset; both good takes.	Chilly	Vomited	do	Do.
Mary Means	8	do	Successfully vaccinated 30 days and again about 10 days prior to onset.	No	No	Headache	Do.
Caroline Means	5	do	Vaccinated 20 days prior to onset; large take. Again about 10 days prior; small, doubtful take.	No	No	do	Do.
Robert Ewing	18	Male	Vaccinated 4 times within 21 days prior to onset, only 1 of which took.	No	No	do	Do.
Albert Thompson	15	do	Successful vaccination 26 days before taking sick.	No	No	Head and stomach ache	Do.

The following table shows the relative frequency of the initial symptoms in the discrete, confluent, and fatal cases:

	Discrete.	Confluent.	Fatal.
	Per cent.	*Per cent.*	*Per cent.*
Chill	11½	26	12
Vomiting	23	34	44
Backache	46	71	52
Headache	66½	71	68
No pain	16½	.....	12

A CASE OF LEPROSY OF NORWEGIAN ORIGIN.

By Asst. Surg. J. M. Eager.

J. H.; aged 29 years; nativity, Norway; admitted to the United States Marine Hospital, New Orleans, La., July 27, 1894.

History.—The patient was born of healthy parents and had no notable disease during his childhood. This period he passed on a truck farm a few miles from a leper hospital at Trondhjem, Norway. "Spedalskhed" was a common disease in the neighborhood, and he frequently bought trinkets of persons who exhibited leprous mutilations to invite charity. In his 21st year he began to go to sea, and in the following years visited the principal ports of the world, returning from time to time to Norway. During the first years of his seafaring he suffered repeatedly from venereal sores and from gonorrhœa, but nothing characteristic of leprosy showed itself until he was 25 years of age. Then a bulla appeared on the left scapular region and, when incised, discharged a yellowish, watery liquid. Later, the site of this lesion was marked by an oval macule 3 by 4 cm. in dimensions. The mottled pink and white skin covering the patch became soft, thin, and silky. On examination this persisting mark was found to be anæsthetic. A pin prick within its borders gave the same sensation as the pressure of a pin head elsewhere. The edge of the macule was well defined, not by any elevation, but by the limits of a surrounding area of yellowish pigmentation and slight capillary engorgement.

Following in the train of the initial bleb, others came upon the dorsal surfaces of the forearms and on the anterior aspect of the legs. Bursting, they left permanent anæsthetic patches, the adjoining skin being, however, more deeply colored than that around the first macule.

With the appearance of the bullæ, the patient began to suffer from general malaise, irregular pains, and cramps throughout the body, loss of appetite, and diminished sexual desire. He developed a nasal catarrh, and large quantities of clotted blood were discharged from the nose and pharynx. A group of lumps, each as large as a French pea, were felt later beneath the eyebrows. The skin in the neighborhood of the lumps was reddened and became adherent to the new growths. The facial deformity was increased by a falling in of the bridge of the nose and the appearance of tubercles on the ears. A year ago, sluggish ulcers showed themselves from time to time in the clefts between the toes, the skin about the edges of the sores being covered with white, powdery scales.

When admitted to hospital, the patient presented the leonine cast of countenance characteristic of leprosy; the lymphatic glands were

enlarged but not hardened and not adherent to surrounding parts; the ulnar nerves were thickened and hardened; the finger nails were bluish, as if bruised, and showed atrophic changes; the skin covering the thighs was loose, dry, furfuraceous, wrinkled, and anæsthetic, and the beard and eyebrows had been shed. The patient complained of flushes of heat alternating with chilliness during the day, but at night, and on exertion, he perspired profusely over the head and body. The extremities, however, remained perfectly dry. There were no signs of visceral disease nor of deteriorated mental condition. Aside from hygienic measures and the administration of tonics, the patient was given chaulmoogra oil internally, and gurjun oil was applied to the leprous lesions. Under this treatment his general condition improved somewhat, and on August 24, 1894, he was removed to a leper hospital.

BUBO AND ITS TREATMENT.

By Asst. Surg. C. E. Decker.

Among all the surgical affections that officers of the Marine-Hospital Service are called on to treat, there are few that are the cause of such protracted periods of disability and of residence in hospital as is bubo. Therefore, to find the best method for its treatment is an important matter; and that is my excuse for this article, as I believe I know of a treatment which is superior, for several reasons, to the methods hitherto most used.

A bubo is, essentially, an abscess. It is not in itself a serious condition; that is, it is not a menace to life, provided the pus, if it forms, finds an exit, and the resulting cavity is treated according to the most ordinary principles of surgical cleanliness. I doubt if a single officer of the Service knows of a death caused by a venereal abscess in the groin. This fact of the innocuousness of the condition is, it seems to me, lost sight of by those who advocate and use the method of treatment probably most in vogue to-day among the officers of the Service, a method whose gravity is greatly disproportioned to the seriousness of the condition it is employed to cure.

The method I refer to is that of extirpation of the swollen and perhaps suppurating glands. The wound is sutured and every precaution known to modern surgery is taken to procure healing by first intention. A general anæsthetic is of course necessary, and the operation usually requires at least thirty minutes for its performance and frequently longer, on account of the proximity of important vessels and nerves and the difficulty of dissection where inflammation and swelling have so altered the ordinary relations of structures. I have heard of two instances of the injury and consequent ligation of important veins during the operation, troublesome œdema of the whole limb resulting in one case (and possibly in the other, though I do not know). I have also seen at dispensary several other cases of œdema which ensued after the patient had gone to work—œdema not sufficient to keep the man from working, though it was annoying and a source of worry.

I presume other officers can recall such cases. Indeed, such an œdema may safely be predicted after an extensive extirpation of groin glands, since where is the lymph to go, its former channels now being destroyed, their places being taken by a constantly contracting mass of scar tissue. This lymph must, most of it, stay in the limb until the tardily established, compensatory circulation gives it exit. In short, this operation is a serious one, because of the general anæsthetic

necessary; because merely inflamed glands are always removed, which possibly might not, in any event, break down and might be spared for future usefulness in the war against the germs; because of the possible wounding of important vessels; because of the possible resulting œdema; because of the large scar; and, finally, because of the resulting large wound cavity, which is very slow in healing if primary union is not obtained.

The only defense of the procedure is that in case suppuration has not occurred before operation pus formation may be forestalled; or in case suppuration has occurred before operation, the suppurating tissues may be removed and primary healing then be secured. In both cases are obtained a shortening of the patient's stay in hospital and his early return to productive employment. But I take the ground that it is not good surgery to remove glands that have not broken down, as there is always the chance that they will not suppurate, and they should be saved if possible. This, if admitted, narrows the field of the primary, radical operation down to the suppurative cases. Judging, however, from the statements of others and my own experience and observation, it is very seldom—indeed, almost never—that primary healing is obtained if pus is found at the operation. Further, the removal of merely inflamed glands does not even always forestall suppuration, according to my observation, if the trouble causing the gland inflammation still exists after the operation. I have operated on a number of cases and found no pus; yet, although every care possible was taken to prevent infection of the wound, suppuration has frequently occurred. Indeed, this, it seems to me, is a very natural occurrence, since the infective products from the primary trouble must still be conveyed by the lymph channels, themselves infected and inflamed, to the fresh wound. A case illustrating this point was in this hospital a short time ago. The same case also had a very marked œdema follow the operation, presumably caused by the snipping and consequent ligature of a large vein.

But if this radical ablation of the inflamed and suppurating lymph glands forming a bubo be, as I think I have shown, only justifiable as a last resort, what primary treatment is there that offers as good results? The old-fashioned conservative method of waiting till pus is present (though its formation should not be, as in old times, encouraged by poulticing, but rather prevented, if possible, by strict rest in bed and cold applications) and then evacuating it through an adequate incision, curetting, if advisable, the abscess cavity, following this by the new-fashioned after treatment by antiseptic irrigations and packings, gives, in the long run, I believe, almost, if not quite, as good average results as the radical operation, and, if so, is certainly preferable to the latter because no general anæsthetic is required; because, as there is no danger, if care is used, of wounding important vessels, post-operative œdema is not to be feared; and, finally, in almost every

case a few, at least, of the lymph glands in the region affected are saved to be a line of defense against a possible immediate or future general infection.[1]

The purpose of this article is, however, to describe a procedure for treating these cases which, in my hands, has, so far, given very greatly better results than either of the plans before spoken of, and which will, I believe, make the older operations almost unnecessary. In a copy of the Medical News published, I believe, in April, 1894 (I am not able to find the number of the News at this writing and so can not give the exact date), appeared a short abstract of an article which had been shortly before published by Dr. W. K. Otis, of New York, in another journal. In this abstract was described a treatment of buboes by iodoform-ointment injection, a method which Dr. Otis had found very successful. The procedure described is as follows:

The skin over and about the groin swelling for a considerable distance having been shaved and carefully disinfected, an incision merely the length of the width of the knife employed is made with a sharp, narrow bistoury into the lowest part of and clear through the swelling. If pus is present it is carefully expressed, and, whether present or not, the wound (and pus cavity if present) is irrigated with a 1 to 2,000 $HgCl_2$ solution until the fluid comes away clear. Now, with a glass syringe previously boiled, enough of a sterilized, warmed iodoform ointment (10 per cent iodoform in sterilized vaseline) is injected into the cavity of the bubo to distend it moderately, and, finally, a cold, wet $HgCl_2$ compress is applied, the warmed ointment thus being chilled as it escapes from the wound, and, by congealing, corking up, as it were, the cavity. A spica is applied and the patient put to bed, where he is strictly kept for at least four days, the dressing not being disturbed till the end of that time unless—which is somewhat unusual—there are signs of continual suppuration, or unless the case was so slight that it is obvious that healing will occur earlier. Thus I have had one case well in two days. In the event that pus is still present at the first examination after the operation, the cavity, which will be found to be very small as a rule, is again irrigated and then injected with the ointment.

In my experience it has been seldom that more than one retreatment has been required; usually the first treatment has been the only one necessary. It is of course unnecessary to use even a local

[1] If anyone thinks I am laying too much stress on the importance of saving as many as possible of these groin glands, let him recall the article, which he must have read, "Systemic infection from gonorrhœa, with the report of a fatal case," which appeared in the Medical News for August 29, 1896. In it 66 cases of severe (2 being fatal) general infection following gonorrhœa are cited. Let him call to mind also the cases he himself has seen of gonorrhœal "rheumatism." In all these cases the gonococcus succeeded in passing the line of defenses placed to repel such invaders. How much more easily will a person from whom this "trocha" has been removed be overrun by these and similar enemies.

anæsthetic in the performance of the operation. The scar, a week or two after recovery, it is almost impossible to find. A considerable lump in the groin is sometimes left. But it is not tender, and slowly subsides. I have yet to see a relapse, even when a sore or gonorrhœa has remained after the groin was well. I have seen no iodoform poisoning, though in some cases I have used three syringefuls of the ointment.[1] I regard the element of rest as a very important part of the treatment. My patients have bedpan and urinal.

I had the opportunity of trying the treatment on eight consecutive cases in San Francisco. These were taken just as they came—cases favorable and unfavorable. All the buboes were suppurating, several being very large. I have lost the detailed notes of the cases, but have yet the notes of the lengths of treatment of the cases, taken from a copy of the Annual Report of Surgical Operations for the year 1893–94. These periods were, respectively, 9 days, 9 days, 16 days, 26 days, 7 days, 4 days, 11 days, 2 days, the average being 10.5 days. Several of the patients were kept in hospital after their groins were well, either for the treatment of the still persisting primary trouble or for observation. I could not believe, when I began to use the treatment, that the men, apparently well, were so in reality.

Since being put on duty at the hospital at this station (St. Louis, Mo.) I have treated by the iodoform ointment injection method the cases the principal features of which I have briefly scheduled in the accompanying table. Note that these are all cases of suppurating lymph glands of groin.

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[1] The syringe I use is the ordinary glass urethral syringe, its top having been removed with a file to allow of the plunger being entirely withdrawn so that the barrel can be filled with the ointment by means of a spatula. The ointment is warmed by passing the filled syringe through an alcohol flame until it is sufficiently fluid to allow the air bubbles to rise to the syringe tip, all air being carefully excluded before injecting.

Record of cases treated at hospital in St. Louis, Mo., in September and October, 1896.

Name.	Age.	Number of permit.	Date of admission.	History of present trouble.	Physical examination and present condition.	Date of operation.	Progress of case.	Temperature. (Centigrade.)	Number of days before recovery.
Case I (colored).	*Yrs.* 27	121	1896. Sept. 21	Sores on penis for one month; bubo nine days.	Swelling in left groin as large as a lemon; marked fluctuation; skin over it very thin; painful and tender; no sore on penis or urethral discharge.	1896. Sept. 22	Large amount of pus expressed from abscess. Sept. 23: Slept little on account of pain; no pain now (a. m.). Sept. 26: Slight amount of pus found; reinjected; cavity of abscess much reduced. Oct. 3: Well. (Is kept in hospital for treatment of another unrelated affection.	No rise of temperature at any time.	11
Case II (colored).	25	119	Sept. 21	Denies sore of penis and gonorrhœa; claims present trouble due to a blow in groin.	Enormous swelling in right groin; fluctuating, very tender, and painful; no ulcer or trace of one; no urethral discharge.	Sept. 22	Large amount of pus expressed. Sept. 23: Had a good night; feels "right smart;" no pain. Sept 25: Large amount of pus found on redressing; retreated; four syringes of ointment required to fill cavity of abscess. Sept. 29: No pus. Oct. 2: Well; deserted.	Sept. 21 a. m. ..... p. m. 37.4; 22 a. m. 37 p. m. 39; 23 a. m. 38 p. m. 38.9; 24 a. m. 37.6 p. m. 38.2; 25 a. m. 37.4 p. m. 37.3; 26 a. m. 37 p. m. 37.4; 27 Normal.	10
Case III (colored).	20	127	Sept. 25	Ulcers of penis for "quite a while."	Moderately large swelling in left groin; numerous small ulcers on foreskin.	Sept. 26	Considerable pus expressed; Sept. 30: No pus; apparently well; not redressed. Oct. 1: Discharged; bubo well; ulcers still unhealed.	Sept. 26 a. m. 37 p. m. 39.4; 27 Normal.	5
Case IV (colored).	25	146	Oct. 5	Had small ulcer of penis for seven days before bubo appeared; bubo appeared three weeks ago.	Very large, fluctuating bubo in left groin, just below Poupart's ligament; no ulcer of penis present.	Oct. 6	Considerable pus found. Oct. 7: Feels better. Oct. 8: Dressing loose, and has to be replaced; a very little pus found. Oct. 12: No pus; dry dressing. Oct. 14: Small amount of pus found. Oct. 17: As 14th. Oct. 19: Discharged; well.	Oct. 5 a. m. ..... p. m. 38.8; 6 a. m. 37 p. m. 38.6; 7 a. m. 37.2 p. m. 37; 8 a. m. 36.8 p. m. 37	13
									39
Average length of treatment									9.75

The above notes show well the ordinary course of cases after this treatment. The average term of treatment for the 12 cases, 8 at San Francisco, 4 at St. Louis, is 10.125 days.

In order to compare the results of this iodoform-ointment treatment with those obtained by excision I here present a summary of the cases of suppurating bubo treated at this station by excision from August 31, 1895, to September 23, 1896, inclusive, Dr. McGinnis, interne, having been so kind as to collect the cases for me. In all there are 16 cases. The total number of days of treatment is 401, the average being 25. The shortest period of treatment of any one case is 7 days; the longest, 49 days. It will be seen that the iodoform-ointment treatment secures vastly better results than the treatment by excision, so far as appears from a comparison of the records I have submitted. To be sure, the number of cases in each category is not large; yet I believe the results as shown will be found to be about the average for each method.

Besides its usefulness in suppurative cases, I have found an equal efficiency in buboes which have not yet reached the suppurative stage, but which are certainly going to suppurate if left alone. The treatment of these cases has been the special field of the excision treatment. I have employed the iodoform-ointment treatment in two such cases at this station. One of these had a large soft chancre on frenum twenty-two days old, and a very large bubo in each groin, one week old, hard and tender. On admission his temperature (p. m.) was 38.4° C. I injected iodoform ointment the day after admission, pushing the knife down through the center of each swelling, no pus, however, appearing. Within two days all tenderness was gone and in four days all fever had disappeared, the wounds made having also healed. The ulcer, which was cauterized with pure carbolic acid when the buboes were operated on, was not well until 14 days from patient's admission, or ten days after buboes were well. I am certain that these buboes would have suppurated within a day or two if I had not treated them.

The other case of nonsuppurating bubo treated by this method had the following history: No sore or urethral discharge on admission, and the patient denied both affections. He had a moderately large, tender gland swelling in the right groin which had lasted nine days, and a very small gland swelling in the left groin. His temperature, on admission, was 37.8° C. Incision into the bubo in right groin on the day after admission failed to disclose pus. The iodoform ointment was injected, however, and the groin was well in five days, though, as in the other nonsuppurative case, some swelling, entirely insensitive, however, remained.

Abscesses of the groin which have burst spontaneously or which have been incised (no iodoform ointment having been injected) before admission are not, probably, judging from a patient I am now treating

as amenable to the iodoform-ointment treatment as those treated in the regular way. The reason is, I think, obvious: The ointment, to effectually stop the suppuration, must reach every recess of the abscess. If there is a large opening which the tip of the syringe can not fill, the ointment is forced out at the sides of the syringe and not into the depths of the abscess. If there be another incision (the injection being made through the regulation small cut) the ointment escapes through this. However, the results of the treatment, even in this class of cases, is better than in those of ablation of the glands. Even if the actual results were no better, the absence of necessity for a general anæsthetic, the small scar left (not a centimeter long), and the saving of the glands should lead the conservative surgeon to at least try the ointment injection and do an ablation only on failure of the other treatment.

I would thus sum up:

(1) The lymph glands of the groin are especially important organs, guarding, as they do, the whole body from the virulent infections peculiar to the genital tract; and therefore, if as a group they become inflamed or suppurate, forming a so-called bubo, as many as possible should be saved.

(2) The extirpation of the glands making up a bubo is not justifiable as a primary operation, because a number of glands are, as a rule, unnecessarily sacrificed.

(3) Besides the reason given in (2), the operation of primary ablation is an unnecessarily severe and dangerous one, when it is considered that a bubo is not in itself a menace to life.

(4) The old-fashioned procedure of merely evacuating the pus and lightly curetting the abscess cavity is a better operation than the radical extirpation, because it saves glands, a general anæsthetic is not necessary, and the occasional bad results seen after the radical operation do not follow it. Its effects are also probably as good in the long run.

(5) Better than either of the older procedures is the iodoform ointment injection treatment advocated by Otis, because the operation itself is a very slight one, no anæsthetic being necessary; it saves glands, and the time required for a cure, as compared with the radical primary extirpation, is as 2 to 5.

FEMORAL ANEURISM IMMEDIATELY UNDER POUPART'S LIGAMENT—LIGATURE OF THE EXTERNAL ILIAC ARTERY—RECOVERY.

By Asst. Surg. J. H. Oakley.

A. V. (seaman); aged 35 years, nativity Austria, admitted to the United States Marine Hospital, San Francisco, Cal., May 21, 1896.

The patient said that a month previously he was lifting a heavy weight when he felt something "give way" in his left groin. Two days later he noticed a swelling the size of his thumb at that point. This swelling his medical adviser painted with iodine, but as it continued to increase in size, and as the whole extremity became enlarged, the man requested to be sent to this hospital. Unfortunately he continued at work up to the time of admission.

An examination disclosed a pulsating tumor the size of a goose egg immediately under Poupart's ligament. The pulsations of the tumor could be seen as well as felt. On auscultation a distinct bruit was heard. The extremity was nearly twice as large as the right one, due of course to the obstruction of the venous and lymphatic circulation. The œdema was sufficient to mask the pulsation of the popliteal artery. The dorsalis pedis artery could be felt faintly pulsating. Very little pain was experienced. It was thought worth while to try the effect of digital compression on the external iliac artery. Potassium iodide was given in moderate doses for five days.

At 9 a. m. May 24 digital compression was started. After a faithful trial of twenty-three hours' continuous pressure the contents of the aneurismal sac had shown no signs of coagulation. Notwithstanding the fact that the patient had received hypodermic injections of morphine now and then, as indicated, he was very restless and complained too much to continue the pressure. Three days later, on May 28, the left external iliac artery was ligated. Chloroform was used at first, but as he took it poorly ether was substituted. An incision 8 cm. long and 2 cm. above Poupart's ligament was made, extending from a point 2 cm. internal to the anterior superior spine of the ilium downward and inward to the middle of Poupart's ligament.

The various fasciæ and muscles were carefully divided on a director. The peritoneum and intestines were pushed upward and the artery disclosed. The arterial sheath being incised, the aneurismal needle was passed from within outward and the artery tied with braided silk. The various divided muscles and the skin were sutured with catgut and the wound dressed with aristol. The patient did well, and on removing the dressing on the fifth day the wound was found to be united perfectly. By June 4 the left extremity was nearly normal in size, and the man was able to be up. The aneurismal tumor was much reduced in size, and the collateral circulation was greatly advanced. He was discharged recovered June 5, 1896. The digital compression, though it failed to cause coagulation of the contents of the aneurismal sac, probably proved of some service in starting the collateral circulation.

SIMPLE COMMINUTED FRACTURE OF THE LEFT PATELLA—OPERATION—RECOVERY.

By Asst. Surg. J. H. OAKLEY.

T. H.; aged 22 years; nativity, Norway; admitted to the United States Marine Hospital, San Francisco, Cal., December 28, 1895.

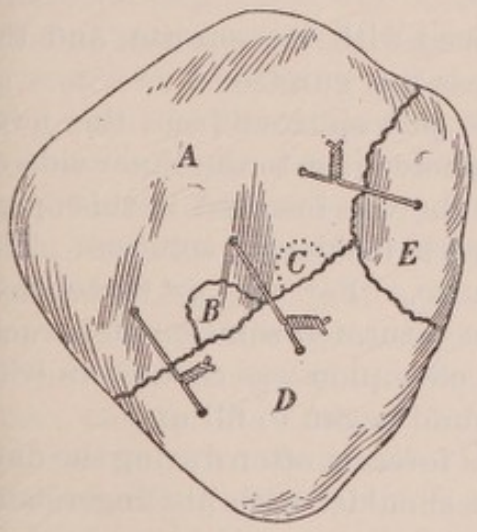
The patient said he had been injured that morning by falling a distance of 25 feet into the hold of the vessel, lighting on his hands and knees. He thinks that the left knee struck on an iron bolt, as several were lying about the bottom of the vessel.

On entering the hospital it was found that he was suffering slightly from shock and that he had sustained the following injuries: Contusion of the nose, sprain of the right shoulder, sprain of the right ankle, fracture of the left patella, and fracture of the tarsal bones of the left foot. The left knee was much swollen and very painful. Adhesive strips had been previously applied to the patella at the receiving hospital. A posterior straight splint was applied in the hope of inducing union of the fractured patella.

At the end of three weeks the patient had recovered from the other injuries, but the patella had shown no attempt at union during this time; so he was prepared for operation, and on January 21 the operation of wiring the fractured patella was performed.

On exposing the bone along the line of fracture, it was found to have been broken into four pieces, as shown here.

The fragments were separated and the clotted blood cleaned out. The edges of the fragments were then freshened up with a curette.



The small piece B was hanging by a thread of periosteum, and was removed. The part marked C was a projection of the fragment D, which was overlapped by the upper fragment A and fitted into a corresponding depression on its under surface. Three silver wire sutures were inserted, as shown in the sketch. Perfect coaptation of the fragments being secured, the wound was closed, dressed, and a posterior splint applied. A slight amount of suppuration along the line of the incision was noticed on the fifth day following. The wound healed by granulation. The wire sutures were removed during the closing in of the wound. There was paralysis of the tibialis anticus muscle, but this disappeared on being treated daily with the Faradic current. The patient was walking around with the aid of a crutch and cane by April 1, and had good use of the knee joint. Discharged, May 23, 1896, recovered.

ABSCESS OF THE BURSA OF THE RIGHT ELBOW WITH INVOLVEMENT OF THE JOINT—RECOVERY.

By Asst. Surg. J. H. OAKLEY.

T. R.; aged 29 years; nativity, Ireland; admitted to the United States Marine Hospital, San Francisco, Cal., January 21, 1896.

The patient reported that he had been drinking heavily, and that four days before entering the hospital he became involved in a quarrel, during which he fell and struck the point of the elbow on the stone sidewalk, bruising and scratching the skin.

On the morning of the 21st he awoke and found the joint very much swollen and painful. An examination of the joint showed an opening into the bursa, from which a sanguineous fluid escaped. The slightest movement of the joint caused severe pain. The wound was flushed with bichoride solution and packed with iodoform gauze. On the 24th the discharge had become purulent, and with a probe one could feel denuded bone on the inner surface of the olecranon process.

The condition improved for a few days, and the patient could flex the forearm a little. On the morning of the 12th of February the inflammation appeared to be extending up the arm and the patient complained of more pain. His temperature was 39.4° C.

The patient was anæsthetized and an incision 8 cm. long was made on the posterior surface of the joint, laying the abscess cavity wide open.

Much broken-down tissue was removed with the curette, and the denuded surface of the olecranon process was curetted.

On flexing the forearm, considerable pus spurted from the joint through an opening about .3 cm. in diameter just to the inner side of the olecranon process. A small glass tube was inserted in this opening and the joint thoroughly flushed with bichloride solution. The wound was packed with iodoform gauze. For two or three days afterwards the joint was flushed with a saturated solution of boracic acid. The inflammation subsided, the olecranon was covered in with healthy granulating tissue, and the wound began to fill up.

The patient was instructed to flex his forearm often during the day. By the 1st of March he could touch his shoulder with his fingers and extend his forearm without much pain. Subsequently he assisted in carrying the meals to the ward until he was discharged. Discharged recovered, May 8, 1896.

GANGRENE OF THE RIGHT LEG—LIGATION OF THE RIGHT EXTERNAL ILIAC ARTERY—AMPUTATION AT THE RIGHT HIP JOINT—RECOVERY.

By Asst. Surg. J. H. Oakley.

S. M. (seaman); aged 26 years; nativity, Mexico; admitted to the United States Marine Hospital, San Francisco, Cal., June 12, 1896.

The patient was admitted to the medical ward and treated for enteric fever. On the 16th of June it was noticed that his right foot was cold and clammy to the touch; sensation was lost; foot was quite dark in color. This condition spreading up the leg, the patient was transferred to the surgical ward June 20, 1896.

An examination disclosed a paralysis of all the muscles of the leg. The skin was black for about half the distance to the knee on the inner side of the leg. On the outer side this condition extended to within 6 or 7 centimeters from the knee. Tactile sense was abolished over the same area. No arterial pulsations could be felt in the foot. On listening to the heart sounds a murmur was heard accompanying the second sound. A diagnosis of arterial obstruction by embolism was made. The patient was kept in bed, warm water bottles applied to the leg, and stimulating treatment given. He had had a severe diarrhœa for several days. This was checked. The condition grew worse. The toes shriveled up, gas formed under the skin, and wherever crepitation was elicited an incision was made and the gas allowed to escape. The leg was flexed on the thigh and could not be extended on account of pain. It was thought that an abscess might be present in the calf of the leg, but several deep incisions proved this not to be the case. At the same time there was shown an entire loss of sensation in the leg.

On the 5th of July it was noted that pulsation had ceased in the femoral artery, and that a thrombus was present, extending from the groin down for about 6 centimeters.

The condition growing worse, it was decided to amputate above the knee, and on the 11th of July the operation was performed under chloroform as an anæsthetic. The femur was divided at the junction of the lower third with the rest of the bone.

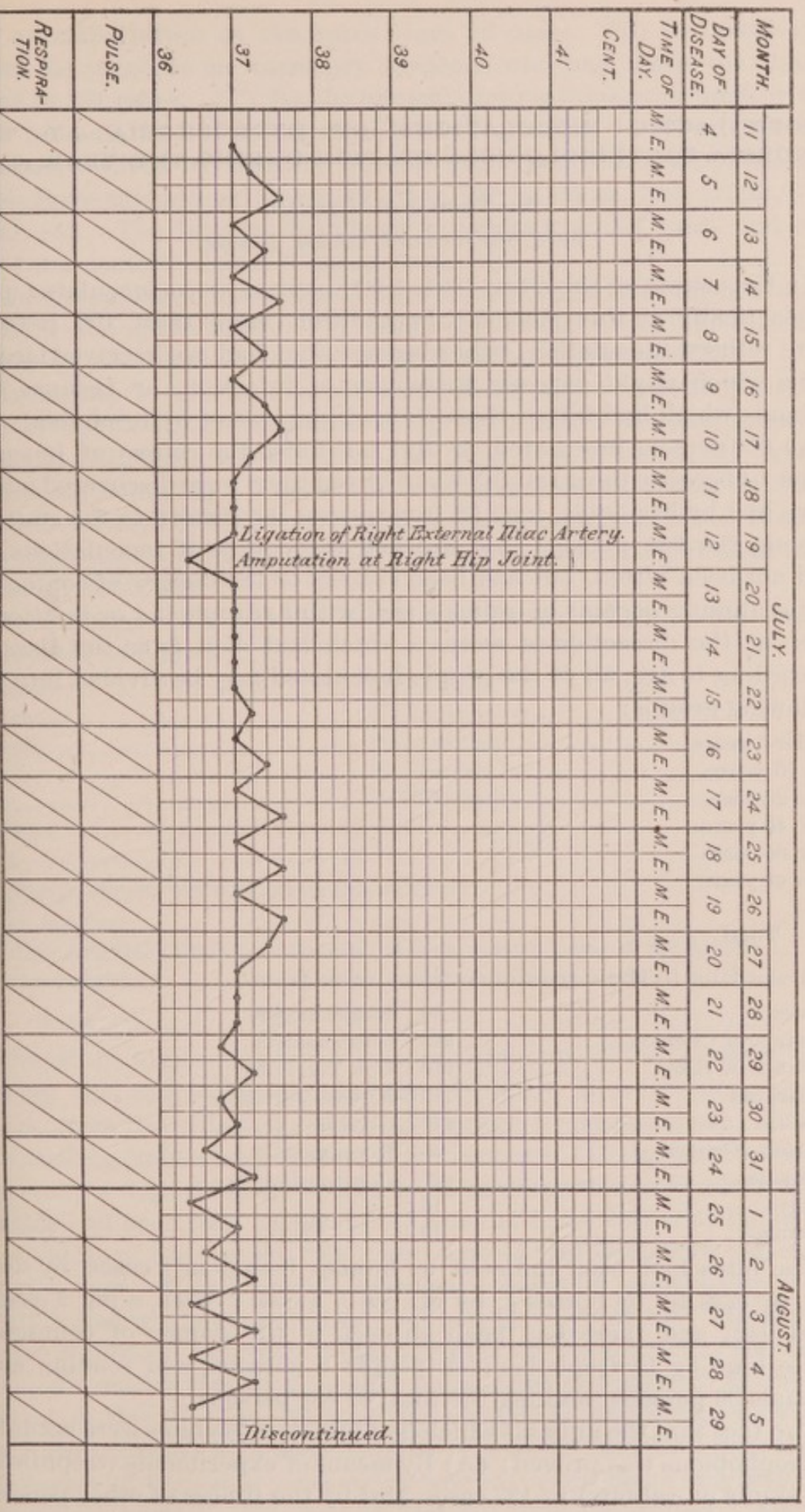
On extending the leg the popliteal artery was ruptured, and after making the anterior and posterior flaps that artery and the femoral were found full of pus. There was not much arterial bleeding from the flaps. A little venous discharge took place. It was remarked at the time that in all probability a hip-joint amputation would have to be made in case there was not enough arterial blood to support the

flaps. A drainage tube was applied and the flaps brought together. The stump was inspected on the 14th, and appeared to be doing well. On the 18th the flaps were found to be sloughing and the wound was full of pus. It was then decided to at once amputate at the hip joint. The femoral artery being diseased so near to Poupart's ligament, it was deemed best to ligate the external iliac artery to avoid any danger of secondary hæmorrhage, resulting from tying the diseased artery.

On the morning of the 19th of July the patient was placed under chloroform, and the usual incision made for ligation of the external iliac artery. The artery was tied with braided silk, and the various skin and muscle layers sutured with catgut. The wound was sealed with collodion, and then the thigh was amputated at the hip joint. An incision, beginning at a point midway between the anterior superior spinous process of the ilium and the trochanter, was made, and carried down the outer side of the thigh for 15 centimeters, where it connected with a circular incision of the thigh. The acetabulum was curetted to avoid having a synovial sinus later on. A soft reddish clot was found in the femoral artery.

A drainage tube was inserted at the bottom of the wound and the flaps brought together. The patient was under the anæsthetic about three hours. He was put to bed, and numerous hot-water bottles placed around him. He suffered some from shock and received whisky and strychnine hypodermically. Morphine was given to relieve pain. By 8 p. m. reaction had taken place. Whisky and digitalis were given for a few days. The dressing was changed the next day on account of its being soaked through with blood. On the 28th the drainage tube was removed.

Both wounds united nicely. He was up in a wheel chair by August 2, and on the 14th he discarded the chair for crutches. He sleeps well, has no pain to speak of, and is taking on flesh. Discharged recovered August 24, 1896.


Ligation of Right External Iliac Artery.
Amputation at Right Hip Joint.
Discontinued.
Month.
July.
August.
Day of Disease.
Time of Day.
M. E.
Cent.
41
40
39
38
37
36
Pulse.
Respiration.

PROPHYLACTIC INOCULATIONS OF HYDROPHOBIA AT THE ODESSA BACTERIOLOGICAL STATION DURING THE YEAR 1894.

By THOMAS E. HEENAN,
United States consul, Odessa, Russia.

In the course of the year 1894, 1,000 persons were inoculated prophylactically at this station. In addition more than 100 persons were refused inoculation, either because they had not received lacerations which might conduce to danger of infection, or because the animals which had bitten them showed no signs of hydrophobia. Of the 1,000 persons inoculated, 16 did not finish the course of inoculations—4 because the dogs which had bitten them were discovered not to have had hydrophobia, and 12 from causes not known to the station. Among the 984 persons that finished the course of inoculations, 42 had not been bitten, but had been subject to the danger of contagion while nursing persons or animals sick with hydrophobia or in attendance at the dissection of animals which had died from the disease. According to age, all of the people inoculated may be divided into the following groups:

Under 5 years	134
5 to 10 years	204
10 to 20 years	232
20 to 40 years	307
40 to 60 years	85
Over 60 years	22
Total	984

According to their residence there were from—

Odessa	70	Ekaterinoslav	6
Province of Cherson	242	Chernomoria	3
Province of Kiev	210	Don Territory	2
Bessarabia	183	Kuban Territory	1
Podolia	145	Grodno	1
Taurida (Crimea)	65	Roumania	3
Volhynia	27	Constantinople	1
Poltava	15	Total	984
Chernigov	10		

The bites had been inflicted by human beings in 2 cases, by dogs 883, by cats 46, by horses 4, by wolves 3, a cow 2 cases, a pig 2 cases, total 942; and there had been subject to the danger of contagion while tending hydrophobia-sick people 6 persons, and tending sick animals 36 persons, making the total of 984 persons.

The fact that the animals which had inflicted the bites were actually hydrophobious was proved: (A) By means of experiments (trephining the skulls of rabbits) in 137 cases, and by the illness of other persons

(or animals) bitten at the same time, 18 cases. (B) By certificates from the surgeons or veterinary surgeons who had made the dissections in 251 cases. (C) By the clinical observations presented by the sick animals in 536 cases; total, 942. According to severity of the wounds received by them the persons bitten could be subdivided into these three categories: Severe injuries, 109; medium, 522; slight, 311; total, 942. The injuries had been cauterized in 246 cases and had not been cauterized in 696 cases; total, 942.

The prophylactic inoculations were commenced within the first week after receiving the bites in 717 cases; the second week, 181; the third week, 21; the fourth week, 8; after 4 weeks, 15; total, 942.

According to the number of inoculations made them they may be subdivided into those who received up to 4 series, 8 persons; from 5 to 8 series, 752; from 9 to 15 series, 151; from 16 to 20 series, 60; over 20 series, 13; total, 984. These inoculations were continued for not more than seven days to 5 persons, not more than fifteen days to 340, twenty-one days to 553, twenty-eight days to 39, over twenty-eight days to 47 persons; total, 984.

According to the months of the year these persons came under treatment as follows:

January	47	August	85
February	76	September	80
March	86	October	68
April	84	November	61
May	120	December	60
June	105		
July	112	Total	984

The patients were located as follows:

Town hospital	578
Military hospital (being private soldiers from various parts of the Army)	32
Private lodgings	374
Total	984

Out of the total number of 984 persons inoculated the following died during the course of inoculation: (1) Jacob Reznichenko, aged 6 years, from the village Kulikevka, borough Krasnokamensk, district Alexandria, province of Cherson. On January 31 (February 12) he was bitten by a dog which showed signs of hydrophobia. The left upper temple had been torn horizontally from the inner corner of the eye to the middle of the temple; the lower temple had been torn vertically from corner of the eyelid downward one-half centimeter. The wounds had not been cauterized, but had been sewed up. He arrived at the station on February 2 (14) and died on February 22 (March 6).

(2) Alexander Russalov; aged 9 years; from the town of Nikolaier. Bitten on May 27 (June 8) by a dog which was afterwards shown to have been affected with hydrophobia. On the left temple a little below the corner of the eye a penetrating wound 1 centimeter long and four superficial bruises. The wound had not been cauterized. Arrived

for treatment on May 31 (June 12) and died on June 19 (July 1). Four children bitten by the same dog (two of them also in the head), who arrived at the station two days earlier, remained in good health.

(3) Besides the persons here enumerated, there died from hydrophobia Inda Zilrud, aged 50 years, from the town of Uman, Province of Kiev, who for reasons unknown to the station had interrupted the course of treatment. On January 9 (21) she had been bitten by a dog that showed signs of hydrophobia. Over her fingers and palm were scattered seven penetrating wounds. These wounds had not been cauterized. She arrived at the station on January 17 and left on the 31st, before finishing the treatment. According to the communications from Dr. Katskelerich by letter dated July 19 (31), Zilrud fell ill on March 1 (13), and died on March 7 (19) with symptoms of hydrophobia. Before the expiration of fifteen days after the completion of the treatment Gorphyna Boychuk died, aged 20 years, from the village of Dolzhok, borough of Monastyr, district of Bratislav, Province of Podolia. Bitten on June 2 (14) by a dog that showed symptoms of hydrophobia. Over her right-hand fingers were scattered eight penetrating wounds, one of which was on the root of a nail, and there was a deep bite on the instep of her left foot. The wounds had not been cauterized. She arrived for treatment on June 10 (22), i. e., eight days after having been bitten. Treatment was finished on June 25 (July 7). The sanitary inspector of the Province of Podolia, by letter No. 2713, dated July 20 (August 1), announced that Boychuk died of hydrophobia on June 27 (July 9). Three other persons bitten by that same dog, who had been treated at the station, entirely recovered and are still living. After the expiration of fifteen days subsequent to the completion of treatment the following persons died:

(1) Akim Simernin; aged 28 years; from Yalta. Bitten on February 24 (March 8) by a mad dog, who, by a veterinary dissection, was shown to be suffering from hydrophobia. On the hand and fingers of his left hand there were 14 deep wounds. These wounds had not been cauterized. Arrived for inoculation on February 28 (March 12), completed treatment on March 16 (28). According to communication No. 2858 from the mayor of Yalta, dated September 30 (October 12), Simernin died in July of hydrophobia.

(2) Ivan Ivko; aged 38 years; from the village of Babin, District of Lipovetsk, Province of Kiev. Bitten on May 5 (17); had on the fingers of the right hand 8 penetrating wounds and 3 wounds on the left leg (through torn clothing). The wounds had several hours later been cauterized. Inoculations began May 6 (18); completed May 21 (June 2). On December 29 (January 10) he was brought to this station with symptoms of developed hydrophobia and died on December 30 (January 11), 1895.

Thus the percentage of the deaths among the bitten persons who had completed the prophylactic inoculation (939 persons) is equal to

0.32. If, however, in accordance with the indications of Pasteur, the one deceased who died within fifteen days after the completion of the treatment be excepted, then the percentage of the deaths will be expressed by the figures 0.21. According to the classification of the Pasteur Institute, the work of this station with regard to the inoculations of hydrophobia will be expressed in the following table:

	A.	B.	C.
Bites on the hand and face:			
Single bites	-----	4	7
Several bites	10	17	43
	10	21	50
Cauterization:			
Made	2	4	13
Not made	8	17	37
Bites on the wrists:			
Single bites	40	39	66
Several bites	48	70	158
	88	109	224
Cauterization:			
Made	27	28	55
Not made	61	81	169
Bites in the extremities and the body:			
Single bites	24	50	102
Several bites	33	70	155
	57	120	257
Cauterization:			
Made	15	25	74
Not made	42	95	183
Bites:			
On the naked body	8	15	29
Through torn clothing	49	105	228
Many bites in various parts of the body	-----	*a* 1	*a* 5
Cauterization:			
Made	-----	-----	2
Not made	-----	1	3
Bites through torn clothes	-----	1	5
Instances of exposure to contagion from patients:			
From persons	-----	-----	6
From animals	-----	-----	36
	-----	-----	42
	155	251	578
Total	984		

a Included in total.

In the column A have been placed people bitten by animals in whom the existence of hydrophobia had been established by experiment; in column B, where the hydrophobia had been attested by surgeons and veterinaries; in column C, where the hydrophobia of the animals which had bitten had been suspected on the ground of the clinical picture represented by the animals, as described by the persons who had been bitten. Besides the persons enumerated there died 4 persons in Odessa, in the year 1894, of hydrophobia who had not been subjected to prophylactic inoculations. Among them there was one local resident and three strangers. All of these persons were brought to this station with all of the symptoms of hydrophobia fully developed. The statistics of death rate among those who had undergone treatment at the station in the year 1893 must be completed with still one more case. Paul Mashkin, aged 54, from the village of Osikovata, District of Elizabethgrad, Province of Cherson, bitten on June 23 (July 5), 1893, by a dog whose hydrophobia was shown by veterinary dissection. On the third finger of his right hand he had four penetrating wounds which had been cauterized three hours after the accident. Mashkin arrived at this station on June 30 (July 12). The inoculations were completed on July 14 (26), but a year later, on July 15 (27), 1894, Mashkin died of hydrophobia. Thus the percentage of death rate is expressed by 0.26 (and not by 0.13, as calculated in the account of 1893).

HISTORICAL SKETCH OF THE UNITED STATES MARINE-HOSPITAL SERVICE AT DETROIT, MICH.

By Surg. W. H. H. Hutton.

The reservation, corner of Jefferson and Mount Elliott avenues, was ceded to the United States by the legislature of Michigan, in the year 1853, for marine hospital purposes.

The original reservation, with a width of 250 feet, extended from Jefferson avenue on the north to Detroit River on the south. Subsequently the river front was assigned by the Department to the light-house service, which now has extensive buildings and docks thereon. Later, Wight street was opened through the reservation, separating the marine-hospital and light-house grounds. The present marine-hospital grounds are about 250 by 750 feet in dimension. The site selected for the hospital was 225 feet back from the Jefferson avenue front, then a country road, the reservation at that period being a mile east of the city limits. At this writing the city limits are more than 2 miles east of the hospital. The construction of the hospital was probably begun in 1854. The "corner stone" at the top of the basement bears the legend "1855," and the hospital was completed late in 1857, at a cost of $109,525.97.

The building is in the form of a T, three stories in height, with basement, solid and substantial in construction, and will comfortably provide for 50 to 60 patients.

The records show that Dr. Zenas Pitcher, who was appointed February 28, 1857, as "physician in charge," opened the hospital in November, 1857, and continued as such until April, 1861, when he was superseded by Dr. Louis Davenport, who remained in charge until August, 1866, and was succeeded by Dr. James A. Brown, who continued in charge until October, 1879, when he was ordered to Charleston, S. C., by Surgeon-General Hamilton, but resigned rather than comply with the order.

The records show that the following number of seamen were treated at this port during the following period of twenty-two years:

1858	271	1871	284
1859	305	1872	254
1860	332	1873	266
1861	267	1874 and 1875 to June 30	361
1862	227	Fiscal year—	
1863	246	1876	271
1864	238	1877	206
1865	255	1878	252
1866	221	1879	205
1867	181		
1868	272	Total 19 years	4,923
1869–70	(a)	Annual average	260

a Missing.

In November 1879 the writer, then stationed at New Orleans, La., received telegraphic orders to hold himself in readiness to proceed to Detroit, and assume charge of the Service at that port, on being relieved by Surg. H. W. Austin.

I arrived at Detroit, December 8, 1879, and assumed charge of the Service the same date, relieving Assistant Surgeon Porter, who at once departed for Chicago, Ill., for duty at that port.

The sanitary condition of the hospital at that time was abominable and the building generally in a deplorable condition. The physician in charge seldom visited the hospital oftener than once a week, leaving the care to internes and steward. Dirt, filth, and disorder reigned supreme throughout. I therefore addressed myself energetically to bringing order out of chaos, and improving the sanitary condition of the hospital. New water-closets and plumbing, at a cost of $1,000, were at once put in, and, between whitewash, soap and hot water, painting of bedsteads, etc., in a few months the hospital was in fairly good condition. Subsequently, I had the floors of the principal wards relaid with hard maple flooring, the lower halls tiled—the latter, after sixteen years' wear, is as good as the day it was completed—the exterior of the hospital painted.

The writer was relieved November 10, 1882, by Surg. W. H. Long. Surgeon Long ordered to Chicago, Ill., February 6, 1885. Asst. Surg. P. H. Bennett in charge from February 6, 1885, to June 15, 1885, at which time he was relieved by Surg. H. W. Sawtelle. Surgeon Sawtelle relieved by Surg. W. H. Long, October 29, 1885. Surgeon Long relieved by Surg. G. W. Stoner, January 2, 1889. Surgeon Stoner relieved by Surg. W. H. H. Hutton, March 9, 1893.

From the opening of the hospital in November, 1857, to November, 1879, a period of twenty-two years, the physician in charge was appointed on the recommendation of the collector of customs, the latter being custodian of the hospital and property. Drs. Zenas Pitcher, Louis Davenport, and James A. Brown were eminent in their time in the medical profession of Detroit, but, besides being engaged in extensive private medical practice, they were also subject to political vicissitudes, the "spoils system," as is evidenced in the case of Dr. Zenas Pitcher, who was displaced within sixty days after the inauguration of Abraham Lincoln. They had, therefore, no special motive or interest in the success of the hospital, the hospital being simply a side issue to their private practice, upon which, under the system then in vogue, they knew that they would have ultimately to depend for their future success and livelihood.

As a consequence, the physician in charge visited the hospital at his convenience, sometimes once a week, generally leaving the care and treatment of the patients to inexperienced hospital internes, and the care and discipline of the hospital to the steward. As before shown, the total number of seamen treated at this port during the twenty-two years from 1857 to 1879 averaged annually 260, and were

fewer in 1879 than in 1858, although the commerce of the Great Lakes had increased enormously during that period.

Under the act of Congress of 1870, and the regulation appointing medical officers of the Marine-Hospital Service after examination as to their professional qualifications, and assigning them to duty wherever the interests of the Service might require, as before stated, the writer was ordered to this station in November, 1879, since which date it has been conducted by surgeons appointed under the revised system, under which management the following data will show the growth of the Service during the seventeen fiscal years ended June 30, 1896, as compared with that of the old system during the twenty-two years ended in 1879:

1880	622	1890	2,249
1881	918	1891	1,771
1882	1,122	1892	1,607
1883	1,640	1893	1,640
1884	1,522	1894	1,748
1885	1,261	1895	1,562
1886	1,744		
1887	1,540	Total 17 years	28,198
1888	2,531	Annual average for 17 years	1,658
1889	3,229		

Under the old system of having local physicians in charge, the least number of seamen furnished medical or surgical relief during the twenty-two years of that service, was 181 in 1867, and the greatest number, 332 in 1860.

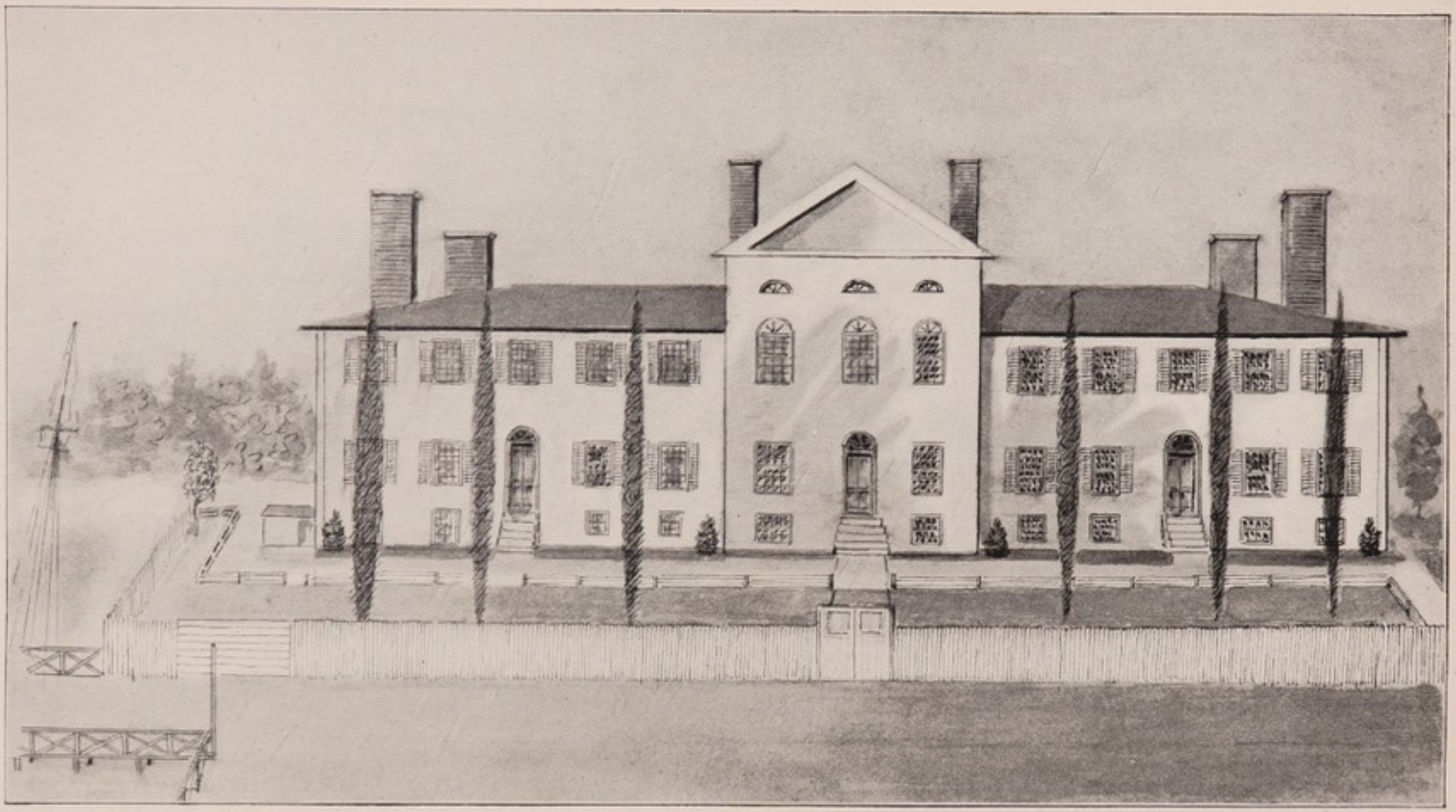
Under the revised system the least number of seamen furnished medical or surgical relief was, during its first year, 622 in 1880, and the greatest number, 3,229 in 1889.

Under the old system, all applicants for relief were admitted to hospital for treatment. Hence the records show patients admitted for "itch," "gonorrhœa," "earache," "malingering," etc.

Under the revised system only applicants suffering from diseases totally disqualifying them from labor are admitted to hospital, those able to take care of themselves being treated as "out-relief" patients. The largest number of seamen furnished hospital relief was, in the fiscal years ended 1888 and 1889, 518 and 524, respectively.

Under the revised system, all professional and executive work is systematically and promptly attended to, discipline maintained, the hospital kept in good order and condition by thorough weekly inspections made to that end, and many sanitary and other improvements inaugurated.

A fine residence for the medical officer in command was completed and occupied in 1895. An isolation ward has been provided for, and will probably soon be erected. The grounds are in fine order, and with a complete renovation of the interior and exterior of the hospital, the station will be one of the finest in the Service.



FIRST U. S. MARINE HOSPITAL, PORT OF BOSTON, MASS. OCCUPIED 1804-1827.
(Still standing in Charlestown Navy Yard.)

HISTORICAL SKETCH OF THE UNITED STATES MARINE-HOSPITAL SERVICE, AT BOSTON, MASS.

By Surg. H. W. Austin.

A sketch of the early history of the Service at this port, although somewhat fragmentary, may serve to show by comparison with recent records its progress and growth, and also be of sufficient interest for permanent record. On July 16, 1798, Congress passed an act for the relief of sick and disabled American seaman, creating a fund for this purpose designated "the marine-hospital fund," by imposing a tax upon seamen of 20 cents a month. Medical relief was furnished to seamen first at Castle Island in the port of Boston in 1798 by Dr. Thomas Welsh. Dr. Welsh was a resident of Boston, one of the charter members of the Massachusetts Medical Society and its first treasurer. He held a contract from the Secretary of War for attending sick soldiers at Castle Island, and was also employed by the Secretary of the Treasury to care for sick American seamen that might be sent to him by the collector of customs. His services were continued until the completion of the United States Marine Hospital in Charlestown, December, 1803. This, it is believed, was the first relief furnished by the United States Government to sick or disabled American seamen.

In the year 1802 a site was selected for a United States marine hospital at this port and the building commenced, which was finished and ready for occupancy in December, 1803.

This building, a two-story brick, with basement, 100 by 40 feet, was located upon the right bank of the Mystic River, in what is now a part of the Naval Reservation in Charlestown, contained nineteen rooms, a large hall, and kitchen. The grounds comprised 5 acres of land, upon which a few years later were built a barn and other buildings for the convenience of the hospital. A small cemetery lot was also reserved. The building cost $14,842.34 and was paid for from the hospital money collected from American seamen. A part of the building still stands, but it has been enlarged, and is at present occupied by the naval service for other purposes. This was the first general hospital erected in Boston, and the first patient was admitted January 1, 1804. (See illustration.)

In this connection should be mentioned the quarantine lazaretto erected in the year 1738 by the province of Massachusetts on Rainesford Island in Boston Harbor. "A good and convenient house had been lately built at the charge of the province on the island called Rainesford Island for the reception of such persons as might be visited with any contagious sickness." * * * "The commanding officer at Castle William and the keeper at the light-house shall direct masters of vessels coming near them, whenever any infectious sick-

ness is or has been at the coming in, to come to anchor as near the before-mentioned house as may be, that the sick persons and everything else on board said ship that might give infection may be removed into it with greater ease and safety."

It will readily be seen that this was only a quarantine hospital erected for the safety of the public rather than in the interest of the patient, although both purposes were subserved.

The Massachusetts General Hospital charter was granted by the State February 25, 1811, but the building was not commenced until 1818, and the first patient was admitted September 3, 1821.

Dr. Charles Jarvis, a graduate of Harvard College and a charter member of the Massachusetts Medical Society, was the first surgeon in charge of the Marine Hospital at Charlestown. He served from 1804 until 1808, the date of his death. The average daily number of patients during this period was 35. Dr. Benjamin Waterhouse, professor of theory and practice of physics, Harvard Medical College, was appointed surgeon in charge to succeed Dr. Jarvis. Dr. Waterhouse, for whom one of the wards in the present hospital was named, was the first physician to practice vaccination in America. He vaccinated his son July 8, 1800. He published a description of the method March 16, 1799, and in 1800 a tract "Prospect of exterminating the smallpox, being the history of the variola vaccine or kinepox," which was largely instrumental in introducing the practice in the United States. Dr. Waterhouse was succeeded by Dr. David Townsend, who was appointed surgeon in charge in 1809. Dr. Townsend continued in charge until April, 1829, the date of his death.

A page from one of the old hospital registers, which is still preserved in the files of this office, is interesting in showing a summary of relief during ten and one-fourth years furnished at an early date.

Number of patients in each quarter and deaths from October 1, 1809, to December 31, 1819, in the Marine Hospital at Charlestown, Mass.

Year.	Quarter.	Number of patients.	Number of deaths.	Number brought from last quarter.	Admitted.	Discharged or died.	Patients in hospital over 80 days.	Patients in hospital 10 days or under.	Number of patients each year.
1809	Fourth	60	2	26	34	39	6	11	60
1810	First	45	3	22	23	29	10	8	
	Second	56	2	16	40	33	7	10	242
	Third	70	4	23	47	39	10	13	
	Fourth	71	6	32	39	49	6	7	
1811	First	63	3	32	41	44	8	12	
	Second	68	7	20	48	55	12	17	318
	Third	80	4	13	67	42	8	11	
	Fourth	107	2	39	68	64	14	18	
1812	First	95	3	49	46	72	17	23	
	Second	144	9	24	120	102	11	29	649
	Third	239	9	52	107	177	9	67	
	Fourth	171	12	65	106	139	18	48	
1813	First	107	15	32	75	65	15	13	
	Second	122	12	44	78	89	6	28	496
	Third	148	10	33	115	122	14	55	
	Fourth	119	6	29	90	76	17	37	

Number of patients in each quarter and deaths from October 1, 1809, etc.—Cont'd.

Year.	Quarter.	Number of patients.	Number of deaths.	Number brought from last quarter.	Admitted.	Discharged or died.	Patients in hospital over 80 days.	Patients in hospital 10 days or under.	Number of patients each year.
1814	First	83	5	45	38	55	21	24	234
	Second	68	5	38	40	49	8	13	
	Third	39	1	21	18	20	10	7	
	Fourth	44	5	21	23	28	11	6	
1815	First	27	2	16	11	10	10	1	354
	Second	72	5	18	54	45	1	12	
	Third	143	6	28	115	111	5	34	
	Fourth	112	7	35	77	78	4	30	
1816	First	120	9	33	87	78	2	24	491
	Second	117	8	45	72	91	13	31	
	Third	131	2	28	103	102	13	29	
	Fourth	123	5	31	92	82	10	25	
1817	First	113	4	41	72	60	16	13	488
	Second	135	7	46	82	89	14	28	
	Third	131	11	46	85	104	10	27	
	Fourth	109	7	25	84	69	7	23	
1818	First	118	4	42	76	91	10	24	494
	Second	96	7	27	64	69	6	20	
	Third	142	4	44	94	98	11	42	
	Fourth	130	7	44	94	104	11	50	
1819	First	95	2	34	61	71	14	27	487
	Second	114	9	24	89	94	4	44	
	Third	120	6	20	100	90	8	40	
	Fourth	152	8	30	118	104	9	50	
Total		4,307	245						

The large number of patients treated in 1812 and 1813 will be noted. Many of these were sick and wounded seamen from naval vessels engaged in battle with the British ships. The smaller number of patients in 1814 was probably due to the blockading of the American ports by the British fleet.

Another page from the same volume, in which the deaths are recorded, gives names, ages, nationalities, and diseases.

Deaths in the United States Marine Hospital at Charlestown, Mass., from October 1, 1809, to December 31, 1813.

Name.	Where born.	Age.	Disease.	Died—
		Yrs.		
John P--	Ireland	30	Venereal	Oct. 11, 1809
Cuffe Cook	Africa	42	Fever	Dec. 10, 1809
Hugh McGlanning	Ireland	24	Consumption	Jan. 8, 1810
Marshal Mansfield	Massachusetts	34	do	Jan. 9, 1810
James Bremaid	Denmark	45	do	Mar. 23, 1810
James Hoar	Massachusetts	25	Sudden	Apr. 22, 1810
Francis Rider	Pennsylvania	26	Consumption	June 19, 1810
Charles Son	Sweden	52	Dropsy	Aug. 17, 1810
William Watson	England	34	Consumption	Sept. 11, 1810
Samuel Goodwin	Nova Scotia	38	do	Sept. 16, 1810
William Collins	New York	21	Fever	Sept. 9, 1810
Wm. Simpson	England	38	Insane	Oct. 25, 1810
Andrew P—r, alias B—s	do	28	Venereal	Nov. 3, 1810
John McDaniels	Ireland	42	Consumption	Nov. 5, 1810
Daniel Lockhart	Massachusetts	25	do	Nov. 26, 1810
Joseph Pickman	Germany	29	do	Nov. 28, 1810
John W—s	Massachusetts	19	Venereal	Dec. 27, 1810
Nathan Chase	Harwich	48	Fever	Jan. 1, 1811
Wm. Griffin	England	47	Consumption	Jan. 23, 1811
Isaac B—k	Maine	21	Venereal	Mar. 1, 1811
John Thornton	Unknown	31	Fever	Apr. 11, 1811
Nat'l Bristol	Africa	35	Consumption	Apr. 15, 1811
Wm. Mackey	New York	30	Fever	Apr. 17, 1811
John Privall	Virginia	26	Consumption	May 1, 1811
John Hollis	Massachusetts	33	Fever	May 13, 1811
John Purcall	Ireland	45	Consumption	June 8, 1811
Wm. Persons	Massachusetts	39	do	June 13, 1811

Deaths in the United States Marine Hospital at Charlestown, Mass., etc.—Cont'd.

Name.	Where born.	Age.	Disease.	Died—
		Yrs.		
Joseph Nickerson	Maine	25	Fever	July 12, 1811
James Collins	Massachusetts	29	Consumption	Sept. 23, 1811
John Turner	Connecticut	27	Fever	Sept. 27, 1811
Joseph Narsis	West Indies	44	Consumption	Sept. 28, 1811
George Hayes	England	32	do	Oct. 19, 1811
Jacob Myers				Nov. 10, 1811
John O'Brine	Massachusetts	25	Consumption	Jan. 30, 1812
Jonathan Pease	do	36	Fever	Feb. 8, 1812
Samuel Barber	North Carolina	26	Consumption	Feb. 21, 1812
Archabal Graham	Scotland	47	do	Apr. 10, 1812
Mathew Butman	Massachusetts	52	Fever	Apr. 16, 1812
Joseph Manning	France	24	Consumption	Do.
Lewis Flury	do	26	do	Apr. 29, 1812
George Dunham	Massachusetts	56	Flux	May 27, 1812
Hezekiah Lambert	Maine	33	Dropsy	May 29, 1812
Wm. Smith	New Jersey	42	Fever	June 6, 1812
John Jones	Pennsylvania	30	do	Do.
Patrick O'Niel	Ireland	28	Fever	June 27, 1812
John Brick	Poland	61	Liver complaint	July 2, 1812
Thomas Seven (or George Whipple).	England	31	Flux	Aug. 12, 1812
Wm. Millington (prisoner)	Jamaica	30	Wounded	Sept. 10, 1812
John Fake (prisoner)	England	26	do	Sept. 12, 1812
Daniel Devolve	Georgia	38	Consumption	Do.
Joseph Newall	Massachusetts	26	Flux	Do.
John Vixon	Ireland	25	Fever	Sept. 21, 1812
John Borne (prisoner)	England	33	Wounded	Sept. 27, 1812
Robert Edgar	Maryland	27	Consumption	Do.
Peter Johnson	Unknown	34	Fever	Oct. 12, 1812
Samuel Miller (prisoner)	England	37	Wounded	Do.
Peter Peterson	Sweden	25	Fever	Oct. 16, 1812
Raphel Coffen	Sicily	46	Consumption	Oct. 14, 1812
Robert Ellison	Pennsylvania	33	Dropsy	Oct. 18, 1812
Stephen Achors	Georgia	35	Consumption	Oct. 24, 1812
John Roberson	Virginia	23	Fever	Nov. 5, 1812
James Green	Guinea	47	Consumption	Nov. 26, 1812
James Hurley	Ireland	25	do	Dec. 4, 1812
Andrew Nelson	Prussia	34	do	Dec. 12, 1812
Isaac Conklin	New York	23	Abscess	Dec. 23, 1812
Peter Sandquist	Sweden	32	Fever	Dec. 27, 1812
Samuel Eaton	Connecticut	48	Consumption	Jan. 16, 1813
John Mills	Massachusetts	34	do	Jan. 29, 1813
James Butler	New York	17	Fever	Do.
John Bogert	do	40	do	Feb. 10, 1812
Joseph Sebastion (prisoner)	Portugal	29	do	Feb. 17, 1812
Charles Priest	Massachusetts	43	Lung fever	Feb. 21, 1813
Andrew Hanson	Unknown	40	do	Feb. 23, 1813
Thomas F. Britt	Massachusetts	31	do	Feb. 24, 1813
Andrew Smiley	Pennsylvania	31	do	Feb. 27, 1813
John Brown (prisoner)	Connecticut	27	do	Mar. 2, 1813
John Guiner	Italy	19	do	Mar. 3, 1813
Thomas Dixon	Massachusetts	45	Hurt by a fall	Mar. 6, 1813
Elijah Clark	New Jersey	47	Consumption	Mar. 11, 1813
Absolom Lawes	Delaware	33	do	Mar. 12, 1813
James Grimes	Virginia	27	do	Mar. 24, 1813
John Thomas (prisoner)	Portugal	37	Liver complaint	Apr. 9, 1813
John Wade	Pennsylvania	25	Consumption	Apr. 15, 1813
Samuel Drumonds	New Jersey	32	Typhus fever	Apr. 21, 1813
Edward Smith	Unknown	38	do	Apr. 22, 1813
Thomas Shirley (prisoner)	England	55	do	Apr. 27, 1813
Nath'l Perkins	New Hampshire	36	Wounded and fever	May 9, 1813
Wm. Jordan	Maine	17	Consumption	May 10, 1813
Richard Cooper	Maryland	27	do	May 20, 1813
Thomas Manning	Massachusetts	27	Insane	May 22, 1813
Augustus Colbach	Sweden	48	Consumption	June 18, 1813
Alexander Simonds	Homberg	35	Dropsy	June 28, 1813
John Tragum	Ireland	27	Scrofulous humor	June 30, 1813
Thomas James	Unknown	40	Fever	July 9, 1813
Michael D—n	Ireland	29	Venereal ulcers	July 20, 1813
Thomas Jackson (colored)	New York	55	Consumption	Aug. 10, 1813
Shorborn Thorney	Massachusetts	19	Fever	Aug. 25, 1813
Henry Cooper	do	29	Dropsy	Sept. 3, 1813
John Battist (colored)	Maryland	30	Debility	Sept. 4, 1813
James Butler	New York	28	Wounded	Sept. 7, 1813
John Hill	South Carolina	17	Fever	Sept. 10, 1813
William Sewell	Virginia	22	Consumption	Sept. 11, 1813
William Musgrove	New York	30	do	Sept. 25, 1813
Peter Murray	Ireland	32	do	Oct. 14, 1813
John McKinsey	New York	31	Fever	Nov. 7, 1813
Charles Butler	Ireland	40	do	Nov. 11, 1813
Thomas Edwards	South Carolina	22	do	Nov. 13, 1813
Thosma Trokaussh	Russia	30	Fractured head	Dec. 4, 1813
Lars Larson	Sweden	33	Fever	Dec. 17, 1813

The peculiar nomenclature of diseases, so different from that of the present day, may be noted, which is probably due in a measure to the better knowledge of the etiology of diseases and the more definite means of diagnosis. Many deaths are recorded as from "fevers"; most of them are probably from enteric fever, although malarial fever was no doubt the cause of some. Typhus is given as the cause of several, but it is possible that they may have intended to record typhoid. "Sudden" may have corresponded with the indefinite term of the present, "heart failure." It is observed that more deaths are recorded from "venereal" than are recorded from all kinds of venereal diseases at this time, perhaps owing to the better therapeutic agents now in use. Chronic Bright's disease was probably the cause of some of the deaths recorded "dropsy," as it is well known that sailors at that time, as at the present, were intemperate.

Clothing was furnished by the Government to destitute seamen during the early part of the present century, as shown by the following note in an old hospital register:

There have been distributed to destitute seamen from January 1, 1813, to December 31, 1815—Great coats, 2; jackets, 29; vests, 25; trousers, 52; shirts, 96; drawers, 6; hose, 34; shoes, 26; handkerchiefs, 13; hats, 9; caps, 7.

By an act of Congress dated March 2, 1799, the benefits of the Marine-Hospital Service were extended to sailors in the United States naval service, 20 cents per month being deducted from their pay for the support of the Marine-Hospital Service, as in the merchant service.

The sick and disabled seamen and marines from United States naval vessels entering the port of Boston were treated in the United States Marine Hospital at Charlestown from the year 1804 to 1821, when, by an act of Congress, the collection of hospital dues from naval seamen for the support of the marine hospitals was discontinued and separate naval hospitals were authorized. A permanent naval hospital, however, was not established at this port until 1836.

Many seamen and marines from the United States frigates *Constitution*, *President*, *Chesapeake*, *Congress*, *United States*, brigs *Syren*, *The Hornet*, and other United States naval vessels and privateers, who, in naval encounters with the well-armed British fleet, had won the admiration and gratitude of the American people were cared for in the United States Marine Hospital in Charlestown. The following inscription is found on the back of an old water color of the first United States marine hospital, which was presented to the Naval Museum in the Charlestown Navy-Yard by Asst. Surg. S. D. Townsend, United States Marine-Hospital Service, and of which, by the kindness of Commodore J. N. Miller, U. S. N., I have been able to procure a copy for this sketch:

This building formerly stood in the navy-yard on the site of the present officers' quarters near Chelsea Bridge. Into it were admitted all the sick and disabled of the Navy, as well as those from the merchant service. Here also were received

all the wounded of the frigates *Constitution* and *Guerriere* after their action in 1812. The hospital was removed to Chelsea in 1828.

Presented by Dr. S. D. Townsend, 1852.

Many sick and wounded British prisoners captured in the war of 1812 were also treated in this hospital. In the early twenties, when a large commerce was carried on by American clipper-built ships plying between Boston, Salem, and the East Indies and European countries, the capacity of the marine hospital was considered inadequate, and Congress authorized the construction of a new building, and the old building was transferred to the Navy Department for other uses.

In 1827 a site was selected in Chelsea, comprising 10 acres of ground, which extended to the water front of the harbor. The ground was high, beautifully located, and convenient to the landing of the Winnisimmet Ferry. A granite building, 150 by 50 feet, three stories and basement, was erected and occupied in 1827. The patients from the old hospital were transferred to the new, and the bodies of those who had died in the Charlestown hospital were disinterred and buried in a cemetery lot, a part of the new hospital grounds. The site for this building was purchased in 1825 at a cost of $4,068, and the cost of the building was $32,168.06, both being paid for from the marine-hospital fund. This building (see illustration, second United States marine hospital) was occupied as a marine hospital from 1827 until about 1860, when it was considered insanitary, owing to defective construction and ventilation, and being of insufficient capacity to accommodate the patients, a larger and better building was demanded, and in 1859 Congress passed an act authorizing the erection of a new building and transferred 10 acres of ground of the naval hospital reservation to the Marine-Hospital Service for a site. These grounds were purchases by the Government from Dr. Aaron Dexter, of Boston, in September, 1823, the Secretaries of War, Treasury, and Navy representing the Government as commissioners of navy hospital. The tract embraced 115 acres and cost $18,000.

The grounds selected are high, overlooking the harbor and the surrounding cities, convenient of access, salubrious, and at present beautifully shaded. It is located in Chelsea, a short distance from the Chelsea and Charlestown Bridge. A new hospital building, the third at the port of Boston and the one now in use, was erected near the center of the grounds, and was first occupied in 1860. The building, 100 by 141 feet, four stories and a basement, is a handsome pressed-brick structure, basement foundation, water belts, window caps, etc., of granite, ornamental iron verandas, with tiled floors to the third story on four sides, arched brick ceilings, and slated mansard roof. The building will accommodate about 150 patients.

There are also two brick outbuildings, mortuary, storerooms, etc., 15 by 83 feet, a brick engine and boiler house 29 by 35 feet, and a frame barn and stable 30 by 50 feet. The hospital building, not



SECOND U. S. MARINE HOSPITAL, PORT OF BOSTON, MASS. OCCUPIED 1827-1860.
(Still standing in Chelsea.)

including the engine and boiler house and barn, cost $395,603.06. This amount includes the cost of adding one story to the building a short time after its completion. The engine house was erected in 1887 at a cost of $9,858, including heating apparatus, and the barn in 1894 at a cost of $3,392. In 1895 Congress made an appropriation of $2,000 for an isolation ward, and plans have been prepared and the building will be erected this summer.

The patients were transferred from the second hospital to this building in 1860, and the bodies of patients who had died in the first and second hospitals were removed to the cemetery on the present hospital grounds. The second hospital building was sold in 1867 for $54,803.38, but the wharf and water front were reserved, and are the property of the Service at this time and are leased to private parties.

Detached quarters for the medical officer in command have been recommended, and when erected the hospital building, which at times is crowded, will be sufficient in capacity. Although not modern in plan, it is a good and convenient hospital building.

The duties of the station have greatly increased in the past decade. The number of patients relieved is greater, and additional duties different in character are required of the medical officers stationed here. The following exhibit of the statistics of the station for two fiscal years, 1895 and 1896, will show the character of the work performed and the operations of the service:

Patients granted relief at the station:	
1895	3,534
1896	3,280
Patients treated in hospital:	
1895	896
1896	880
Patients treated at dispensary:	
1895	2,638
1896	2,400
Number of times relief furnished out-patients:	
1895	4,029
1896	3,270
Number of times surfmen, Life-Saving Service, examined:	
1895	30
1896	30
Pilots examined for visual defects:	
1895	169
1896	112
Seamen examined for physical defects, including Revenue-Cutter Service:	
1895	11
1896	30
Immigrants examined (under immigration law)	21,846
Local quarantine stations inspected along the North Atlantic coast to determine whether the United States quarantine regulations are observed	27
Surgical operations performed sufficiently important to record:	
1895	155
1896	115

The inspections of the local quarantines made by the commanding officer of this station embrace all ports of entry along the coast of Rhode Island, Massachusetts, New Hampshire, and Maine. These inspections are made once each year, and oftener if considered necessary.

For the purpose of comparison the following statistical table, showing the number of seamen furnished relief by the Service at this port from the year 1809 to 1896 (exceptions noted), has been prepared. The hospital records prior to 1809, and those from 1836 to 1851, together with other valuable records, were destroyed by fire in the State Street Block in Boston about two years ago, and I have been unable to find them elsewhere:

Year.	Patients treated at the station.	Hospital.	Office.	Year.	Patients treated at the station.	Hospital.	Office.
1809*a*	240	240	.....	1861	712	712	.....
1810	242	242	.....	1862*c*	519	519	.....
1811	318	318	.....	1863*c*	555	555	.....
1812	649	649	.....	1864*c*	455	455	.....
1813	496	496	.....	1865*c*	552	552	.....
1814	234	234	.....	1866	777	777	.....
1815	354	354	.....	1867	718	718	.....
1816	491	491	.....	1868	723	723	.....
1817	488	488	.....	1869	709	709	.....
1818	494	494	.....	1870	795	795	.....
1819	481	481	.....	1871	985	985	.....
1820	545	545	.....	1872	947	947	.....
1821	636	636	.....	1873	904	904	.....
1822	456	456	.....	1874	822	822	.....
1823	367	367	.....	1875*d*	737	707	30
1824	395	395	.....	1876	779	779	.....
1825	300	300	.....	1877	558	558	.....
1826	420	420	.....	1878	687	416	271
1827	455	455	.....	1879	849	401	448
1828	597	597	.....	1880	839	425	414
1829	588	588	.....	1881	1,207	458	749
1830	609	609	.....	1882	1,244	492	750
1831	563	563	.....	1883	1,544	472	1,072
1832	693	693	.....	1884	1,785	528	1,257
1833	730	730	.....	1885	1,752	541	1,211
1834	790	790	.....	1886	1,815	609	1,206
1835 to 1851*b*	.....	.....	.....	1887	1,848	744	1,104
1852	351	351	.....	1888	2,040	894	1,146
1853	832	832	.....	1889	2,308	934	1,374
1854	1,194	1,194	.....	1890	2,270	891	1,379
1855	941	941	.....	1891	2,272	1,088	1,184
1856	832	832	.....	1892	2,692	1,012	1,680
1857	873	873	.....	1893	3,132	1,087	2,045
1858	777	777	.....	1894	3,412	1,070	2,342
1859	959	959	.....	1895	3,534	896	2,638
1860	877	877	.....	1896	3,280	880	2,400

a Estimated from last quarter of the year.
b Records destroyed by fire.
c Exclusive of sick and wounded soldiers, naval sailors, and marines.
d For the first half of 1875 there were 303 patients admitted. Hereafter all records date from the fiscal year beginning July 1.

During the late war, as in the war of 1812, the wards of this hospital were open for the reception of the sick and wounded Union soldiers, sailors, and marines. Many were brought to this station upon naval vessels and transport steamers from the front lines where actual hostilities were in progress, and the overcrowded naval hospitals at Portsmouth, N. H., and Boston were relieved by the transfer to this hospital of some of their patients. In the hospital register of sick and wounded soldiers, sailors, and marines admitted to this

hospital is recorded the name, rank, regiment, company or ship, the diagnosis, date of admission, and date of discharge or death. The following is a summary of admissions of soldiers, sailors, and marines, making a grand total of 648 patients:

Sick and wounded soldiers received June 7, 1862	46
Sick and wounded sailors and marines received:	
July 25, 1862	31
November 13, 1862	50
Total in 1862	127
May 20, 1863	29
July 28, 1863	20
August 31, 1863	14
October, 1863	44
November, 1863	27
December, 1863	40
Total in 1863	174
January, 1864	6
February, 1864	33
March, 1864	29
April, 1864	8
May, 1864	3
June, 1864	1
July, 1864	100
August, 1864	1
September, 1864	94
October, 1864	23
Total in 1864	298
April 12, 1865	49
Grand total	648

Prior to the year 1874 and after the reorganization of the Service, office relief was not furnished to patients at this station; those who did not require hospital relief were rejected. This fact will in a measure account for the increased number granted relief about this time. This would also tend to reduce the number of patients admitted to hospital.

The decision of the Solicitor in 1885, authorizing hospital relief to seamen from deep-sea fishing vessels augmented the operations of the Service in Boston. Marine patients requiring hospital treatment are sent to this hospital from the various ports of entry in Rhode Island and Massachusetts, with the exception of Vineyard Haven, where there is a United States marine hospital.

The first physicians appointed by the President to have charge of the United States Marine Hospital at Charlestown were designated "medical directors," and although the title was afterwards changed to "physician in charge," I find no act of Congress bearing upon the subject until the act of January 4, 1889, which fixed the rank of all

officers of the Service, the same being upon the basis of the Service Regulations of 1873 and 1879.

A chronological list of medical officers in command of this station and the portraits of all but two are preserved in this office.

Chronological list of surgeons in charge of the United States Marine Hospital, Boston, Mass.

Name.	From—	To—	Name.	From—	To—
Thomas Welsh	1798	1804	John W. Graves	1863	1869
Charles Jarvis	1804	1808	A. B. Bancroft	1869	1877
Benjamin Waterhouse	1808	1809	John B. Hamilton	1877	1879
David Townsend	1809	1829	John Vansant	1879	1881
Charles H. Stedman	1829	1840	George Purviance	1881	1884
G. W. Otis	1840	1843	H. W. Austin	1884	1888
George B. Loring	1843	1850	Fairfax Irwin	1888	1891
William Ingalls	1850	1856	Henry W. Sawtelle	1891	1894
Charles A. Davis	1856	1863	H. W. Austin	1894	.....

Books consulted.—Drake's History of Boston; Centennial address delivered before the Massachusetts Medical Society June 7, 1881, by Samuel Green, M. D.; Notes on Naval Hospitals and Medical Schools, etc., by J. D. Gatewood, M. D., passed assistant surgeon, U. S. N.; Hospital Journal, Port of Boston, by Surg. J. B. Hamilton, M. H. S.; Annual Reports of the Surgeon-General, Marine-Hospital Service.

HISTORICAL SKETCH OF THE UNITED STATES MARINE-HOSPITAL SERVICE AT SAN FRANCISCO, CAL.

By Surg. JOHN GODFREY.

SAN FRANCISCO, CAL., *August 31, 1896.*

SIR: In reply to your letter of the 1st instant (C. E. B.) ordering a historical sketch to be made of the Service at this port, after considerable research, extensive examination of records, and many interviews I have the honor to report as follows:

On the morning of May 4, 1851, the custom-house in San Francisco was burned and the greater part of its records destroyed. Consequently, what bears officially upon the care and maintenance of sick and disabled seamen at this port previous to that date must of necessity be meager. It appears, however, that as early as 1849 Dr. Peter Smith had a private hospital on the corner of Clay and Powell streets which gave admission to patients of all classes, sick seamen being included. On the 31st of October, 1850, this hospital was burned. Many of the inmates were injured severely, but none fatally. On the 16th of November, 1850, the Adjutant-General, U. S. A., upon request, directed Maj. Gen. P. F. Smith, in command of the Military Division of the Pacific, "to grant the use of the building known as the Presidio to the department for temporary occupancy as a marine hospital," and the Secretary of the Treasury, under date of November 22, advised the collector of customs at San Francisco, Cal., "to take possession of the building and to fit it up and furnish it as a hospital for the relief of seamen." (Treasury Department Records, Marine Hospitals, No. 2, p. 146.)

April 30, 1851, the legislature of California passed an act establishing a State marine hospital in San Francisco. Under this act the hospital was soon opened, the first site being on Filbert street, between Hockton and Powell streets. Now, whether Dr. Smith reopened his hospital and admitted seamen, or whether they were cared for in the State marine hospital, I have been unable to learn. Nevertheless, young as was the city, it was alive to the welfare of sailormen. The necessity for a suitable and permanent place in which to house them when sick is shown by the fact that by an act approved September 30, 1850, Congress made an appropriation of $50,000 to erect a marine hospital in San Francisco. After the usual delays, steps were taken to purchase a site and proceed with the building. Finally, Rincon Point was secured, and the hospital was built on what is now known as the corner of Spear and Harrison streets.

On the 10th of December, 1852, the site was conveyed to the National Government by the mayor and common council of San Francisco. The

corner stone was laid April 7, 1853. The building was completed December 15 of the same year and occupied without delay.

The cost was $231,874.10. Just previous to the completion of the building there is no record of where and by whom the sick seamen were treated There is good evidence (inferential) that they were cared for by Dr. Brest for a part, perhaps all, of 1851. At what location does not appear. The evidence is this: Early in 1852 the Secretary of the Treasury directed that the revenue bark *Polk* be fitted up as a marine hospital.* On the 16th of March, 1852, by order of the collector of customs, San Francisco, Dr. Brest transferred all the sick seamen under his charge aboard the bark *Polk*, where they came under the care of Dr. Jamison, "superintending physician," and his assistant, Dr. Zabrieski. The latter was relieved from duty March 31. The *Polk* remained the hospital until the opening of the hospital proper.

The first officer in charge at the new building was Dr. R. F. Maxwell. He retained his position until succeeded by Dr. John Hastings in 1861. The following statistics, obtainable only to June 30, 1857, may be of interest: Expenditures from March 16, 1852, to June 30, 1857, $48,112.56; patients admitted for the period, 8,047; patients discharged for the period, 7,521; died, 320. Dr. Hastings continued in charge of the hospital until the 1st of December, 1866, when he was succeeded by Dr. J. C. Tucker.

In the month of September, 1865, it appears that the hospital was injured by an earthquake, but not sufficiently so to cause the removal of the patients. In 1867 the average number of patients was 100. In January of that year Dr. Tucker submitted a report as to the insecurity of the building, and predicted serious consequences in case of another earthquake. September 30, 1868, the collector of customs wrote to the Secretary of the Treasury, calling particular attention to the insecurity of the hospital building, and advised that it be either strengthened or abandoned. On the 19th of October following he forwarded proposal of Dr. Tucker to care for all sick seamen at Alameda Park Asylum, and again attention was called to the insecurity of the building. Two days later, October 21, a severe earthquake shook the city and did further damage to the hospital. The patients fled from the building and took refuge in the yard under sheds and temporarily in adjacent houses, until Dr. Tucker could provide them with proper quarters.

The earthquake materially expedited the abandonment of the hospital. In the annual report of the Service for the year 1875, page 27, under the head of "Condition," the hospital is referred to as being "in ruins." After its abandonment as a marine hospital, by resolution of Congress the building was allowed to be occupied as a sailor's home, with the proviso that it revert to the Government should it

*I learn by verbal report that the *Polk* was anchored for the time near Fort Mason.

cease to be occupied for that particular purpose. Except in case of another earthquake, there is little likelihood that it will revert for years to come. It is still a sailors' home, and stands solid and stanch in spite of its foreshadowed insecurity.

There is no definite record that I have been able to find of the exact time the seamen were lodged at the Alameda Park Asylum. It could not have been much beyond the middle of 1871, however, for Dr. Tucker was succeeded by Dr. Wooster, who lost the contract after June 30, 1872, having held it (by report) not quite one year. During Dr. Wooster's term the seamen were housed at 224 Valencia street. From July 1, 1872, to June 30, 1875, Foster & Dole were the contractors, keeping the patients at Fifteenth and Mission streets.

At the reorganization of the Service, 1871, Dr. J. M. Kollosk was appointed superintending surgeon by the Secretary of the Treasury, and given an office in the custom-house. With the beginning of the contract of Foster & Dole, Dr. Kollosk was relieved from duty, giving way to Dr. C. A. Ellinwood, who was appointed to the same position, having besides entire medical care of the seamen. During the term of Foster & Dole the average number of patients was 65. The price per inmate per day was 90 cents.

On the 19th of June, 1875, Surg. Gen. John M. Woodworth invited the medical profession and officers of the Government residing in San Francisco to inspect the buildings situated near Mountain Lake, which at present constitute the Marine Hospital of San Francisco. The aggregate cost of the hospital was $73,884.06.

Before the beginning of the next fiscal year the patients were all transferred to its wards. Since then there has been no interruption of its work, which has grown year by year, and in such wise that one is warranted in saying that its character has kept pace with its quantity. The yearly admissions have remained pretty much the same, but the outdoor department has increased considerably more than tenfold. For instance, the office relief for 1875 was 322; for 1895, 4,152. From time to time the hospital has received improvements. New buildings have been added, notably another ward, much superior to those first constructed. The site of the hospital is admirable in many respects. At any rate, a healthier spot could scarcely be found, and none, to my knowledge, where sick people can be made more comfortable as regards pure air and temperature.

Very respectfully,

JOHN GODFREY,
Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

NOTE.—Dr. C. A. Ellinwood resigned in 1879 and was succeeded by Surgeon Ernest Hebersmith, who also resigned in November, 1881. The list of surgeons in command from that date is as follows: John Vansant, 1881–1885; Henry W. Sawtelle, 1885–1889; Preston H. Bailhache, 1889–1893; John Godfrey, 1893 to date.

HISTORICAL SKETCH OF THE UNITED STATES MARINE-HOSPITAL SERVICE AT VINEYARD HAVEN, MASS.

By P. A. Surg. D. A. Carmichael.

Marthas Vineyard, the largest island on the New England coast, lies off the southeastern part of Massachusetts. It has the form of an irregular triangle, and is about 23 miles long and 10½ broad at its widest part.

The Atlantic Ocean bounds it on the east, south, and west, and on the north it is separated from the mainland by Vineyard Sound. The surface is rolling, and along the western side of the island is a range of hills, which at Indian Hill reaches an elevation of 261 and at Peaked Hill 311 feet above the sea level. The soil is mostly a loose gravel and sand, with a loam in the bottoms. The island is well wooded, principally by native oak, pine, and shrubs, and has numerous fresh-water ponds, streams, and springs. The climate is temperate, and except during a part of the winter is very agreeable and well adapted to the residence of invalids who do not suffer from pulmonary or rheumatic affections. The mildness of the climate is attributed to the proximity of the Gulf Stream, whose inner or northern edge, according to observations made in 1863 by the United States Coast Survey, is closer to Marthas Vineyard than any other part of the Atlantic coast north of Cape Hatteras.

Epidemics are rare or almost unknown, and the investigations made by State officers on the island relative to tuberculosis in cattle were nil. The island was discovered by Varrazzani, an Italian explorer, in 1564, who called it Claudi, in honor of the mother of Emperor Francis II. In 1602 Bartholomew Gosnold, an Englishman, landed on it, but did not remain.

In 1607 Martin Pring visited the harbor, which he called Whitsun Bay, and built a stockade on the high bluff on the west side.

A few years after the landing of the Pilgrims at Plymouth, a band of Englishmen from Wiltshire, England, on their way to join the colony established in Virginia, attracted by the appearance of the island, its genial climate, and abundance of fish and game, landed and settled at Edgartown, on the northern shore of the island, and from this band many of the older families claim descent.

In 1641 Thomas Mayhew, an English gentleman, bought Nantucket, Marthas Vineyard, and the neighboring islands from Sir Fernando Georges and the Earl of Stirling. After the Revolution the inhabitants largely engaged in the whale-fishing industry, and for many years this was the principal enterprise followed by the Vineyarders and their neighbors on Nantucket.

On the island are the towns of Edgartown, Cottage City, Vineyard Haven, West Tisbury, Middletown, Chilmark, and Gayhead.

VINEYARD HAVEN.

Vineyard Haven, also called Tisbury, where the United States Marine Hospital is located, is a pretty village, situated on the sloping shores of the harbor, the greater number of the houses being on the west side. It has about 1,000 inhabitants, a number of stores, two churches, and a good school.

The native inhabitants are those who have retired from the sea and are the descendants of the old whalers. It is a favorite resort in summer for those who know and are charmed with attractiveness and health-giving breezes. It is quiet and orderly and governed in a simple and effective manner.

The harbor of Vineyard Haven was formerly called Holmes Hole. It is situated at the northeastern end of the island and is a haven of shelter for the immense fleet of vessels that pass through Vineyard Sound en route for different points on the southern and northern parts of the coast. It is well sheltered from all winds except severe northeast gales and furnishes good holding ground for anchorage. It is 200 miles from New York, 150 from Boston, 80 from the end of Cape Cod at Provincetown, and 35 from New Bedford. More vessels are said to enter it storm and wind bound than any other port on the Atlantic coast except New York, and it is recognized by seafaring men as a halfway stopping place between New York and Boston.

The residents of Vineyard Haven were among the pioneers who saw the necessity and humanity of extending relief to the sailor when sick and disabled.

MARINE HOSPITALS—OLD AND NEW.

Researches made by Surg. Charles E. Banks, Marine-Hospital Service, when on duty at this station (1889–1892) show that a marine hospital was built at Eastville, on the east side of the harbor, by the residents of Vineyard Haven, on authority of the general court of Massachusetts, in 1798. This was the second marine hospital built in the United States, the first having been built by the State authorities of Virginia at Norfolk in 1788. In 1790 the State of Virginia passed a law authorizing the sale of this hospital to the United States, and the purchase was completed in 1801. In 1826 the hospital built at Eastville was abandoned and there was a reversion to the old system of boarding out the patients under the charge of a local physician.

In 1866 Dr. William Leach, of Vineyard Haven, erected a building on the Edgartown road, a short distance from Vineyard Haven, to be used as a general hospital, and sick seamen were treated therein up to the fall of 1879. In this year an abandoned light-house, with a strip of land 50 by 380 feet, on the southeast side of the harbor, was secured by the Marine-Hospital Service and converted into a hospital for the relief of seamen. It was opened on November 28, 1879, and

the patients of the Service remaining at Dr. Leach's hospital were transferred on that date. This building was imperfect in design and equipment, but served the purposes of a hospital for many years. Minor repairs and alterations were made to it as the exigencies of the Service demanded, and in August, 1885, a new pavilion ward was completed and occupied.

On March 3, 1889, a bill passed Congress and was approved by the President appropriating $1,250 for the purchase of additional land for the use of the Service at this station. After some litigation relative to condemnatory proceedings and many vexatious delays an additional 4 acres and 18 square rods adjoining the land on which the old hospital stands were purchased from the owner, Mrs. E. Sparrow, of Mattapoisett, Mass., on June 7, 1892.

A small frame building, 12 by 21 feet, one story in height and containing a mortuary and storeroom, was erected in 1891.

Through the assiduous efforts of Surg. Charles E. Banks, then on duty at this station, Hon. C. S. Randall, Member of Congress from this district, and the Surgeon-General of the Marine-Hospital Service, an item of $20,000 was included in the sundry civil bill for the erection of a new hospital at this station, which bill became a law on March 4, 1891.

Plans were prepared by the supervising architect, bids invited, and the construction of the new hospital was begun on December 16, 1894. It was completed in October, 1895, and furnished and opened for the reception of patients on December 30, 1895.

MARINE-HOSPITAL RESERVATION.

The reservation is delightfully situated on an elevated plateau on the southeast side of the harbor of Vineyard Haven and commands an extensive view of Vineyard Haven, the harbor, Vineyard Sound, the mainland, Eastville, Cottage City, Highlands, and the lagoon.

It is about 5 acres in extent, and at present is in an unfinished condition. An appropriation of $1,500 included in the last sundry civil bill for fencing, roadway grading, and improvement of the grounds is now available, and it is expected that the work will soon begin and be completed this fall. There are four buildings—the hospital, old building, mortuary and isolation ward, and an outhouse.

NEW MARINE HOSPITAL.

The new hospital is somewhat cruciform in shape and has an attic, two stories, and a basement, and is built of wood, with a brick basement. It has piazzas facing the wards on the first and second stories, the main entrance and the steward's quarters looking toward the harbor.

The ward built and attached to the old building in 1885 was moved to the rear of the new building during its construction, and after a thorough cleaning and repainting was remodeled into two large rooms, one to serve as a kitchen and the other as a dining room.

The basement of the hospital has a large workshop, with a concrete and cement floor, and at the east end of this room is the coal bin. Adjoining the workshop is the furnace room, which contains the steam heater for the building, and near this is a room used as a lumber and bottle room. There is a central hall, and on the west side a large room used as a laundry. It is fitted with tubs, clothespress, table, hot water and flatiron heater, and the laundering is done by hand. The basement is well lighted and there is an entrance on the east and west sides.

On the first story are the surgeon's office, steward's office, dispensary, medical storeroom, central and cross halls, attendants' lavatory, kitchen, dining room, smoking room, two wards, nurses' room, operating room, bathrooms and wash rooms, and water-closets. The offices are large, neatly furnished, and have ornamental oak mantels and grates. The dispensary is fitted with plain shelving and has an oak dispensing counter with drawers, shelves, and a glass top. A small room adjoins the dispensary, in which is a sink with hot and cold water. The medical storeroom is directly across the hall from the dispensary, and although small in size is sufficient for the needs of the station. The attendants' lavatory is placed at the lower end of the main hall and is approached by an entrance on the east side of the building.

The dining room is large, well lighted, and separated from the kitchen by a pantry on each side provided with patent swinging doors. The kitchen is commodious and is furnished with a good range, table, sink with hot and cold water, shelves for kitchen utensils, and a small storeroom.

A piazza runs along the east side of the kitchen and dining room and there is an attic over both rooms. The smoking room is a small room to the right of the entrance to the ward on the east side on the first floor and has not yet been completely furnished. The two wards on this floor are parallelograms in shape, are well lighted, bright and cheerful, have piazzas in front facing the harbor, and have a capacity for six beds each without overcrowding. Bathrooms, lavatories, water-closets, and nurses' rooms are attached to each ward, and they are furnished with the regulation M. H. S. beds and the new aseptic glass and iron bedside stands.

The operating room adjoins the ward on this floor on the west side. It is fitted with a new Kaysan aseptic operating table, glass and german-silver instrument cabinet, glass and iron instrument stand, Arnold steam sterilizer, and a set bowl with hot and cold water.

On the second story are two wards with bathrooms, lavatories, water-closets, and nurses' rooms adjoining, steward's quarters, and two extra bathrooms and water-closets.

The wards are duplicates in design and arrangements of those on the first story and have an equal capacity for patients. The steward's

quarters comprise four rooms—kitchen, sitting room, and two bedrooms. One of the bedrooms not being required by the steward now on duty has been converted into a linen room as a temporary arrangement. The attic is large, lighted by a bow window in each gable, and if a better means of access to it were provided than an ordinary step-ladder, it could be made useful in many ways.

HEATING, ETC.

The building is heated by steam generated in a Franklin furnace. There is a special heater to furnish hot water for the baths, an efficient ventilating system connecting registers in the principal rooms with Emerson ventilators on the roof of the building, and the four wards, designated A, B, C, and D. Kitchen and steward's quarters are connected with the steward's office by a system of speaking tubes.

WATER SUPPLY.

The water supply is obtained from the Vineyard Haven Water Company, who laid a 6-inch main from their system to the hospital in December last. This water is obtained from the noted Tashmoo Springs, at the southeast end of Lake Tashmoo, and pumped from the springs to a standpipe situated on an elevation at the outskirts of the village of Vineyard Haven. It is excellent water, and is said to be the purest of any of the samples submitted to the State analyst of Massachusetts in 1888. The following is a copy of its analysis:

Analysis of water taken from Tashmoo Springs September 11, 1888.

[Date of examination, September 13, 1888. Temperature of water, 49° F.]

Appearances:	
Turbidity	(*)
Color	0.0
Odor:	
Cold	None.
Hot	None.
Residue on evaporation:	
Total	4.00
Loss on ignition	0.45
Fixed	3.55
Odor on ignition	None.
Ammonia:	
Free	0.0000
Albuminoid	0.0010
Chlorins	0.73
Nitrogen as nitrates	0.0050
Nitrogen as nitrites	0.0000

SEWERAGE.

The sewage of the hospital is disposed of by a system of receiving and leaching cesspools, and requires an extension, now under construction, to render its working satisfactory.

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*No sediment.

OLD BUILDINGS.

The old building is now used for attendants' quarters, unserviceable-property storeroom, and one room has been reserved for the isolation of tuberculous cases. It has six rooms and is not in good repair, the sills and some of the timbers being unsound.

The deadhouse and isolation room are in one small building, 12 by 21 feet, and are separated by a partition and have separate entrances. The outhouse was formerly used as a privy, and is now in use for the storage of coal oil. These three buildings now stand at the front of the reservation on the strip of land purchased when the old building was used as a light-house, and mar the view of the main building from the water front. Under work now contemplated they will be moved to the rear of the new building so as to give an unobstructed view from the harbor. There are no surgeon's quarters owned by the Government at this station.

HOSPITAL RELIEF.

Relief has been given to seafaring men at this station by municipal or Federal authority from 1798 down to the present time. There are no records of the manner in which relief was extended previous to 1869, but a few old letters, copies of those on file in the collector of customs' office at Edgartown, show that after the hospital—built in 1798—had been abandoned on April 15, 1826, "sundry inhabitants of Holmes Hole petitioned Congress praying that some provision might be made for the relief of sick and disabled seamen arriving at this port," which petition was referred to the Secretary of the Treasury, the Hon. Richard Rush. On July 3, 1826, an arrangement was made by the collector of customs at Edgartown, Mr. Thomas Cook, jr., on behalf of the Treasury Department, with Dr. Daniel Fisher, of Holmes Hole, to furnish subsistence, lodging, nursing, and medical attendance for all cases that might arrive at the port during the year, for the sum of $300. A similar arrangement was made with a local physician yearly from 1827 to 1879. In that year an acting assistant surgeon, Dr. W. D. Stewart, was appointed and detailed to duty at Vineyard Haven. He furnished and opened the old building for the reception of patients. Dr. Stewart died at the station on October 30, 1886, and was succeeded by regular officers of the Service. There are at present on duty at this station one medical officer, one hospital steward, and six attendants.

The transactions of the Service are increasing yearly, and now that a well-equipped and suitable hospital has been provided, it is considered that the relief extended to seamen will annually grow larger, that officers of the Merchant-Marine and Revenue-Cutter Service will take advantage of its possibilities, and that it may act as a receiving hospital for the transfer of cases from the numerous small ports on the coast where transportation to the larger marine hospitals at New York and Boston is not practicable.

HISTORICAL SKETCH OF THE UNITED STATES MARINE-HOSPITAL SERVICE AT EVANSVILLE, IND.

By P. A. Surg. P. M. Carrington.

The history of the Service at Evansville dates from the year 1853, when, in response to repeated petitions of citizens who thought Evansville as much entitled to a hospital as Paducah, an appropriation was made for a marine hospital at this port. A two-acre site, well located on the bank of the Ohio, was purchased, and ground broken in the fall of 1853.

The building was completed and furnished in October 1856. It was a handsome three-storied, brick, stone-trimmed building, with basement cellar, and was heated by hot-air furnaces; it provided accommodations sufficient for 110 patients, and cost the Government $73,078.56.

Dr. M. J. Bray was appointed surgeon in charge, and John Kehoe hospital steward; these appointments were to be effective when the hospital should be formally opened by the reception of a patient. The first patient was not admitted until the night of January 1, 1857. He was almost moribund at the time of admission, and died very soon thereafter.

There are no available statistics to show how many patients were admitted during the administration of this hospital by the Government, but Dr. Bray and Mr. Kehoe, who are at this writing, August 1, 1896, still living in Evansville, aged 84 and 82 years, respectively, agree that the number, as compared with the capacity of the hospital, was very small. They say that once the number in hospital was as high as 20, but that frequently, for months at a time, there was but one patient under treatment. In July, 1861, Dr. Bray was succeeded by Dr. J. P. De Bruler, and when, early in January, 1862, the river became blockaded by reason of the war, and applicants for relief were in consequence very few, the hospital was converted into a general military hospital, which was, together with four others, placed under the command of Dr. De Bruler, arrangements being made with Dr. F. W. Sawyer for the care of such steamboat men as might apply for relief.

In 1867 the hospital and grounds were sold to Mr. Carpenter for $10,507.11. He sold it about two years later to the Catholic Sisters, who reopened it under the name of St. Mary's Hospital, and took the

marine patients under contract, providing medical attendance, board, and nursing, until 1876. On March 1 of that year Asst. Surg. (now Surg.) H. W. Austin assumed charge of the Service at Evansville, and in July following professional care of the patients. Until that time practically all applicants for relief were treated in hospital, but during the administration of Dr. Austin an outdoor department was instituted for the treatment of suitable cases. This department has grown from 267 cases in 1881 to 866 in 1895. For the earlier years I have no figures. During the service of Assistant Surgeon Ames at Evansville a division arose in the staff of St. Mary's Hospital which led to the establishment of the Evansville City Hospital, and to this institution the Service patients were transferred July 1, 1882, and it continued to care for them until the new marine hospital was completed in 1892.

For this hospital Congress, in 1888, made an appropriation of $100,000. A site, 10 acres in extent, was purchased on the hill just west of the city limits, and cost $8,800. The balance of the appropriation was expended in grading, the construction of the various buildings, heating plant, laundry, etc. The hospital consists of the executive building, kitchen and laundry building, surgeon's residence, two wards, and stables. The former three are built of brick, two stories high, while the wards and stables are one-story frame buildings. The wards are surrounded by broad verandas, and connected with the executive and kitchen buildings by covered porches. All the buildings are heated by steam. The hospital was opened January 25, 1892, under the command of P. A. Surg. G. T. Vaughan, by the transfer of 20 patients from the city hospital. Since its opening, the greatest number of patients under treatment at any one time was 34, the full capacity of the hospital being 40.

The daily average for the fiscal year 1895 was 18.6+; the work of the station for the fiscal year 1896 shows a falling off, due to the long-continued low water during the first half of the year and consequent scarcity of material from which to draw patients. The working force of the hospital as at present conducted consists of 1 medical officer, 1 interne, 1 steward, and 9 attendants.

The following table, while showing fluctuations, will exhibit the growth of the work of the Service since 1873:

Fiscal year.	Hospital cases.	Office cases.	Total.	Fiscal year.	Hospital cases.	Office cases.	Total.
1873	265	1	266	1887	259	667	926
1874	234	.....	234	1888	185	463	648
1875	245	1	246	1889	239	567	806
1880	255	147	402	1890	208	586	794
1881	248	267	515	1891	219	778	997
1882	252	511	763	1892	258	634	892
1883	260	425	685	1893	259	684	943
1884	390	760	1,150	1894	253	743	996
1885	338	354	692	1895	251	866	1,117
1886	268	522	790				

The following is a list of medical officers:

Name.	From—	To—
Dr. M. J. Bray	Oct. —, 1856	June 30, 1861
Dr. J. P. De Brüler	July 1, 1861	Mar. 1, 1862
Dr. E. J. Ehrman	Mar. 1, 1862	June 30, 1862
Dr. F. W. Sawyer *a*	June 30, 1862	June 30, 1865
Dr. E. J. Ehrman *a*	June 30, 1865	June 30, 1866
Dr. F. W. Sawyer *a*	June 30, 1866	June 30, 1867
Dr. J. B. Johnson *a*	June 30, 1867	June 30, 1870
Dr. W. G. Ralston *a*	June 30, 1870	July 30, 1874
Faculty medical college of Evansville *a*	July 30, 1874	Mar. 1, 1876
Asst. Surg. H. W. Austin	Mar. 1, 1876	Dec. 3, 1878
Acting Asst. Surg. J. H. O'Reilly	Dec. 3, 1878	Mar. 26, 1880
Asst. Surg. F. J. O'Connor	Mar. 26, 1880	Dec. 31, 1881
Asst. Surg. R. P. M. Ames	Dec. 31, 1881	Jan. 26, 1884
Asst. Surg. S. D. Brooks	Jan. 26, 1884	July 5, 1887
Acting Asst. Surg. B. F. Beebe	July 5, 1887	Aug. 5, 1887
Asst. Surg. R. B. Watkins	Aug. 5, 1887	Feb. 15, 1888
Asst. Surg. Seaton Norman	Feb. 15, 1888	Dec. 7, 1888
P. A. Surg. F. M. Urquhart *b*	Dec. 7, 1888	Dec. 24, 1888
Asst. Surg. J. O. Cobb	Dec. 24, 1888	Jan. 4, 1889
Asst. Surg. Seaton Norman	Jan. 4, 1889	Oct. 31, 1889
Asst. Surg. G. T. Vaughan	Oct. 31, 1889	Feb. 5, 1892
P. A. Surg. P. M. Carrington	Feb. 5, 1892	Apr. 10, 1893
Asst. Surg. Seaton Norman	Apr. 10, 1893	Aug. 15, 1894
P. A. Surg. P. M. Carrington	Aug. 15, 1894	----------

a Cared for patients under contract. Received no regular Government appointment.
b Died at Evansville February 14, 1889.

HISTORICAL SKETCH OF THE UNITED STATES MARINE-HOSPITAL SERVICE AT LOUISVILLE, KY.

By P. A. Surg. W. P. McIntosh.

This hospital was opened in 1847 with Dr. Matt Pyles as surgeon in charge. Dr. Pyles resigned in 1848 or 1849, and Dr. Llewellyn Powell was appointed surgeon; Dr. Powell resigned in 1853, and Dr. Robert J. Breckenridge was appointed surgeon April 1, 1853. Dr. J. N. Hughs was appointed physician to the hospital the same date (April 1, 1853).

Dr. Hughs, physician, resided at the hospital and Dr. Breckenridge made semiweekly visits. Dr. Breckenridge resigned in April, 1861, having served eight years; Dr. Thomas W. Colescott was appointed his successor May 9, 1861.

There is no record of nor is it known how long Dr. Hughs served as physician to the hospital, but he retired long before Dr. Breckenridge did, and did not have a successor.

Dr. Colescott continued as surgeon until May 1, 1863, when the sick seamen were transferred to the Louisville Marine Hospital, now the Louisville City Hospital, and the United States Marine Hospital was converted into a military hospital.

The Government paid the city so much per diem for the care of the sick seamen from May, 1863, until the reopening of the United States Marine Hospital in 1869. After the close of the civil war the hospital was vacant until September 20, 1869, when Dr. David J. Griffiths was appointed surgeon, and eight patients were transferred from the Louisville Marine (City) Hospital to the United States Marine Hospital.

Dr. J. J. Mathews was appointed surgeon March 8, 1867, but from some cause failed to open the hospital, and nothing was done until Dr. David J. Griffiths was appointed.

The hospital and grounds (about 13 acres) were leased by the Secretary of the Treasury to the Sisters of Mercy for a term of two years, commencing September 20, 1869. By the terms of the lease the Sisters of Mercy took charge of the building and grounds, and were to keep the same in good order and to care for (nurse, feed, and otherwise provide) all sick seamen, for which they were to receive 75 cents per diem for each patient, the Government to furnish medical aid and medicines. The salary paid the surgeon was $1,000 per annum, and his title was surgeon in charge.

Three months after Dr. David J. Griffiths was appointed he was stricken with paralysis (hemiplegia left side), and his brother, Dr. Thomas J. Griffiths, was appointed surgeon in charge January 3, 1870.

At the expiration of the first two years the contract with the Sisters of Mercy was amended so as to have them furnish everything for the patients, including medicines and pay of surgeon, and the per diem increased to 88 cents, the Secretary of the Treasury reserving the right to appoint the surgeon in charge, and Dr. Thomas J. Griffiths was continued as such.

About this time Dr. John M. Woodworth began to bring order out of chaos and to shape the present organization of the Marine-Hospital Service. Dr. P. H. Bailhache was appointed surgeon, United States Marine-Hospital Service, and assigned to Louisville. He took charge September 2, 1873, with office at custom-house, Dr. Griffiths remaining surgeon in charge of the patients.

Surgeon Bailhache was transferred to Washington April 23, 1875, and Surg. Orsamus Smith took charge May 7, 1875. Surgeon Smith was transferred to Mobile, Ala., August 5, 1875.

From August 5, 1875, to October 15, 1875, there was no medical officer on duty here other than Dr. Thomas J. Griffiths. October 12, 1875, Dr. W. H. Long, having passed the examination then required by the regulations, was appointed assistant surgeon, Marine-Hospital Service, and assigned to duty at Louisville October 15, 1875, with office at the custom-house.

The lease and contract with the Sisters of Mercy was terminated December 31, 1875, and the hospital was opened as Class I January 1, 1876.

Dr. Thomas Griffiths was appointed surgeon, Marine-Hospital Service, January 5, 1876, and assigned to Louisville. Horace Morris was appointed hospital steward February 1, 1876.

Assistant Surgeon Long was promoted to surgeon January 1, 1878. Dr. Griffiths's health failing, Dr. J. H. O'Rielly was appointed acting assistant surgeon.

Surgeon Long was relieved by Surg. W. H. H. Hutton in 1882. Surg. John Godfrey relieved Dr. Hutton October 12, 1885. Surg. C. S. D. Fessenden relieved Dr. Godfrey December 15, 1888.

The eight patients transferred in 1869 from Louisville Marine (City) Hospital have increased to thirty or forty in hospital and twice as many at custom-house office during the active season.

The hospital building is a handsome three-story brick, ordinarily called a block hospital in contradistinction to the pavilion ward hospital of more recent date.

The grounds, 13 acres in extent, are handsome, well shaded, and lawn grass covers the ground as a carpet.

An abundant supply of the fruits usually found in the temperate zones can be had in the well-arranged garden. Electric cars pass directly by reservation.



U. S. MARINE HOSPITAL, CLEVELAND, OHIO.

HISTORICAL SKETCH OF THE UNITED STATES MARINE-HOSPITAL SERVICE AT CLEVELAND, OHIO.

By P. A. Surg. R. M. Woodward.

The hospital at Cleveland possesses more than ordinary interest by reason of its long history, it having been the first erected on the chain of Great Lakes, and also because of the many vicissitudes through which it has passed.

In the year 1835 the first effort to locate United States marine hospitals upon the western waters appears to have been inaugurated. In January of that year the legislatures of Illinois and Indiana petitioned Congress to build such institutions upon the Ohio and Mississippi rivers and Great Lakes. Early in the same year the Medical Convention of Ohio recommended "the erection and support by the General Government of hospitals on the western waters and the lakes for the relief of those persons engaged in commerce and of travelers." On February 26, 1835, the Ohio legislature transmitted the above recommendation to Congress and requested its favorable consideration. Later on the legislature of Kentucky added its petition.

In 1836, according to a report of the Hon. Levi Woodbury, then Secretary of the Treasury, there were in the United States but three regular marine hospitals for seamen in the merchant service owned and operated by the General Government. These were situated at Boston, Norfolk, and Charleston. On May 31, 1836, Congress considered a bill favoring the establishment of "commercial hospitals" on the western waters. This agitation of the matter led to the passage by Congress on March 3, 1837, of a bill authorizing the President "to select and cause to be purchased for the use and benefit of sick seamen, boatmen, and other navigators on the western rivers and lakes suitable sites for marine hospitals, provided that the number thereof shall not exceed for the river Mississippi three, for the river Ohio three, and for Lake Erie one." Pursuant to this act the Surgeon-General of the United States Army appointed a board, composed of Surg. B. F. Harney, Asst. Surg. H. L. Heiskell, and Asst. Surg. J. M. Cuyler, all of the Army Medical Corps, to select and purchase the sites specified. This board assembled in Baton Rouge, La., June 18, 1837. Their line of operations extended "on the Mississippi from Baton Rouge, Louisiana, to Dubuque, Wisconsin Territory, and on the Ohio from its mouth to Steubenville. From there, passing over

to Lake Erie, an examination was made of the prominent places on that shore." The following extract is taken from their report:

> Although the board were aware of the importance to the Western people of the proposed institutions and of the great amount of suffering which is yearly experienced from disease and numerous casualties, the information which they derived in the prosecution of their duties impressed them still more deeply with the importance of the subject and of the benefits which would accrue to a numerous class of industrious citizens by the establishment of a chain of well-regulated hospitals. The hardy and industrious farmer who, with the fruits of his toil, embarks on the flatboat and seeks a market at the great emporium of the Southwest, exposed to the heat of the midday sun and the more baneful vapors of night, and the steamboat man, who, in addition to those causes of disease, is subjected to frequent and dangerous casualties, instead of being thrown upon the charity of strangers would then have an asylum where skill and attention would unite to restore him to renovated health and enable him to return with gladness to his expecting friends.

A second medical board was appointed, one of its duties being to consider the advisability of building the Lake Erie hospital at Erie, Pa., instead of Cleveland, Ohio, the point selected by the first board. This board, however, confirmed the decision of the former one. Three boards in all were appointed before the matter reached final settlement.

As the act of Congress providing for the appointment of the original board had carried with it an appropriation of but $15,000 with which to pay the expenses of the board and purchase seven sites, it was at once evident that the amount was insufficient. The board, therefore, decided to purchase the seven sites at reasonable figures, the purchase to be subject to the approval of the Secretary of War and Congress. This plan was carried out. The land selected in Cleveland lay upon the bank of Lake Erie and comprised 8.57 acres. The former owners were one Levi Johnston and wife, and the price agreed upon was $12,000.

Estimates and plans for the hospital were transmitted to Congress in December, 1837, by the Secretary of War. These plans contemplated building a structure at Cleveland to cost $50,000. The next Secretary of War recommended that the estimate be reduced 50 per cent. At this juncture the matter rested several years, no action being taken by Congress looking toward appropriations either for securing the site or constructing the hospital thereon. Under date of February 17, 1840, Surg. Gen. Th. Lamson, United States Army, made a most able plea for an appropriation for securing the sites selected by the board and building thereon the seven hospitals specified. His report closes with the following eloquent passage:

> Let us, then, in obedience to the dictates of humanity and of common justice, call upon Congress to extend at once a helping hand to this much-to-be-admired but little-cherished band of navigators; nay, to dispense to them, and with a liberal hand, the willing offerings of a nation's gratitude.

The Ohio general assembly then, on January 17, 1842, offered the following preamble and resolutions:

Whereas, in the fall of 1837, the board of army surgeons, under the authority of the United States, located at Cleveland in this State the site of a marine hospital, and no appropriation has as yet been made by Congress for the erection and organization thereof; and

Whereas there is no such institution on the whole extent of the lakes, navigated by more than 400 steamboats and other vessels, and in the navigation of which there are employed more than 4,000 men; and the necessity of a hospital for the reception of the sick and disabled seamen is urgent, and, in the opinion of this general assembly, such as demands the immediate attenion of Congress: Therefore,

Resolved by the general assembly of the State of Ohio, That our Senators and Representatives in Congress be, and they are hereby, requested to use their exertions to procure an appropriation by that body, at its present session, of such sum as shall be needful for the erection and efficient organization of such hospital in said city of Cleveland.

Resolved, That the governor be requested to forward a copy of the foregoing preamble and resolutions to each of our Senators and Representatives in Congress.

After slight amendment, the preamble and resolutions were adopted. Three days later the State senate passed the same.

During the Twenty-eighth Congress the corporate authorities of Cleveland forwarded a memorial to Washington praying for an appropriation for the erection of a hospital upon the site selected. Finally, on August 29, 1842, five years after the report of the first board, Congress appropriated money to purchase the site, the Attorney-General having, in 1841, declared the title valid.

The question of an appropriation for building the hospital again coming before Congress, the Committee on Commerce defended the proposition in the following language:

The improvement of the harbors upon these inland seas, the erection of lighthouses, the placing of buoys and other guides to navigation, and the construction of hospitals for the relief and protection of disabled seamen are every year becoming more obviously the duty of Congress—a duty which can not be long neglected without impairing or retarding in a very sensible degree the prosperity of a most enterprising portion of the Union. The amount of trade which finds its way upon the lakes; the quantity of shipping employed; the nursery which this affords to skillful seamen; the perils to which this navigation is exposed; its importance as an aid to the settlement of the Northwest; its connection with the growth of the cities and towns that even at this era adorn the great inland coast of these lakes—all these considerations attract a large share of public regard and commend the policy to which the committee have alluded as one of the highest concerns of government.

At last an appropriation of $20,000 was made, and the building was begun in 1844. It is said that after the foundation was laid nothing further was done for several years on account of great difficulty encountered with "quicksand." On September 30, 1850, $8,000 was appropriated for "completing the Marine Hospital at Cleveland," and $5,000 for "grading and piling the lake front." However, before

the building was finally completed, it had cost $87,703.66. This, with the grounds, fences, inclosing walls, etc., footed up a grand total of $119,291.84.

The first "physician and surgeon of the Marine Hospital" was Dr. Charles R. Pierce, but before he was allowed to serve he was superseded November 4, 1851, by Dr. Morgan L. Hewitt, the latter being in command in 1852, when the hospital was first occupied by patients. The building was then in an unfinished condition. No record is found in the daily press of that date of any exercises attending the formal opening of the hospital, and it is probable that this great work in the West was inaugurated in the quiet, unostentatious way that has always characterized the labors of the Marine-Hospital Service. When the building was opened, in addition to the medical officer, the force consisted of a "steward, matron, principal nurse, assistant nurse, cook, washer, porter, and servant."

On April 4, 1853, Dr. H. A. Ackley was appointed "physician and surgeon," vice Dr. Hewitt. On July 1, 1857, Dr. Johathan I. Todd was appointed, vice Dr. Ackley, removed. On October 26, 1859, Dr. R. S. Strong received the appointment of "surgeon of the United States Marine Hospital," vice Dr. Todd, deceased. Dr. Strong resigned on August 24, 1860, and Dr. William A. Capener succeeded him. Dr. Martin Luther Brooks was appointed surgeon March 11, 1861, vice Capener, dismissed.

At the beginning of the civil war the Soldiers' Aid Society was organized in Cleveland, its objects being to secure and forward to the front creature comforts, in the nature of food, bedding, clothing, etc., and to look after the welfare of the soldiers stationed in this section, and those sent home wounded or ill. A committee of this society applied to the Secretary of the Treasury early in the war for authority to occupy a portion of the Marine Hospital, which was described at that time as "large and half tenanted." The collector of the port was authorized to assign a portion of the hospital to them. This part was entirely furnished by the Soldiers' Aid Society. The faculty of the Cleveland Medical College (now the medical department of Western Reserve University) offered to attend the patients gratuitously. A contract was made with the steward to supply food, while the outfit of bedding, clothing, dressings, and extra diet came from the storerooms of the Soldiers' Aid Society. This was styled the "Army department" of the Marine Hospital.

A temporary frame ward was built at the western end of the hospital on the spot now occupied by the steward's cottage, which stood until the close of the war, when it was torn down. A great deal of good was done by the Soldiers' Aid Society, and contemporary historians speak in the highest terms of the work of these noble men and women. Among the soldiers who were treated here were two who participated in the famous battle between the *Monitor* and *Merrimac*.

At the termination of the war, the "Army department" of the hospital closed its work and the building again assumed its ordinary functions. In 1865 Dr. Martin Luther Brooks retired from command, and Dr. N. B. Prentice succeeded him. The latter held the office until 1869, and was in turn succeeded by Dr. George H. Blair, who served until 1873. In this year Dr. J. F. Armstrong took command of the hospital, and conducted its affairs until 1877.

In 1874 the city of Cleveland endeavored to lease the hospital for city hospital purposes. On January 27 of that year the city council adopted the following resolution:

Resolved, That our Representative in Congress, Hon. R. C. Parsons, be requested to prepare and present a bill to the Congress of the United States providing for a lease of the marine hospital and grounds, belonging to the United States, in this city, to the city of Cleveland, for hospital purposes, for a term of ninet -nine years, at and for the nominal sum of $1 per year; said bill to contain the provisions that Summit street shall be opened through said hospital grounds, and that the city of Clevel nd will bind itself to take charge of all seamen and sailors, as now provided for by law, at and for the sum of 50 cents per day, and to keep said building and grounds in a state of good repair during the continuance of said lease.

The Committee of Commerce of the House of Representatives made a favorable report upon the matter February 27, 1874, but a question arose regarding the property rights of the railroad that skirts the reservation along the water front, and the bill failed to pass.

About this time the Cleveland City Hospital Association, later known as the Lakeside Hospital Corporation, was organized, and on October 1, 1875, succeeded in leasing the building and grounds for hospital purposes, for a period of twenty years, at the nominal sum of $1 per year; they in turn agreeing to take care of Service patients for 64 cents per day. During the continuance of this lease, the lessees made several permanent improvements upon the place. To the east end of the main building a large brick structure was erected, containing an amphitheater for clinical lectures, laundry, and attendants' quarters. To the west of the main building they built a small octagonal frame cottage, to be used as a children's ward. On the old building they erected a new (gravel) roof over the old one, and in the space between the two roofs constructed a number of rooms for attendants. A frame boiler house was attached to the rear of the hospital proper. A pesthouse was built east of the amphitheater building, entirely detached from the other structures.

In 1877 Dr. Proctor Thayer was appointed to the command of the Service, relieving Dr. J. F. Armstrong. Dr. Thayer served until 1880, when Dr. Guy B. Case succeeded him. Dr. Case held the position of acting assistant surgeon until a regular officer of the Service was detailed to Cleveland, P. A. Surg. S. T. Armstrong relieving Dr. Case of command October 4, 1889. Since that date the detail has been as follows: P. A. Surg. S. T. Armstrong, October 4, 1889, to February 15, 1890; P. A. Surg. P. M. Carrington, February 15 to April

5, 1890; Asst. Surg. A. W. Condict, April 5 to May 24, 1890; P. A. Surg. S. D. Brooks, May 24, 1890, to April 5, 1894; Asst. Surg. Emil Prochazka, April 5 to June 15, 1894; P. A. Surg. R. M. Woodward, June 15, 1894, to the present time.

When the twenty years' lease expired October 1, 1895, the lessees obtained an extension of six months to enable them to complete their new hospital, a magnificent group of buildings occupying the property adjoining the reservation on the east. On April 1, 1896, the lessees vacated and the Service resumed control.

As at present arranged, the ground floor of the main building contains the kitchen, dining rooms, storerooms, repair shop, and will soon contain the out-patients' office to be removed from the custom-house. The second floor contains the offices, reception room, drug room, two wards, interne's quarters, women's ward, and operating room. The third floor contains four wards, laboratory, and attendants' quarters. The fourth floor, between the two roofs, has the rooms used as attendants' quarters. The amphitheater building and boiler house remain unchanged. The former children's ward and two rooms in the main building constitute the steward's quarters. There are no quarters for the medical officer.

It is hoped that a residence for the medical officer, also a new boiler house, will be constructed. It is also suggested that the present gravel roof on the main building be removed and a slate mansard roof be substituted.

STATISTICS

OF THE

UNITED STATES MARINE-HOSPITAL SERVICE.

STATISTICS OF THE UNITED STATES MARINE-HOSPITAL SERVICE.

The following statistical tables are self-explanatory:

TABLE I.—COMPARATIVE TABLE OF NUMBER TREATED—1868 TO 1896.

The following tabular statement will serve to illustrate its growth since the reorganization of the Marine-Hospital Service in 1871:

Operations of the Marine-Hospital Service from July 1, 1868, to June 30, 1896.

Fiscal years.	Number of places at which relief was furnished.	Number of sick and disabled seamen furnished relief.
Prior to reorganization:		
1868	64	11,535
1869	64	11,356
1870	74	10,560
After reorganization:		
1871	72	14,256
1872	81	13,156
1873	91	13,529
1874	91	14,356
1875	94	15,009
1876	94	16,808
1877	100	15,175
1878	210	18,223
1879	210	20,922
1880	210	24,860
1881	.....	32,613
1882	.....	36,184
1883	.....	40,195
1884	.....	44,761
1885	.....	41,714
1886	.....	43,822
1887	.....	45,314
1888	.....	48,203
1889	.....	49,518
1890	.....	50,671
1891	.....	52,992
1892	.....	53,610
1893	.....	53,317
1894	.....	52,803
1895	.....	52,643
1896	.....	53,804

TABLE II.—EXHIBIT OF OPERATIONS OF THE SERVICE DURING THE YEAR ENDED JUNE 30, 1896.

Ports.	Total number of seamen treated.	Patients in hospital July 1, 1895.	Admitted during the year.	Total treated in hospital.	Discharged	Died.	Remaining in hospital June 30, 1896.	Number of days' relief in hospital.	Number of persons furnished office relief.	Number of times relief was furnished.	Number of persons examined physically, including pilots.	Amount expended.	Tonnage tax collected.
Total	**53,804**	**886**	**12,068**	**12,954**	**11,780**	**430**	**744**	**365,461**	**40,850**	**63,123**	**2,656**	**$559,476.24**	**$546,342.55**
Albany, N. Y	6	1	5	6	6			195				549.35	
Alexandria, Va	3		1	1	1			12	2	3		22.80	119.43
Apalachicola, Fla	109		36	36	35	1		635	73	91		1,017.50	1,533.45
Ashland, Wis	81	4	28	32	29	2	1	641	49	49		625.81	
Ashtabula, Ohio	341	4	62	66	64		2	1,171	275	502		1,424.03	
Astoria, Oreg	75	1	28	29	25	2	2	591	46	87		896.60	6,964.29
Baltimore, Md	1,762	34	359	393	339	17	37	15,187	1,369	2,075	40	16,130.62	29,432.13
Bangor, Me	115	1	40	41	38		3	1,098	74	107	38	1,611.69	255.33
Barnstable, Mass., and subports	116								116	383		403.10	53.88
Bath, Me	71								71	204		336.16	102.21
Beaufort, N. C	138		4	4	3		1	64	134	317		411.06	5.94
Beaufort, S. C	33								33	44		72.80	2,812.11
Belfast, Me													135.60
Bismarck, N. Dak	17		6	6	6			93	11	20		283.70	
Boston, Mass	3,280	66	814	880	797	23	60	28,251	2,400	3,290	167	24,630.90	53,083.11
Bridgeport, Conn	15	3	11	14	11	1	2	245	1	1		261.60	227.07
Bridgeton, N. J													104.46
Brownsville, Tex												75.20	
Brunswick, Ga	139		48	48	42	3	3	1,056	91	101		1,317.30	6,479.50
Buffalo, N. Y	2,064	20	278	298	278	10	10	7,219	1,766	2,534	80	9,678.92	
Burlington, Iowa	24		24	24	23		1	629				432.25	
Burlington, Vt													474.02
Cairo, Ill	1,079	9	276	285	264	11	10	4,263	794	964	10	9,401.26	
Cambridge, Md	113		10	10	10			160	103	311		304.32	
Cape Vincent, N. Y													450.09
Castine, Me	1		1	1	1			15				27.86	85.86
Cedar Keys, Fla	79								79	114		114.00	
Charleston, S. C	1,144	6	188	194	182	6	6	3,509	950	1,368	25	6,236.44	1,901.61
Chattanooga, Tenn	47	1	1	2	2			23	45	137		315.45	
Chicago, Ill	2,581	39	396	435	363	17	55	18,954	2,146	2,839	59	22,707.48	
Cincinnati, Ohio	756	24	210	234	200	11	23	8,514	522	790	28	11,794.20	
Cleveland, Ohio	1,536	15	332	347	325	8	14	10,033	1,189	1,525	47	12,523.77	257.70
Corpus Christi, Tex	19		13	13	12	1		313	6	17	31	736.54	
Darien, Ga	39								39	50		246.64	
Delaware Breakwater, Del	84	1	22	23	19	3	1	432	61	65	40	1,975.90	
Detroit, Mich	1,492	26	293	319	281	4	34	11,912	1,173	1,803	97	13,759.27	146.88
Dubuque, Iowa	64	4	37	41	37		4	560	23	27	17	861.48	
Duluth, Minn	327	3	58	61	54	2	5	809	266	342	47	967.65	46.26
Eastport, Me	9								9	95		120.00	1,116.66

Edenton, N. C	165		5	5	4	1		18	160	287		375.50	
Edgartown, Mass	4								4	4		8.50	171.72
Elizabeth City, N. C	47								47	78	146	250.00	
Ellsworth, Me	42								42	159		460.00	109.26
Erie, Pa	58		18	18	18			453	40	44		574.13	9.09
Escanaba, Mich	138	1	38	39	37	1	1	1,182	99	114		1,668.41	
Eureka, Cal	45	1	18	19	19			337	26	32		709.10	106.39
Evansville, Ind	823	19	198	217	197	9	11	5,399	606	901	19	8,380.79	
Fall River, Mass													104.22
Fernandina, Fla	48	1	12	13	13			337	35	60		722.00	1,941.90
Fredericksburg, Va	92		11	11	11			150	81	140		285.25	
Fort Benton, Mont													165.72
Gallipolis, Ohio	267	15	120	135	132	1	2	3,691	132	281		3,410.10	
Galveston, Tex	697	8	195	206	190	6	7	4,283	494	580	53	7,527.72	14,193.08
Georgetown, S. C	89		5	5	5			30	84	188		384.62	
Gloucester, Mass	393								393	494		654.16	755.43
Government Hospital for the Insane, Washington, D. C	27	21	6	27	5	1	21	8,103				5,229.82	
Grand Haven, Mich	60		12	12	11		1	282	48	123	54	633.95	
Greenbay, Wis	108	2	12	14	14			155	94	115		507.37	
Hartford, Conn	2	1	1	2	1	1		6				19.00	7.02
Jacksonville, Fla	180	3	85	88	81	2	5	2,755	92	133	28	3,018.05	221.04
Key West, Fla	927	8	116	124	108	5	11	4,628	803	1,223	29	6,751.16	1,423.99
La Crosse, Wis	150	4	63	67	63		4	1,007	83	161	22	1,584.14	
Little Rock, Ark	43		4	4	3	1		55	39	76	20	307.00	
Los Angeles, Cal													1,320.18
Louisville, Ky	517	6	157	163	150	6	7	3,957	354	786	18	8,973.39	
Ludington, Mich	40	1	4	5	5			104	35	54		310.10	
Machias, Me	66	1	24	25	25			691	41	51		933.40	100.86
Manistee, Mich	173	2	17	19	17	2		420	154	375	30	778.87	
Marblehead, Mass													99.60
Marquette, Mich	35	1	17	18	16	1	1	412	17	25		799.00	
Marshfield, Oreg	130	2	18	20	20			491	110	233		986.06	
Memphis, Tenn	1,138	6	213	219	205	9	5	3,859	919	1,249	30	9,180.69	
Michigan City, Ind	4								4	12		180.77	
Milwaukee, Wis	808	16	275	291	282	2	7	6,260	517	914	114	6,290.97	
Mobile, Ala	1,354	17	272	289	273	9	7	6,044	1,065	1,504	40	9,770.01	11,701.76
Nashville, Tenn	90	1	11	12	10	1	1	200	78	217		579.55	
Newark, N. J													353.01
New Bedford, Mass	46		1	1	1			30	45	94		230.72	169.47
Newbern, N. C	194	3	43	46	46			788	148	365		1,067.18	6.24
New Haven, Conn	51	1	35	36	30	6		795	15	20	20	1,125.00	218.61
New London, Conn	111	10	81	91	88	3		1,975	20	23		2,398.23	40.35
New Orleans, La	2,665	30	544	574	535	16	23	12,269	2,091	2,843	69	18,878.32	44,880.58
Newport, Ark	69	1	20	21	20	1		230	48	79		545.80	
Newport, R. I	49	2	17	19	18	1		514	30	32		898.35	89.43
Newport News, Va	98								98	99		246.20	6,837.51
New York, N. Y	4,779	103	1,295	1,398	1,244	61	93	45,061	3,381	6,556	382	52,998.07	189,865.14
Norfolk, Va	2,420	20	398	418	379	27	12	8,074	2,002	2,807	39	12,196.26	3,106.61
Ogdensburg, N. Y	37		5	5	5			38	32	57		353.10	1,282.26
Oswego, N. Y	104		11	11	10		1	221	93	160		656.70	847.17
Pensacola, Fla	154	6	108	114	104		10	2,245	40	126		3,018.32	15,230.73
Philadelphia, Pa	1,946	35	481	516	475	11	30	13,188	1,430	1,677	104	21,702.52	46,793.25

TABLE II.—EXHIBIT OF OPERATIONS OF THE SERVICE DURING THE YEAR ENDED JUNE 30, 1896—Continued.

Ports.	Total number of seamen treated.	Patients in hospital July 1, 1895.	Admitted during the year.	Total treated in hospital.	Discharged	Died.	Remaining in hospital June 30, 1896.	Number of days' relief in hospital.	Number of persons furnished office relief.	Number of times relief was furnished.	Number of persons examined physically, including pilots.	Amount expended.	Tonnage tax collected.
Perth Amboy, N. J													$525.33
Pittsburg, Pa	1,750	12	220	232	219	5	8	4,007	1,518	2,085	25	$6,979.66	
Plattsburg, N. Y													3,723.69
Plymouth, Mass													26.70
Port Huron, Mich	154	2	25	27	26	1		406	127	379		807.00	
Portland, Me	842	12	212	224	199	8	17	7,979	618	648	61	11,921.90	6,588.60
Portland, Oreg	529	3	89	92	86	4	2	2,568	437	588	18	4,467.45	
Portsmouth, N. H	51	2	24	26	26			532	25	32		738.30	116.52
Port Townsend, Wash	311	24	143	167	142	9	16	8,895	144	206	42	11,299.13	11,472.09
Providence, R. I	305	4	112	116	106	4	6	2,492	189	251		3,067.99	392.34
Richmond, Va	74		24	24	23		1	516	50	50		828.90	23.46
Rochester, N. Y													83.46
Rockland, Me	142	1	2	3	3			127	139	296	15	689.63	
Rome, Ga	71		5	5	5			32	66	138		265.40	
Saco, Me													12.87
Sag Harbor, N. Y	20								20	127		47.00	
Saginaw, Mich	123		30	30	28		2	676	93	207	14	827.66	
St. Augustine, Fla													18.63
St. Marys, Ga													38.07
St. Louis, Mo	1,658	45	484	529	482	17	30	14,305	1,129	1,556	60	13,554.19	
St. Paul, Minn	35	2	23	25	21	1	3	1,041	10	22		1,378.50	
Salem, Mass	22								22	22		1,060.23	279.19
San Diego, Cal	100	5	21	26	25	1		841	74	113		1,448.82	2,510.84
Sandusky, Ohio	164	4	94	98	96	1	1	1,806	66	99		2,025.40	
San Francisco, Cal	3,124	112	757	869	740	50	79	36,951	2,255	4,117	225	27,324.92	43,303.83
San Pedro, Cal	123	4	63	67	62	1	4	2,492	56	164		2,277.30	
Sault Ste. Marie, Mich	333	6	86	92	85		7	1,726	241	320	28	1,766.25	
Savannah, Ga	1,072	4	243	247	235	3	9	3,382	825	975	58	5,778.26	10,032.62
Seattle, Wash	1,010	14	181	195	186	4	5	5,410	815	1,061	40	4,249.59	
Shieldsboro, Miss													6,900.02
Shreveport, La	91	1	9	10	9	1		148	81	503		824.63	
Sitka, Alaska	21		11	11	11			170	10	13		427.50	638.21
Solomons Island, Md	354		23	23	23			339	331	397		764.66	
Stonington, Conn													37.14
Superior, Wis	99		22	22	20		2	529	77	142		810.05	
Tacoma, Wash	119		37	37	36	1		717	82	130	5	595.00	
Tampa, Fla	67		9	9	8	1		24	58	225		379.38	2,057.70
Tappahannock, Va	305		125	125	125			1,008	180	285		1,837.70	
Toledo, Ohio	279	8	122	130	125	3	2	2,169	149	344		2,081.50	16.23
Tuckerton, N. J	4								4	14	53	225.00	
Vicksburg, Miss	73	1	60	61	60	1		557	12	14		496.70	

Vineyard Haven, Mass	211	2	88	90	77	3	10	2,676	121	131	17	7,744.20	.....
Waldoboro, Me	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	687.72
Washington, D. C	130	.....	33	33	31	2	.....	355	97	125	.....	16,525.82	57.81
Wheeling, W. Va	43	.....	22	22	22	.....	.....	322	21	34	.....	523.05	.....
Wilmington, Del	2	.....	1	1	1	.....	.....	41	1	2	.....	43.00	5,204.20
Wilmington, N. C	448	6	81	87	80	1	6	2,481	361	479	52	8,280.02	1,356.60
Wiscasset, Me	1	.....	.....	.....	.....	.....	.....	.....	1	1	.....	1.00	211.80
Cape Charles Quarantine	4	.....	.....	.....	.....	.....	.....	.....	4	8	.....	.....	.....
Delaware Breakwater Quarantine	1	.....	1	1	.....	1	.....	4	.....	.....	.....	.....	.....
Gulf Quarantine	31	.....	8	8	8	.....	.....	69	23	33	.....	.....	.....
Key West Quarantine	251	2	26	28	28	.....	.....	195	223	354	.....	.....	.....
Port Townsend Quarantine	4	.....	4	4	4	.....	.....	144	.....	.....	.....	.....	.....
San Diego Quarantine	8	.....	.....	.....	.....	.....	.....	.....	8	17	.....	.....	.....
South Atlantic Quarantine	3	.....	1	1	.....	1	.....	8	2	9	.....	.....	.....

TABLE III.—SUMMARY OF PHYSICAL EXAMINATIONS OF SEAMEN MADE BY OFFICERS OF THE UNITED STATES MARINE-HOSPITAL SERVICE, YEAR ENDED JUNE 30, 1896.

Summary of examinations and causes of rejection.	Total.	Pilots.	Revenue marine.	Merchant marine.	Life-Saving Service.
Summary of examinations:					
Total number examined	2,656	1,103	582	140	831
Number passed	2,493	1,045	555	137	756
Number rejected	163	58	27	3	75
Causes of rejection:					
Chancre			2		
Color blindness		35	3	1	25
Curvature of spine					1
Disease of heart—					
Hypertrophy		2			
Mitral insufficiency		3	3		
Mitral regurgitation			5		
Valvular					3
Fracture of thigh					1
Hernia—					
Inguinial		2			
Oblique		1			
Hydrocele					5
Insufficient chest expansion			1		
Insufficient height					3
Myopia		3			2
Retained testicle					1
Rheumatism		4		1	5
Syphilis—					
Primary		2			7
Secondary					5
Tubercle of lungs			7		4
Ulcer			4		
Varicocele					5
Varicose veins		6	2	1	8

TABLE IV.—STATEMENT, BY DISTRICTS, OF THE NUMBER OF PATIENTS TREATED DURING THE YEAR ENDED JUNE 30, 1896.

Districts.	Total cases.	Patients in hospital July 1, 1895.	Admitted during the year.	Total number treated in hospital.	Discharged.	Died.	Patients in hospital June 30, 1896.	Number of days hospital relief furnished.	Number of seamen furnished office relief.
Grand total	**53,804**	**886**	**12,068**	**12,954**	**11,780**	**430**	**744**	**365,461**	**40,850**
North Atlantic	5,766	91	1,335	1,426	1,291	39	96	44,405	4,340
Middle Atlantic	7,020	155	1,932	2,087	1,875	86	126	61,938	4,933
South Atlantic	9,114	98	1,704	1,802	1,638	63	101	48,324	7,312
The Gulf	6,233	70	1,307	1,377	1,279	40	58	30,621	4,856
The Ohio	4,293	78	939	1,017	932	33	52	26,113	3,276
The Mississippi	4,350	72	1,210	1,282	1,184	41	57	26,599	3,068
The Great Lakes	11,139	154	2,235	2,389	2,189	54	146	67,578	8,750
The Pacific	5,587	166	1,366	1,532	1,352	72	108	59,463	4,055
The quarantine stations	302	2	40	42	40	2		420	260

TABLE V.—RATIO OF PATIENTS TREATED IN HOSPITAL IN EACH DISTRICT.

Districts.	Per cent of total number of patients.	Districts.	Per cent of total number of patients.
North Atlantic	24.73	The Mississippi	29.47
Middle Atlantic	29.73	The Great Lakes	21.45
South Atlantic	19.77	The Pacific	27.42
The Gulf	22.09	The quarantine stations	10.60
The Ohio	23.69		

TABLE VI.—AVERAGE DURATION OF TREATMENT IN HOSPITAL IN EACH DISTRICT.

Districts.	Average number of days relief furnished to each patient.	Districts.	Average number of days relief furnished to each patient.
North Atlantic	31.14	The Mississippi	20.75
Middle Atlantic	29.68	The Great Lakes	28.29
South Atlantic	26.82	The Pacific	38.81
The Gulf	22.24	The quarantine stations	10
The Ohio	25.68		

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Grand total of all cases	**886**	**12,068**	**7,512**	**3,939**	**329**	**430**	**744**	**40,850**	**53,804**
GENERAL DISEASES	353	5,322	3,206	1,834	119	218	298	18,076	23,751
LOCAL DISEASES	420	4,817	2,845	1,680	181	185	346	19,182	24,419
POISON AND POISONED WOUNDS	.....	15	7	8	.....	.....	.....	51	66
INJURIES AND AMPUTATIONS	113	1,914	1,454	417	29	27	100	3,541	5,568
NORTH ATLANTIC.									
TOTAL CASES	91	1,335	928	338	25	39	96	4,340	5,766
General Diseases	**27**	**517**	**344**	**133**	**7**	**17**	**43**	**1,573**	**2,117**
Measles	.....	7	7	.....	.....	.....	.....	4	11
Influenza	.....	6	5	1	.....	.....	.....	46	52
Mumps	.....	3	3	.....	.....	.....	.....	2	5
Diphtheria	.....	1	1	.....	.....	.....	.....	1	2
Simple continued fever	.....	.....	.....	.....	.....	.....	.....	4	4
Enteric fever	5	35	28	3	.....	5	4	7	47
Sporadic cholera	.....	.....	.....	.....	.....	.....	.....	2	2
Dysentery	1	13	14	.....	.....	.....	.....	1	15
Malarial intermittent fever	2	92	86	3	.....	1	4	140	234
Malarial remittent fever	.....	24	22	.....	.....	1	1	9	33
Malarial cachexia	.....	3	3	.....	.....	.....	.....	7	10
Erysipelas, simple	.....	3	2	.....	.....	.....	1	7	10
Syphilis:									
Primary	2	.....	2	.....	.....	.....	.....	9	11
Secondary	4	43	3	39	.....	.....	5	311	358
Gonorrhœa	1	51	41	7	.....	.....	4	423	475
Animal parasites	.....	1	1	.....	.....	.....	.....	3	4
Effects of excessive venery	1	.....	.....	1	.....	.....	.....	2	3
Effects of heat	.....	.....	.....	.....	.....	.....	.....	1	1
Effects of cold	.....	.....	.....	.....	.....	.....	.....	16	16
Alcoholism	.....	11	10	.....	.....	.....	1	10	21
Debility	.....	2	2	.....	.....	.....	.....	67	69
Rheumatic fever	1	17	12	2	.....	.....	4	10	28
Rheumatism	5	136	92	40	.....	.....	9	427	568
Osteo-arthritis	.....	2	1	.....	.....	.....	1	.....	2
Cysts	.....	1	1	.....	.....	.....	.....	.....	1
Nonmalignant new growth	.....	6	4	1	1	.....	.....	14	20
Malignant new growth	.....	6	1	1	2	2	.....	8	14
Tubercle	5	48	2	31	4	8	8	34	87
Scrofula	.....	.....	.....	.....	.....	.....	.....	2	2
Anæmia	.....	3	1	2	.....	.....	.....	6	9
Diabetes mellitus	.....	3	.....	2	.....	.....	1	.....	3

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases	**53**	**592**	**397**	**169**	**15**	**21**	**43**	**2,259**	**2,904**
DISEASES OF THE NERVOUS SYSTEM	10	35	15	17	2	3	8	95	140
Congestion of the brain	.....	1	1	.....	.....	.....	.....	1	2
Hæmorrhage, cerebral	.....	1	.....	1	.....	.....	.....	1	2
Inflammation of brain and its membranes	.....	.....	.....	.....	.....	.....	.....	1	1
Myelitis	1	1	.....	1	.....	.....	1	.....	2
Neuritis	2	1	1	2	.....	.....	.....	1	4
Sclerosis	.....	.....	.....	.....	.....	.....	.....	1	1
Spastic spinal paralysis	.....	2	.....	2	.....	.....	.....	1	3
Locomotor ataxy	1	.....	.....	.....	.....	.....	1	2	3
Cysts of the nervous system	.....	.....	.....	.....	.....	.....	.....	1	1
Apoplexy	.....	.....	.....	.....	.....	.....	.....	2	2
Paralysis	.....	1	.....	.....	.....	.....	1	3	4
Hemiplegia	4	4	.....	4	.....	1	3	5	13
Paraplegia	.....	4	.....	3	.....	.....	1	1	5
Local paralysis	.....	1	.....	.....	.....	.....	1	4	5
Acute ascending paralysis	.....	1	.....	.....	.....	1	.....	.....	1
Anæsthesia	.....	.....	.....	.....	.....	.....	.....	1	1
Spasm of muscle	.....	1	1	.....	.....	.....	.....	1	2
Neuralgia	.....	7	5	1	.....	1	.....	14	21
Facial	1	3	3	1	.....	.....	.....	15	19
Sciatica	.....	3	3	.....	.....	.....	.....	7	10
Megrim	.....	1	1	.....	.....	.....	.....	15	16
Epilepsy	.....	3	.....	2	1	.....	.....	4	7
Chorea	1	.....	.....	.....	1	.....	.....	.....	1
Hysteria	.....	.....	.....	.....	.....	.....	.....	14	14
MENTAL DISEASES	3	6	2	3	.....	1	3	17	26
Hypochondriasis	.....	2	.....	2	.....	.....	.....	17	19
Insanity	1	.....	.....	.....	.....	.....	1	.....	1
Mania	.....	3	1	1	.....	.....	1	.....	3
Melancholia	2	1	1	.....	.....	1	1	.....	3
DISEASES OF THE EYE	5	16	12	5	1	.....	3	54	75
Conjunctivitis	.....	7	3	3	.....	.....	1	36	43
Keratitis	.....	2	2	.....	.....	.....	.....	2	4
Iritis	2	5	6	.....	.....	.....	1	5	12
Synechia	.....	.....	.....	.....	.....	.....	.....	1	1
Atrophy of optic disc or papilla	1	.....	.....	.....	.....	.....	1	.....	1
Cataract	2	.....	1	1	.....	.....	.....	.....	2
Ametropia	.....	.....	.....	.....	.....	.....	.....	4	4
Squint	.....	1	.....	.....	1	.....	.....	.....	1
Inflammation of lachrymal gland	.....	.....	.....	.....	.....	.....	.....	1	1
Hæmatoma	.....	1	.....	1	.....	.....	.....	4	5
Sty	.....	.....	.....	.....	.....	.....	.....	1	1
DISEASES OF THE EAR	.....	6	5	1	.....	.....	.....	39	45
Inflammation of the external meatus, acute	.....	1	1	.....	.....	.....	.....	3	4
Accumulation of wax	.....	.....	.....	.....	.....	.....	.....	12	12
Inflammation of the middle ear	.....	3	2	1	.....	.....	.....	20	23
Ulceration of membrana tympani	.....	2	2	.....	.....	.....	.....	2	4
Perforation of membrana tympani	.....	.....	.....	.....	.....	.....	.....	1	1
Tinnitus	.....	.....	.....	.....	.....	.....	.....	1	1
DISEASES OF THE NOSE	.....	.....	.....	.....	.....	.....	.....	66	66
Epistaxis	.....	.....	.....	.....	.....	.....	.....	1	1
Inflammation	.....	.....	.....	.....	.....	.....	.....	31	31
Nasal catarrh	.....	.....	.....	.....	.....	.....	.....	32	32
Ozæna	.....	.....	.....	.....	.....	.....	.....	1	1
Necrosis of cartilage	.....	.....	.....	.....	.....	.....	.....	1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE CIRCULATORY SYSTEM.	4	30	.....	22	1	7	4	41	75
Pericarditis	.....	1	.....	1	.....	.....	.....	.....	1
Endocarditis	.....	2	.....	1	.....	.....	1	1	3
Valvular disease:									
Aortic	3	6	.....	5	.....	3	1	7	16
Mitral	.....	17	.....	11	.....	4	2	9	26
Hypertrophy of heart	.....	1	.....	1	.....	.....	.....	1	2
Degeneration of heart, fatty	.....	.....	.....	.....	.....	.....	.....	1	1
Angina pectoris	.....	.....	.....	.....	.....	.....	.....	1	1
Palpitation and irregular action of heart	.....	1	.....	1	.....	.....	.....	14	15
Aneurysm of arteries	1	.....	.....	.....	1	.....	.....	.....	1
Varix	.....	2	.....	2	.....	.....	.....	7	9
DISEASES OF THE RESPIRATORY SYSTEM.	4	99	68	25	5	1	4	430	533
Laryngitis, acute	.....	5	4	1	.....	.....	.....	8	13
Bronchitis:									
Acute	1	37	30	3	3	1	1	237	275
Chronic	1	16	6	10	1	.....	.....	123	140
Catarrhal	.....	1	1	.....	.....	.....	.....	.....	1
Spasmodic asthma	.....	5	3	1	.....	.....	1	24	29
Hæmorrhage of lung	.....	.....	.....	.....	.....	.....	.....	5	5
Pneumonia	1	25	20	4	1	.....	1	3	29
Pneumonic phthisis, chronic	.....	4	.....	3	.....	.....	1	1	5
Emphysema	.....	1	.....	1	.....	.....	.....	.....	1
Pleurisy:									
Acute	1	5	4	2	.....	.....	.....	24	30
Chronic	.....	.....	.....	.....	.....	.....	.....	4	4
Adhesions of pleura	.....	.....	.....	.....	.....	.....	.....	1	1
DISEASES OF THE DIGESTIVE SYSTEM.	7	110	86	20	3	4	4	589	706
Stomatitis	.....	.....	.....	.....	.....	.....	.....	3	3
Noma	.....	.....	.....	.....	.....	.....	.....	1	1
Abscess of the antrum	1	.....	.....	.....	.....	1	.....	1	2
Caries of dentine and cementum	.....	.....	.....	.....	.....	.....	.....	19	19
Inflammation of dental periosteum	.....	.....	.....	.....	.....	.....	.....	3	3
Abscess of dental periosteum	.....	6	6	.....	.....	.....	.....	3	9
Inflammation of gums and alveoli	.....	1	1	.....	.....	.....	.....	1	2
Ulceration of gums and alveoli	.....	.....	.....	.....	.....	.....	.....	1	1
Necrosis of the alveoli	.....	.....	.....	.....	.....	.....	.....	1	1
Toothache	.....	.....	.....	.....	.....	.....	.....	15	15
Elongated uvula	.....	1	1	.....	.....	.....	.....	1	2
Sore throat	.....	2	2	.....	.....	.....	.....	20	22
Quinsy	.....	4	4	.....	.....	.....	.....	7	11
Follicular tonsilitis	.....	5	5	.....	.....	.....	.....	36	41
Follicular inflammation of the pharynx	.....	2	2	.....	.....	.....	.....	25	27
Hæmorrhage of the stomach	.....	1	1	.....	.....	.....	.....	.....	1
Inflammation of the stomach	.....	6	3	2	1	.....	.....	60	66
Ulceration of the stomach	.....	1	.....	1	.....	.....	.....	1	2
Dyspepsia	.....	15	10	4	.....	.....	1	126	141
Gastrodynia	1	.....	1	.....	.....	.....	.....	.....	1
Inflammation of the intestines:									
Catarrhal	.....	4	4	.....	.....	.....	.....	4	8
Ulcerative	.....	8	6	1	1	.....	.....	10	18
Obstruction of the intestines	.....	.....	.....	.....	.....	.....	.....	3	3
Internal strangulation of the intestines	.....	1	.....	.....	1	.....	.....	1	2
Hernia	.....	7	3	4	.....	.....	.....	68	75
Diarrhœa	2	21	20	1	.....	1	1	83	106
Constipation	.....	1	1	.....	.....	.....	.....	35	36

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Colic	.....	1	1	.....	.....	....	.....	8	9
Abcess of the rectum	.....	4	4	.....	.....	....	.....	.....	4
Abcess of the anus	.....	.....	.....	.....	.....	....	.....	2	2
Ulceration of the rectum	1	.....	.....	.....	.....	....	1	.....	1
Piles:									
Internal	.....	7	3	3	.....	....	1	21	28
External	1	.....	1	.....	.....	....	.....	7	8
Prolapsus of the anus	.....	.....	.....	.....	.....	....	.....	1	1
Fistula in ano	.....	5	3	1	.....	1	.....	3	8
Pruritus ani	.....	1	1	.....	.....	....	.....	3	4
Neuralgia of the rectum	.....	1	1	.....	.....	....	.....	.....	1
Hypertrophy of the liver	.....	.....	.....	.....	.....	....	.....	1	1
Congestion of the liver	.....	2	2	.....	.....	....	.....	1	3
Hepatitis	1	.....	.....	1	.....	....	.....	4	5
Cirrhosis of liver	.....	2	.....	1	.....	1	.....	4	6
Jaundice	.....	1	.....	1	.....	....	.....	3	4
Gallstones	.....	.....	.....	.....	.....	....	.....	2	2
Ascites	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE LYMPHATIC SYSTEM	2	54	43	9	1	....	3	55	111
Hypertrophy of the spleen	.....	1	1	.....	.....	....	.....	1	2
Hypertrophy of lymph glands	.....	.....	.....	.....	.....	....	.....	12	12
Inflammation of lymph glands	1	34	25	7	1	....	2	25	60
Suppuration of lymph glands	1	19	17	2	.....	....	1	17	37
DISEASES OF THE URINARY SYSTEM	4	15	9	7	.....	1	2	75	94
Bright's disease	1	2	.....	1	.....	....	2	8	11
Calculus in kidney	.....	.....	.....	.....	.....	....	.....	2	2
Calculus in ureter	1	1	1	1	.....	....	.....	.....	2
Suppression of urine	.....	.....	.....	.....	.....	....	.....	2	2
Chyluria	.....	.....	.....	.....	.....	....	.....	2	2
Lithuria	.....	.....	.....	.....	.....	....	.....	5	5
Hæmorrhage of bladder	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of bladder:									
Acute	2	9	6	5	.....	....	.....	30	41
Subacute	.....	1	.....	.....	.....	1	.....	5	6
Chronic	.....	.....	.....	.....	.....	....	.....	5	5
Irritability of bladder	.....	1	1	.....	.....	....	.....	13	14
Incontinence of urine	.....	1	1	.....	.....	....	.....	2	3
DISEASES OF THE GENERATIVE SYSTEM	6	97	70	24	1	2	6	338	441
Urethritis	.....	3	1	2	.....	....	.....	26	29
Gleet	.....	.....	.....	.....	.....	....	.....	4	4
Urinary abscess	.....	.....	.....	.....	.....	....	.....	1	1
Stricture of urethra:									
Organic	3	15	10	7	.....	....	1	67	85
Traumatic	1	.....	1	.....	.....	....	.....	.....	1
Urinary fistula	.....	2	1	.....	.....	1	.....	1	3
Recto-urethral fistula	.....	1	.....	.....	.....	1	.....	.....	1
Hypertrophy of prostate gland	.....	.....	.....	.....	.....	....	.....	1	1
Acute inflammation of prostate gland	.....	.....	.....	.....	.....	....	.....	1	1
Chronic inflammation of prostate gland	.....	.....	.....	.....	.....	....	.....	2	2
Abscess of prostate gland	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of the penis	.....	.....	.....	.....	.....	....	.....	4	4
Inflammation of glans penis	.....	1	1	.....	.....	....	.....	6	7
Abscess of penis	.....	1	1	.....	.....	....	.....	.....	1
Ulcer of penis	1	38	29	7	.....	....	3	131	170
Phimosis	.....	7	6	.....	1	....	.....	3	10

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE GENERATIVE SYSTEM—Continued.									
Paraphimosis	.....	4	4	.....	.....	.....	.....	3	7
Inflammation of the scrotum	.....	1	.....	1	.....	.....	.....	.....	1
Abscess of the scrotum	.....	.....	.....	.....	.....	.....	.....	2	2
Varicocele	.....	2	1	.....	.....	.....	1	10	12
Hydrocele of tunica vaginalis	.....	3	1	2	.....	.....	.....	20	23
Orchitis:									
Acute	1	8	6	3	.....	.....	.....	31	40
Chronic	.....	.....	.....	.....	.....	.....	.....	4	4
Epididymitis	.....	7	7	.....	.....	.....	.....	11	18
Abscess of testicle	.....	1	.....	.....	.....	.....	1	.....	1
Spermatorrhœa	.....	1	.....	1	.....	.....	.....	5	6
Inflammation of the fallopian tube	.....	1	.....	1	.....	.....	.....	.....	1
Post-partum hæmorrhage	.....	.....	.....	.....	.....	.....	.....	2	2
Inflammation of the male breast	.....	1	1	.....	.....	.....	.....	2	3
DISEASES OF THE ORGANS OF LOCOMOTION	6	31	17	16	.....	1	3	50	87
Periostitis	.....	1	1	.....	.....	.....	.....	4	5
Caries	1	4	3	2	.....	.....	.....	.....	5
Necrosis	1	11	3	8	.....	1	.....	5	17
Dropsy of joints	.....	.....	.....	.....	.....	.....	.....	1	1
Synovitis:									
Acute	2	4	4	.....	.....	.....	2	11	17
Chronic	1	4	2	3	.....	.....	.....	3	8
Ankylosis	.....	.....	.....	.....	.....	.....	.....	1	1
Psoas, lumbar, and other abscesses	1	.....	.....	.....	.....	.....	1	1	2
Posterior curvature of spine	.....	1	.....	1	.....	.....	.....	.....	5
Inflammation of muscles	.....	1	1	.....	.....	.....	.....	4	1
Cyst of muscles	.....	1	1	.....	.....	.....	.....	.....	1
Inflammation of tendons	.....	.....	.....	.....	.....	.....	.....	2	2
Contraction of tendons and fasciæ	.....	1	.....	1	.....	.....	.....	1	2
Inflamed bursa	.....	2	1	1	.....	.....	.....	15	17
Thecal abscess	.....	1	1	.....	.....	.....	.....	1	2
Ganglion	.....	.....	.....	.....	.....	.....	.....	1	1
DISEASES OF THE CONNECTIVE TISSUE	.....	20	15	4	.....	.....	1	48	68
Inflammation	.....	3	2	.....	.....	.....	1	19	22
Abscess	.....	17	13	4	.....	.....	.....	29	46
DISEASES OF THE SKIN	2	69	51	16	1	1	2	338	409
Erythema	.....	1	1	.....	.....	.....	.....	7	8
Urticaria	.....	1	1	.....	.....	.....	.....	8	9
Eczema	.....	8	2	5	.....	.....	1	51	59
Impetigo	.....	.....	.....	.....	.....	.....	.....	8	8
Ecthyma	.....	2	1	1	.....	.....	.....	2	4
Pityriasis	.....	.....	.....	.....	.....	.....	.....	6	6
Lichen	.....	.....	.....	.....	.....	.....	.....	1	1
Psoriasis	.....	1	1	.....	.....	.....	.....	3	4
Herpes	.....	.....	.....	.....	.....	.....	.....	20	20
Zona	.....	2	2	.....	.....	.....	.....	6	8
Acne	.....	.....	.....	.....	.....	.....	.....	3	3
Sycosis	.....	1	.....	1	.....	.....	.....	6	7
Steatorrhœa	.....	.....	.....	.....	.....	.....	.....	1	1
Frostbite	.....	8	8	.....	.....	.....	.....	10	18
Ulcer	2	19	14	5	1	.....	1	66	87
Fissures	.....	.....	.....	.....	.....	.....	.....	3	3
Boil	.....	14	11	3	.....	.....	.....	76	90
Carbuncle	.....	3	3	.....	.....	.....	.....	11	14
Gangrene	.....	1	.....	.....	.....	1	.....	.....	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE SKIN—Continued.									
Whitlow		7	7					32	39
Onychia		1		1				1	2
Corn								2	2
Wen								15	15
PARASITIC DISEASES OF THE SKIN		4	4					24	28
Ringworm								5	5
Tinea versicolor								1	1
Itch		3	3					16	19
Phthiriasis		1	1					2	3
Poisons		**2**	**1**	**1**				**11**	**13**
Metals and their salts								1	1
Vegetable poisons		1		1				7	8
Iodine		1	1						1
Poisonous gases and vapors								2	2
POISONED WOUNDS								1	1
Venomous animals								1	1
Injuries	**11**	**221**	**185**	**34**	**2**	**1**	**10**	**497**	**729**
GENERAL INJURIES		16	14	2				28	44
Burns and scalds		10	9	1				21	31
Effect of chemical irritants		1	1						1
Electrical shock								1	1
Multiple injury		5	4	1				6	11
LOCAL INJURIES	11	205	171	32	2	1	10	469	685
Strain of muscles		3	2	1				18	21
Rupture of muscles								1	1
Strain of tendons		1		1				3	4
Abrasion of skin								12	12
Foreign body in subcutaneous tissue								3	3
Contusion of scalp		1	1					1	2
Scalp wound:									
Bone not exposed		6	5	1				11	17
Bone exposed								3	3
Fracture of the base of the skull		1	1						1
Contusion of face		4	4					4	8
Wound of face and mouth	1	9	9	1				12	22
Fracture of lower jaw	1	1	1	1					2
Contusion of the eye		2	1				1	3	5
Foreign body in cornea or conjunctiva								6	6
Contusion of pinna								1	1
Rupture of membrana tympani		1		1					1
Foreign body in external meatus								1	1
Foreign body in the pharynx								1	1
Foreign body in the œsophagus								1	1
Contusion of the chest		9	8	1				33	42
Fracture of the ribs		13	11	1			1	14	27
Contusion of back		5	4		1			18	23
Sprain of back		6	6					17	23
Wound of back		3	2	1				3	6
Fracture of spine with compression of cord		1		1					1
Contusion of abdomen		1	1					2	3
Wound of parietes of abdomen								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

NORTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued									
Contusion of the urethra, perineum, scrotum, and penis	.....	1	1	.....	.....	....	.....	1	2
Wound of the urethra, perineum, scrotum, and penis	.....	1	1	.....	.....	....	.....	.....	1
Fracture and dislocation of pelvis	.....	2	1	1	.....	....	.....	.....	2
Contusion of testicle	.....	3	3	.....	.....	....	.....	1	4
Contusion of upper extremities	.....	8	6	1	1	....	.....	32	40
Sprain of the shoulder	.....	.....	.....	.....	.....	....	.....	4	4
Sprain of the elbow	.....	1	1	.....	.....	....	.....	5	6
Sprain of the wrist	.....	4	4	.....	.....	....	.....	20	24
Sprain of the thumb	.....	.....	.....	.....	.....	....	.....	3	3
Sprain of the fingers	.....	.....	.....	.....	.....	....	.....	6	6
Wound of the upper extremities	2	39	37	2	.....	....	2	118	159
Fracture of the clavicle	1	4	4	1	.....	....	.....	2	7
Fracture of the humerus	.....	2	2	.....	.....	....	.....	.....	2
Fracture of the radius	.....	1	1	.....	.....	....	.....	.....	1
Fracture of the ulna	.....	1	1	.....	.....	....	.....	1	2
Fracture of both bones of forearm	.....	4	1	3	.....	....	.....	.....	4
Fracture of carpus, metacarpus, and phalanges	.....	5	5	.....	.....	....	.....	8	13
Dislocation of the clavicle	.....	1	.....	1	.....	....	.....	.....	1
Dislocation of the scapula	.....	.....	.....	.....	.....	....	.....	1	1
Dislocation of the humerus	.....	4	2	2	.....	....	.....	1	5
Dislocation of the radius	.....	1	.....	1	.....	....	.....	4	5
Dislocation of the metacarpus	.....	1	1	.....	.....	....	.....	3	4
Dislocation of the phalanges of fingers	.....	1	1	.....	.....	....	.....	.....	1
Contusion of the lower extremities	1	11	12	.....	.....	....	.....	38	50
Sprain of the knee	.....	2	2	.....	.....	....	.....	12	14
Sprain of the ankle	.....	12	7	3	.....	....	2	15	27
Sprain of the foot	.....	1	.....	.....	.....	....	1	1	2
Wound of the lower extremities	.....	11	9	1	.....	1	.....	19	30
Fracture of femur	2	4	1	3	.....	....	2	2	8
Fracture of leg, both bones	2	5	6	.....	.....	....	1	3	10
Fracture of tibia alone	1	4	2	3	.....	....	.....	.....	5
Fracture of fibula alone	.....	2	2	.....	.....	....	.....	.....	2
Fracture of metatarsus	.....	1	1	.....	.....	....	.....	.....	1
Dislocation of the knee	.....	1	1	.....	.....	....	.....	.....	1
AMPUTATIONS	.....	3	1	1	1	....	.....	.....	3
Surgical operations: Removal of cicatrix	.....	1	1	.....	.....	....	.....	.....	1
Malformations: Epispadic fissure of the urethra	.....	2	.....	1	1	....	.....	.....	2

MIDDLE ATLANTIC.

TOTAL CASES	155	1,932	1,037	777	61	86	126	4,933	7,020
General Diseases	73	899	440	409	26	48	49	2,168	3,140
Chicken pox	.....	.....	.....	.....	.....	....	.....	1	1
Measles	.....	4	4	.....	.....	....	.....	2	6
Influenza	.....	13	9	4	.....	....	.....	25	38
Mumps	.....	3	3	.....	.....	....	.....	7	10
Simple continued fever	.....	2	1	1	.....	....	.....	.....	2
Enteric fever	5	35	30	3	.....	4	3	3	43
Sporadic cholera	.....	2	1	1	.....	....	.....	.....	2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
General Diseases—Continued.									
Dysentery	.....	24	13	7	.....	3	1	22	46
Malarial intermittent fever	6	219	183	32	1	3	7	199	424
Malarial remittent fever	5	16	19	2	.....	.....	.....	60	81
Malarial cachexia	4	11	12	3	.....	.....	.....	68	83
Beriberi	.....	3	1	1	.....	1	.....	5	8
Erysipelas, simple	.....	9	8	1	.....	.....	.....	2	11
Pyæmia	.....	1	.....	.....	.....	1	.....	.....	1
Syphilis:									
Primary	2	5	6	1	.....	.....	.....	25	32
Secondary	14	104	4	106	4	.....	4	568	686
Gonorrhœa	.....	93	51	37	2	.....	3	519	612
Animal parasites	.....	3	2	1	.....	.....	.....	.....	3
Effects of excessive venery	.....	1	.....	1	.....	.....	.....	1	2
Effects of cold	.....	1	1	.....	.....	.....	.....	.....	1
Scurvy	.....	7	3	4	.....	.....	.....	6	13
Alcoholism	.....	21	13	5	3	.....	.....	24	45
Debility	.....	5	2	3	.....	.....	.....	40	45
Rheumatic fever	1	39	16	20	.....	.....	4	25	65
Rheumatism	10	107	38	72	2	1	4	338	455
Gout	.....	.....	.....	.....	.....	.....	.....	1	1
Osteo-arthritis	1	1	1	.....	.....	.....	1	2	4
Nonmalignant new growth	.....	14	11	2	1	.....	.....	19	33
Malignant new growth	1	8	5	1	3	.....	.....	10	19
Tubercle	21	142	1	98	9	34	21	189	352
Anæmia	1	5	2	3	1	.....	.....	7	13
Diabetes mellitus	2	1	.....	.....	.....	2	1	.....	3
Local Diseases	**62**	**752**	**387**	**304**	**33**	**34**	**56**	**2,420**	**3,234**
DISEASES OF THE NERVOUS SYSTEM	8	36	6	28	5	1	4	96	140
Hæmorrhage, cerebral	3	4	.....	4	1	.....	2	3	10
Inflammation of membranes of brain and spinal cord	.....	1	.....	.....	.....	1	.....	.....	1
Myelitis	.....	1	.....	.....	1	.....	.....	.....	1
Neuritis	1	6	1	4	2	.....	.....	6	13
Sclerosis	.....	1	.....	.....	1	.....	.....	6	7
Locomotor ataxy	1	.....	.....	.....	.....	.....	1	.....	1
Paralysis	.....	.....	.....	.....	.....	.....	.....	2	2
Hemiplegia	2	2	.....	4	.....	.....	.....	10	14
Paraplegia	.....	1	.....	.....	.....	.....	1	.....	1
Local paralysis	.....	2	.....	2	.....	.....	.....	17	19
Toxic paralysis	.....	1	.....	1	.....	.....	.....	1	2
Aphasia	.....	.....	.....	.....	.....	.....	.....	1	1
Neuralgia	.....	4	2	2	.....	.....	.....	26	30
Facial	.....	2	1	1	.....	.....	.....	4	6
Sciatica	1	5	.....	6	.....	.....	.....	3	9
Vertigo	.....	3	2	1	.....	.....	.....	5	8
Megrim	.....	.....	.....	.....	.....	.....	.....	3	3
Epilepsy	.....	3	.....	3	.....	.....	.....	5	8
Hysteria	.....	.....	.....	.....	.....	.....	.....	4	4
MENTAL DISEASES	.....	6	3	2	.....	.....	1	8	14
Hypochondriasis	.....	2	2	.....	.....	.....	.....	7	9
Mania	.....	2	1	1	.....	.....	.....	1	3
Melancholia	.....	2	.....	1	.....	.....	1	.....	2
DISEASES OF THE EYE	2	13	8	5	1	1	.....	63	78
Conjunctivitis	.....	3	3	.....	.....	.....	.....	37	40
Keratitis	.....	1	.....	1	.....	.....	.....	1	2
Ulcer of cornea	.....	.....	.....	.....	.....	.....	.....	2	2
Opacity of cornea	.....	1	.....	1	.....	.....	.....	.....	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE EYE—Continued.									
Mydriasis	.....	.....	.....	.....	.....	....	.....	1	1
Iritis	1	1	2	.....	.....	....	.....	11	13
Glaucoma	.....	2	.....	1	1	....	.....	.....	2
Atrophy of optic disc or papilla	.....	1	.....	1	.....	....	.....	.....	1
Cataract	1	2	1	1	.....	1	.....	1	4
Hyalitis	.....	.....	.....	.....	.....	....	.....	1	1
Night blindness	.....	.....	.....	.....	.....	....	.....	2	2
Hæmatoma	.....	1	1	.....	.....	....	.....	4	5
Blepharitis	.....	.....	.....	.....	.....	....	.....	2	2
Sty	.....	.....	.....	.....	.....	....	.....	1	1
Abscess of eyelid	.....	1	1	.....	.....	....	.....	.....	1
DISEASES OF THE EAR	.....	7	3	4	.....	....	.....	40	47
Inflammation of the external meatus, acute	.....	2	2	.....	.....	....	.....	2	4
Accumulation of wax	.....	.....	.....	.....	.....	....	.....	2	2
Inflammation of the middle ear	.....	5	1	4	.....	....	.....	26	31
Obstruction of Eustachian tube	.....	.....	.....	.....	.....	....	.....	5	5
Deafness	.....	.....	.....	.....	.....	....	.....	5	5
DISEASES OF THE NOSE	1	4	1	4	.....	....	.....	58	63
Hypertrophy	.....	.....	.....	.....	.....	....	.....	8	8
Inflammation	1	.....	.....	1	.....	....	.....	2	3
Nasal catarrh	.....	4	1	3	.....	....	.....	48	52
DISEASES OF THE CIRCULATORY SYSTEM	5	29	1	21	3	7	2	82	116
Pericaditis	.....	.....	.....	.....	.....	....	.....	1	1
Endocarditis	.....	1	.....	1	.....	....	.....	2	3
Valvular disease:									
Aortic	2	5	.....	3	.....	4	.....	7	14
Mitral	1	14	.....	12	1	1	1	31	46
Hypertrophy of heart	.....	1	.....	1	.....	....	.....	.....	1
Angina pectoris	.....	1	.....	1	.....	....	.....	.....	1
Palpitation and irregular action of heart	.....	.....	.....	.....	.....	....	.....	32	32
Degeneration of arteries	.....	1	.....	.....	.....	1	.....	.....	1
Aneurysm of arteries	1	1	.....	.....	1	1	.....	.....	2
Phlegmasia dolens	.....	.....	.....	.....	.....	....	.....	1	1
Varix	1	5	1	3	1	....	1	8	14
DISEASES OF THE RESPIRATORY SYSTEM	6	118	50	49	3	17	5	459	583
Hay asthma	.....	.....	.....	.....	.....	.....	.....	2	2
Laryngitis, acute	.....	2	1	.....	.....	1	.....	21	23
Bronchitis:									
Acute	1	55	30	23	.....	2	1	284	340
Chronic	2	10	1	8	1	1	1	56	68
Catarrhal	.....	8	4	2	1	....	1	1	9
Spasmodic asthma	.....	5	1	3	.....	....	1	16	21
Hæmorrhage of lung	.....	.....	.....	.....	.....	.....	.....	1	1
Pneumonia	2	29	12	5	1	13	.....	12	43
Emphysema	.....	.....	.....	.....	.....	....	.....	1	1
Pleurisy:									
Acute	1	6	1	6	.....	....	.....	50	57
Chronic	.....	3	.....	2	.....	....	1	15	18
DISEASES OF THE DIGESTIVE SYSTEM	13	182	104	68	7	4	12	698	893
Stomatitis	.....	.....	.....	.....	.....	....	.....	5	5
Ulcerative stomatitis	.....	.....	.....	.....	.....	....	.....	2	2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Abscess of the antrum	.....	.....	.....	.....	.....	.....	.....	1	1
Inflammation of the dental pulp	.....	2	2	.....	.....	.....	.....	.....	2
Caries of dentine and cementum	.....	1	1	.....	.....	.....	.....	4	5
Necrosis of dentine and cementum	.....	.....	.....	.....	.....	.....	.....	2	2
Inflammation of gums and alveoli	.....	.....	.....	.....	.....	.....	.....	1	1
Toothache	.....	.....	.....	.....	.....	.....	.....	12	12
Ulcer of the tongue	.....	.....	.....	.....	.....	.....	.....	1	1
Elongated uvula	.....	.....	.....	.....	.....	.....	.....	1	1
Relaxed throat	.....	1	1	.....	.....	.....	.....	.....	1
Sore throat	.....	5	3	2	.....	.....	.....	22	27
Quinsy	1	6	4	2	1	.....	.....	17	24
Follicular tonsilitis	.....	10	6	4	.....	.....	.....	32	42
Ulceration of fauces	.....	1	.....	.....	1	.....	.....	2	3
Inflammation of salivary glands	.....	1	1	.....	.....	.....	.....	.....	1
Abscess of salivary glands	.....	1	1	.....	.....	.....	.....	.....	1
Salivation	.....	.....	.....	.....	.....	.....	.....	2	2
Follicular inflammation of the pharynx	.....	3	1	2	.....	.....	.....	24	27
Hæmorrhage of the stomach	.....	14	6	7	.....	.....	1	54	68
Inflammation of the stomach	.....	1	.....	.....	1	.....	.....	.....	1
Dyspepsia	.....	11	3	7	.....	.....	1	101	112
Gastrodynia	1	1	2	.....	.....	.....	.....	.....	2
Inflammation of the intestines:									
Catarrhal	1	24	14	10	.....	.....	1	19	44
Ulcerative	.....	13	12	1	.....	.....	.....	4	17
Hernia	.....	24	16	6	2	.....	.....	184	208
Diarrhœa	.....	7	5	1	.....	1	.....	87	94
Constipation	.....	6	4	2	.....	.....	.....	36	42
Colic	.....	1	1	.....	.....	.....	.....	21	22
Hæmorrhage of the rectum	.....	1	.....	1	.....	.....	.....	.....	1
Abscess of the rectum	2	6	3	4	.....	.....	1	.....	8
Ulceration of the rectum	.....	5	.....	4	.....	.....	1	5	10
Piles:									
Internal	1	7	6	2	.....	.....	.....	24	32
External	1	10	5	4	.....	.....	2	16	27
Prolapsus of the rectum	1	.....	.....	.....	.....	.....	1	.....	1
Prolapsus of the anus	1	.....	1	.....	.....	.....	.....	.....	1
Stricture of the rectum	1	.....	.....	.....	1	.....	.....	.....	1
Fistula in ano	2	4	3	3	.....	.....	.....	5	11
Pruritus ani	.....	2	1	.....	.....	.....	1	.....	2
Congestion of the liver	.....	1	.....	1	.....	.....	.....	2	3
Hepatitis	.....	1	.....	.....	.....	1	.....	2	3
Cirrhosis of liver	1	2	.....	2	.....	.....	1	2	5
Jaundice	.....	3	1	1	.....	.....	1	4	7
Inflammation of hepatic ducts and gall bladder	.....	1	1	.....	.....	.....	.....	2	3
Gallstones	.....	3	.....	2	1	.....	.....	.....	3
Ascites	.....	1	.....	.....	.....	.....	1	.....	1
Peritonitis	.....	2	.....	.....	.....	2	.....	2	4
DISEASES OF THE LYMPHATIC SYSTEM	5	59	41	17	3	.....	3	116	180
Inflammation of lymph glands	2	42	25	13	3	.....	3	106	150
Suppuration of lymph glands	3	17	16	4	.....	.....	.....	10	30
DISEASES OF THE URINARY SYSTEM	7	34	10	19	4	3	5	69	110
Congestion of kidney	.....	2	1	1	.....	.....	.....	.....	2
Acute nephritis	.....	2	.....	1	.....	1	.....	.....	2
Bright's disease	5	14	1	9	3	2	4	16	35
Abscess of kidney	.....	2	.....	1	.....	.....	1	.....	2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE URINARY SYSTEM—Continued.									
Hæmaturia	.....	2	2	.....	.....	....	.....	.....	2
Inflammation of bladder:									
Acute	1	6	4	2	1	....	.....	46	53
Subacute	.....	1	.....	1	.....	....	.....	.....	1
Chronic	.....	2	.....	2	.....	....	.....	5	7
Calculus of bladder	1	.....	1	.....	.....	....	.....	.....	1
Irritability of bladder	.....	.....	.....	.....	.....	....	.....	1	1
Retention of urine	.....	.....	.....	.....	.....	....	.....	1	1
Incontinence of urine	.....	1	.....	1	.....	....	.....	.....	1
Ulceration of the bladder	.....	2	1	1	.....	....	.....	.....	2
DISEASES OF THE GENERATIVE SYSTEM	4	113	66	88	1	....	12	319	436
Urethritis	.....	.....	.....	.....	.....	....	.....	7	7
Gleet	.....	.....	.....	.....	.....	....	.....	6	6
Urinary abscess	.....	1	1	.....	.....	....	.....	.....	1
Ulcer of the urethra	.....	.....	.....	.....	.....	....	.....	1	1
Stricture of urethra, organic	1	21	8	12	.....	....	2	35	57
Urinary fistula	.....	2	1	.....	.....	....	1	1	3
Extravasation of urine	.....	1	.....	.....	.....	....	1	.....	1
Hypertrophy of prostate gland	.....	2	.....	2	.....	....	.....	5	7
Acute inflammation of prostate gland	.....	.....	.....	.....	.....	....	.....	3	3
Chronic inflammation of prostate gland	.....	.....	.....	.....	.....	....	.....	1	1
Œdema of the penis	.....	1	.....	1	.....	....	.....	.....	1
Inflammation of the penis	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of glans penis	.....	.....	.....	.....	.....	....	.....	6	6
Ulcer of penis	3	52	34	16	.....	....	5	164	219
Phimosis	.....	5	3	2	.....	....	.....	15	20
Paraphimosis	.....	2	2	.....	.....	....	.....	6	8
Priapism	.....	.....	.....	.....	.....	....	.....	1	1
Hydrocele of spermatic cord	.....	.....	.....	.....	.....	....	.....	2	2
Inflammation of spermatic cord	.....	.....	.....	.....	.....	....	.....	1	1
Varicocele	.....	8	6	.....	.....	....	2	18	26
Hæmatocele of tunica vaginalis	.....	.....	.....	.....	.....	....	.....	1	1
Hydrocele of tunica vaginalis	.....	7	4	1	1	....	1	2	9
Orchitis:									
Acute	.....	4	4	.....	.....	....	.....	23	27
Chronic	.....	2	.....	2	.....	....	.....	.....	2
Epididymitis	.....	4	2	2	.....	....	.....	15	19
Abscess of testicle	.....	1	1	.....	.....	....	.....	.....	1
Spermatorrhœa	.....	.....	.....	.....	.....	....	.....	4	4
Inflammation of the fallopian tube	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE ORGANS OF LOCOMOTION	5	29	17	12	2	....	3	23	57
Ostitis	.....	.....	.....	.....	.....	....	.....	3	3
Periostitis	.....	2	.....	2	.....	....	.....	2	4
Osteo-myelitis	.....	2	1	1	.....	....	.....	.....	2
Necrosis	.....	8	6	.....	1	....	1	4	12
Synovitis:									
Acute	1	7	2	5	.....	....	1	5	13
Chronic	1	1	2	.....	.....	....	.....	.....	2
Ankylosis	2	1	1	2	.....	....	.....	.....	3
Caries and necrosis of spine	1	.....	.....	.....	.....	....	1	.....	1
Inflammation of tendons	.....	.....	.....	.....	.....	....	.....	1	1
Inflamed bursa	.....	5	3	2	.....	....	.....	5	10
Bursal abscess	.....	1	1	.....	.....	....	.....	.....	1
Thecal abscess	.....	2	1	.....	1	....	.....	1	3
Bunion	.....	.....	.....	.....	.....	....	.....	2	2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE CONNECTIVE TISSUE	1	28	16	8	1	....	4	94	123
Œdema	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation	.....	.....	.....	.....	.....	....	.....	32	32
Abscess	1	27	15	8	1	....	4	61	89
Emphysema	.....	1	1	.....	.....	....	.....	.....	1
DISEASES OF THE SKIN	5	88	59	25	3	1	5	250	343
Erythema	.....	.....	.....	.....	.....	....	.....	2	2
Urticaria	.....	.....	.....	.....	.....	....	.....	2	2
Eczema	1	6	2	5	.....	....	.....	62	69
Pityriasis	1	.....	.....	1	.....	....	.....	4	5
Psoriasis	.....	.....	.....	.....	.....	....	.....	3	3
Herpes	.....	1	.....	.....	1	....	.....	1	2
Acne	.....	.....	.....	.....	.....	....	.....	4	4
Sycosis	.....	.....	.....	.....	.....	....	.....	1	1
Frostbite	.....	9	9	.....	.....	....	.....	9	18
Ulcer	3	44	26	15	1	1	4	87	134
Cicatrices	.....	2	2	.....	.....	....	.....	.....	2
Boil	.....	12	11	1	.....	....	.....	52	64
Carbuncle	.....	3	2	1	.....	....	.....	4	7
Gangrene	.....	1	.....	1	.....	....	.....	.....	1
Whitlow	.....	8	6	1	.....	....	1	10	18
Corn	.....	.....	.....	.....	.....	....	.....	1	1
Lupus	.....	1	.....	.....	1	....	.....	2	3
Wen	.....	1	1	.....	.....	....	.....	2	3
Pruritus	.....	.....	.....	.....	.....	....	.....	3	3
Hyperidrosis	.....	.....	.....	.....	.....	....	.....	1	1
PARASITIC DISEASES OF THE SKIN	.....	6	2	4	.....	....	.....	45	51
Ringworm	.....	2	.....	2	.....	....	.....	7	9
Itch	.....	4	2	2	.....	....	.....	37	41
Phthiriasis	.....	.....	.....	.....	.....	....	.....	1	1
Poisons	.....	3	3	.....	.....	....	.....	2	5
Metals and their salts	.....	1	1	.....	.....	....	.....	2	3
Poisonous gases and vapors	.....	2	2	.....	.....	....	.....	.....	2
Injuries	**20**	**278**	**207**	**64**	**2**	**4**	**21**	**343**	**641**
GENERAL INJURIES	1	30	25	2	.....	3	1	21	52
Burns and scalds	1	27	22	2	.....	3	1	20	48
Heatstroke	.....	1	1	.....	.....	....	.....	.....	1
Multiple injury	.....	.....	.....	.....	.....	....	.....	1	1
Exhaustion	.....	2	2	.....	.....	....	.....	.....	2
LOCAL INJURIES	19	248	182	62	2	1	20	322	589
Contusion of nerves	.....	1	.....	1	.....	....	.....	.....	1
Strain of muscles	1	6	5	2	.....	....	.....	7	14
Bruise of skin	.....	.....	.....	.....	.....	....	.....	1	1
Foreign body in subcutaneous tissue	.....	.....	.....	.....	.....	....	.....	1	1
Contusion of scalp	.....	1	1	.....	.....	....	.....	.....	1
Scalp wound, bone not exposed	1	8	7	2	.....	....	.....	5	14
Concussion of brain	.....	3	1	2	.....	....	.....	.....	3
Contusion of face	.....	1	1	.....	.....	....	.....	1	2
Wound of face and mouth	.....	9	7	1	1	....	.....	4	13
Fracture of facial bones	.....	6	5	1	.....	....	.....	.....	6
Contusion of the eye	.....	.....	.....	.....	.....	....	.....	1	1
Foreign body in cornea or conjunctiva	.....	.....	.....	.....	.....	....	.....	3	3
Wound of the cornea	.....	1	1	.....	.....	....	.....	.....	1
Rupture of membrana tympani	.....	.....	.....	.....	.....	....	.....	1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

MIDDLE ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Contusion of the chest	-----	4	4	-----	-----	----	-----	1	5
Fracture of the ribs	2	9	9	2	-----	----	-----	11	22
Fracture of the sternum	-----	1	1	-----	-----	----	-----	-----	1
Wound of parietes of chest	-----	2	2	-----	-----	----	-----	-----	2
Contusion of back	-----	11	6	4	-----	----	1	2	13
Sprain of back	-----	2	1	1	-----	----	-----	13	15
Wound of back	-----	-----	-----	-----	-----	----	-----	2	2
Dislocation of spine	-----	1	-----	1	-----	----	-----	-----	1
Contusion of abdomen	-----	-----	-----	-----	-----	----	-----	1	1
Wound of parietes of abdomen	-----	1	1	-----	-----	----	-----	1	2
Contusion of the urethra, perineum, scrotum, and penis	-----	-----	-----	-----	-----	----	-----	1	1
Wound of the urethra, perineum, scrotum, and penis	-----	1	1	-----	-----	----	-----	1	2
Rupture of urethra	-----	1	1	-----	-----	----	-----	-----	1
Wound of testicle	-----	1	-----	-----	-----	----	1	2	3
Contusion of upper extremities	2	8	7	2	1	----	-----	44	54
Sprain of the shoulder	-----	3	2	1	-----	----	-----	8	11
Sprain of the wrist	-----	1	1	-----	-----	----	-----	10	11
Sprain of finger	-----	-----	-----	-----	-----	----	-----	1	1
Sprain of the thumb	-----	-----	-----	-----	-----	----	-----	4	4
Wound of the upper extremities	2	49	36	8	-----	----	7	84	135
Fracture of the clavicle	3	2	1	-----	-----	----	-----	3	6
Fracture of the scapula	-----	2	1	1	-----	----	-----	-----	2
Fracture of the humerus	-----	2	1	1	-----	----	-----	-----	2
Fracture of the radius	-----	6	5	1	-----	----	-----	1	7
Fracture of the ulna	-----	1	-----	1	-----	----	-----	-----	1
Fracture of both bones of forearm	-----	2	1	-----	-----	----	1	1	3
Fracture of carpus, metacarpus, and phalanges	-----	6	4	2	-----	----	-----	3	9
Dislocation of the humerus	-----	1	-----	1	-----	----	-----	-----	1
Dislocation of the metacarpus	-----	1	1	-----	-----	----	-----	1	2
Dislocation of the phalanges of thumb	-----	-----	-----	-----	-----	----	-----	1	1
Contusion of the lower extremities	1	27	18	6	-----	1	3	39	67
Sprain of the hip	-----	1	1	-----	-----	----	-----	-----	1
Sprain of the knee	-----	1	1	-----	-----	----	-----	3	4
Sprain of the ankle	-----	25	18	6	-----	----	1	23	48
Sprain of the foot	-----	4	4	-----	-----	----	-----	2	6
Wound of the lower extremities	3	20	14	7	-----	----	2	32	55
Fracture of femur	2	3	2	1	-----	----	2	1	6
Fracture of patella	3	-----	2	1	-----	----	-----	1	4
Fracture of leg, both bones	2	4	3	2	-----	----	1	-----	6
Fracture of tibia alone	-----	2	1	1	-----	----	-----	-----	2
Fracture of fibula alone	-----	1	-----	-----	-----	----	1	-----	1
Fracture of tarsus	-----	-----	-----	-----	-----	----	-----	1	1
Fracture of metatarsus	-----	1	-----	1	-----	----	-----	-----	1
Fracture of phalanges of toes	-----	2	2	-----	-----	----	-----	-----	2
Dislocation of the knee	-----	1	-----	1	-----	----	-----	-----	1
Dislocation of the metatarsus and phalanges	-----	1	1	-----	-----	----	-----	-----	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

SOUTH ATLANTIC.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
TOTAL CASES	98	1,704	987	606	45	63	101	7,312	9,114
General Diseases	35	921	547	319	18	32	40	3,414	4,370
Measles	.....	13	11	2	.....	.....	.....	3	16
Dengue	.....	31	25	6	.....	.....	.....	36	67
Influenza	1	37	30	8	.....	.....	.....	79	117
Mumps	.....	5	5	.....	.....	.....	.....	4	9
Diphtheria	.....	1	1	.....	.....	.....	.....	.....	1
Simple continued fever	1	2	3	.....	.....	.....	.....	2	5
Enteric fever	1	22	13	2	1	6	1	1	24
Typhomalarial fever	.....	1	.....	.....	.....	1	.....	.....	1
Sporadic cholera	.....	2	1	.....	.....	.....	1	8	10
Dysentery	.....	55	39	13	1	1	1	102	157
Malarial intermittent fever	6	222	201	15	3	2	7	835	1,063
Malarial remittent fever	1	125	88	29	.....	5	4	95	221
Malarial cachexia	2	26	18	8	.....	1	1	97	125
Erysipelas, simple	.....	10	6	3	.....	1	.....	7	17
Syphilis:									
Primary	1	13	4	10	.....	.....	.....	67	81
Secondary	7	84	.....	89	1	.....	1	465	556
Gonorrhœa	2	40	22	15	3	.....	2	695	737
Animal parasites	.....	1	1	.....	.....	.....	.....	2	3
Debility	.....	11	5	6	.....	.....	.....	80	91
Effects of cold	.....	.....	.....	.....	.....	.....	.....	9	9
Effects of heat	1	1	2	.....	.....	.....	.....	1	3
Alcoholism	.....	9	6	3	.....	.....	.....	5	14
Delirium tremens	.....	2	2	.....	.....	.....	.....	.....	2
Starvation	.....	1	.....	1	.....	.....	.....	.....	1
Rheumatic fever	.....	15	8	6	.....	.....	1	15	30
Rheumatism	3	122	52	63	4	.....	6	614	739
Gout	.....	.....	.....	.....	.....	.....	.....	3	3
Osteo-arthritis	.....	1	.....	1	.....	.....	.....	.....	1
Cysts	.....	.....	.....	.....	.....	.....	.....	2	2
Nonmalignant new growth	.....	4	2	2	.....	.....	.....	19	23
Malignant new growth	.....	2	.....	1	1	.....	.....	6	8
Tubercle	9	61	1	36	4	14	15	147	217
Scrofula	.....	1	.....	.....	.....	1	.....	.....	1
Anæmia	.....	1	1	.....	.....	.....	.....	15	16
Local Diseases	55	610	317	243	23	27	55	3,418	4,083
DISEASES OF THE NERVOUS SYSTEM	8	43	10	19	5	6	11	247	298
Hæmorrhage, cerebral	.....	1	.....	.....	.....	1	.....	.....	1
Inflammation of cerebral membranes	.....	2	1	.....	.....	1	.....	1	3
Myelitis	1	.....	.....	.....	.....	.....	1	.....	1
Neuritis	.....	2	1	.....	1	.....	.....	11	13
Sclerosis	.....	1	.....	.....	.....	.....	1	.....	1
Apoplexy	.....	2	.....	.....	.....	2	.....	.....	2
Paralysis	1	1	.....	1	1	.....	.....	2	4
Hemiplegia	3	9	.....	4	2	1	5	20	32
Paraplegia	2	.....	.....	.....	.....	.....	2	.....	2
Local paralysis	.....	1	.....	1	.....	.....	.....	2	3
Eclampsia	.....	1	.....	1	.....	.....	.....	.....	1
Spasm of muscle	.....	1	1	.....	.....	.....	.....	11	12
Neuralgia	.....	7	5	2	.....	.....	.....	123	130
Facial	.....	.....	.....	.....	.....	.....	.....	43	43
Sciatica	.....	9	2	6	.....	.....	1	9	18
Vertigo	1	3	.....	3	.....	.....	1	4	8
Megrim	.....	.....	.....	.....	.....	.....	.....	15	15
Epilepsy	.....	3	.....	1	1	1	.....	6	9
MENTAL DISEASES	21	10	5	2	2	1	21	5	36
Hypochondriasis	.....	.....	.....	.....	.....	.....	.....	1	1
Insanity	.....	3	1	1	1	.....	.....	2	5

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
MENTAL DISEASES—Continued.									
Mania	10	1	3	.....	.....	.....	8	1	12
Melancholia	9	3	1	1	.....	.....	10	1	13
Dementia	1	2	.....	.....	1	1	1	.....	3
General paralysis of the insane	1	1	.....	.....	.....	.....	2	.....	2
DISEASES OF THE EYE	1	24	15	6	1	.....	3	109	134
Hyperæmia of the conjunctiva	.....	.....	.....	.....	.....	.....	.....	2	2
Conjunctivitis	.....	6	5	1	.....	.....	.....	69	75
Pterygium	.....	2	1	1	.....	.....	.....	2	4
Keratitis	.....	2	2	.....	.....	.....	.....	2	4
Iritis	.....	11	6	3	.....	.....	2	18	29
Choroiditis	.....	.....	.....	.....	.....	.....	.....	1	1
Inflammation of optic nerve	.....	.....	.....	.....	.....	.....	.....	2	2
Retinitis	.....	1	.....	1	.....	.....	.....	.....	1
Cataract	1	2	1	.....	1	.....	1	2	5
Ametropia	.....	.....	.....	.....	.....	.....	.....	1	1
Night blindness	.....	.....	.....	.....	.....	.....	.....	2	2
Day blindness	.....	.....	.....	.....	.....	.....	.....	1	1
Dacrocystitis	.....	.....	.....	.....	.....	.....	.....	1	1
Hæmatoma	.....	.....	.....	.....	.....	.....	.....	1	1
Blepharitis	.....	.....	.....	.....	.....	.....	.....	2	2
Sty	.....	.....	.....	.....	.....	.....	.....	1	1
Abscess of eyelid	.....	.....	.....	.....	.....	.....	.....	2	2
DISEASES OF THE EAR	.....	2	1	1	.....	.....	.....	31	33
Accumulation of wax	.....	.....	.....	.....	.....	.....	.....	9	9
Inflammation of the middle ear	.....	2	1	1	.....	.....	.....	19	21
Tinnitus	.....	.....	.....	.....	.....	.....	.....	2	2
Deafness	.....	.....	.....	.....	.....	.....	.....	1	1
DISEASES OF THE NOSE	.....	1	.....	1	.....	.....	.....	50	51
Epistaxis	.....	.....	.....	.....	.....	.....	.....	4	4
Inflammation	.....	.....	.....	.....	.....	.....	.....	1	1
Nasal catarrh	.....	.....	.....	.....	.....	.....	.....	44	44
Ozæna	.....	1	.....	1	.....	.....	.....	1	2
DISEASES OF THE CIRCULATORY SYSTEM	2	27	2	17	1	6	3	57	86
Endocarditis	.....	2	1	1	.....	.....	.....	2	4
Valvular disease:									
Aortic	2	5	.....	3	.....	4	.....	4	11
Mitral	.....	11	.....	9	.....	1	1	15	26
Hypertrophy of heart	.....	2	.....	2	.....	.....	.....	2	4
Dilatation of heart	.....	.....	.....	.....	.....	.....	.....	1	1
Angina pectoris	.....	1	.....	1	.....	.....	.....	5	6
Syncope	.....	2	1	.....	.....	.....	1	2	4
Palpitation and irregular action of heart	.....	.....	.....	.....	.....	.....	.....	17	17
Degeneration of arteries	.....	.....	.....	.....	.....	.....	.....	1	1
Aneurysm of arteries	.....	3	.....	1	1	1	.....	5	8
Obstruction of arteries	.....	1	.....	.....	.....	.....	1	.....	1
Phlebitis	.....	.....	.....	.....	.....	.....	.....	2	2
Varix	.....	.....	.....	.....	.....	.....	.....	1	1
DISEASES OF THE RESPIRATORY SYSTEM	1	98	50	41	1	6	1	598	697
Hay asthma	.....	1	1	.....	.....	.....	.....	2	3
Laryngitis:									
Acute	.....	1	.....	1	.....	.....	.....	11	12
Chronic	.....	.....	.....	.....	.....	.....	.....	1	1
Bronchitis:									
Acute	.....	31	22	9	.....	.....	.....	482	513
Chronic	.....	2	.....	2	.....	.....	.....	56	58
Catarrhal	.....	4	1	3	.....	.....	.....	4	8

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE RESPIRATORY SYSTEM—Continued.									
Spasmodic asthma	.....	6	1	4	.....	1	.....	11	17
Hæmorrhage of lung	.....	2	1	1	.....	.....	.....	1	3
Pneumonia	1	28	14	10	.....	4	1	4	33
Abscess of lung	.....	1	1	.....	.....	.....	.....	.....	1
Pneumonic phthisis, chronic	.....	1	.....	1	.....	.....	.....	2	3
Hydrothorax	.....	3	1	2	.....	.....	.....	.....	3
Pleurisy:									
Acute	.....	16	7	8	.....	1	.....	20	36
Chronic	.....	2	1	.....	1	.....	.....	4	6
DISEASES OF THE DIGESTIVE SYSTEM	5	122	78	41	3	3	2	1,172	1,299
Ulcer of the lips	.....	.....	.....	.....	.....	.....	.....	1	1
Stomatitis	.....	.....	.....	.....	.....	.....	.....	13	13
Caries of dentine and cementum	.....	.....	.....	.....	.....	.....	.....	32	32
Necrosis of dentine and cementum	.....	.....	.....	.....	.....	.....	.....	5	5
Abscess of dental periosteum	.....	1	1	.....	.....	.....	.....	13	14
Inflammation of gums and alveoli	.....	.....	.....	.....	.....	.....	.....	2	2
Ulceration of gums and alveoli	.....	.....	.....	.....	.....	.....	.....	1	1
Caries of the alveoli	1	.....	1	.....	.....	.....	.....	.....	1
Toothache	.....	.....	.....	.....	.....	.....	.....	20	20
Inflammation of the tongue	.....	.....	.....	.....	.....	.....	.....	1	1
Ulcer of the tongue	.....	.....	.....	.....	.....	.....	.....	2	2
Sore throat	.....	2	1	1	.....	.....	.....	59	61
Quinsy	.....	.....	.....	.....	.....	.....	.....	11	11
Follicular tonsilitis	.....	8	7	1	.....	.....	.....	35	43
Ulceration of fauces	.....	.....	.....	.....	.....	.....	.....	1	1
Follicular inflammation of the pharynx	.....	4	4	.....	.....	.....	.....	48	52
Inflammation of the stomach	.....	5	3	2	.....	.....	.....	44	49
Ulceration of the stomach	.....	2	.....	.....	1	1	.....	.....	2
Dilatation of the stomach	.....	1	.....	1	.....	.....	.....	.....	1
Dyspepsia	.....	2	.....	2	.....	.....	.....	211	213
Gastrodynia	.....	4	3	1	.....	.....	.....	7	11
Vomiting	.....	.....	.....	.....	.....	.....	.....	2	2
Inflammation of the intestines:									
Catarrhal	.....	3	1	2	.....	.....	.....	44	47
Ulcerative	.....	5	2	3	.....	.....	.....	2	7
Hernia	1	11	9	2	1	.....	.....	110	122
Diarrhœa	.....	26	20	5	.....	.....	1	189	215
Constipation	.....	3	2	1	.....	.....	.....	151	154
Colic	.....	1	1	.....	.....	.....	.....	38	39
Abscess of the rectum	.....	4	2	1	.....	.....	1	2	6
Abscess of the anus	.....	2	2	.....	.....	.....	.....	.....	2
Ulceration of the rectum	.....	1	1	.....	.....	.....	.....	1	2
Piles:									
Internal	.....	8	4	4	.....	.....	.....	33	41
External	.....	5	2	3	.....	.....	.....	34	39
Prolapsus of the anus	.....	2	2	.....	.....	.....	.....	.....	2
Fistula in ano	1	3	3	1	.....	.....	.....	.....	4
Fissure of the anus	.....	.....	.....	.....	.....	.....	.....	1	1
Hypertrophy of the liver	.....	.....	.....	.....	.....	.....	.....	11	11
Congestion of the liver	.....	1	1	.....	.....	.....	.....	35	36
Hepatitis	.....	4	2	1	1	.....	.....	.....	4
Cirrhosis of liver	1	3	.....	3	.....	1	.....	5	9
Abscess of liver	.....	1	.....	1	.....	.....	.....	.....	1
Jaundice	1	7	4	3	.....	1	.....	5	13
Inflammation of hepatic ducts and gall bladder	.....	.....	.....	.....	.....	.....	.....	1	1
Gallstones	.....	2	2	.....	.....	.....	.....	2	4
Ascites	.....	1	.....	1	.....	.....	.....	.....	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE LYMPHATIC SYSTEM.	5	54	32	23	4	....	.....	93	152
Induration and enlargement of spleen from ague	.....	1	.....	1	.....	....	.....	.....	1
Splenitis	.....	1	.....	1	.....	....	.....	.....	1
Hypertrophy of lymph glands	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of lymph vessels	.....	1	1	.....	.....	....	.....	3	4
Suppuration of lymph vessels	2	.....	2	.....	.....	....	.....	.....	2
Inflammation of lymph glands	1	28	14	14	1	....	.....	71	100
Suppuration of lymph glands	2	23	15	7	3	....	.....	18	43
DISEASES OF THE URINARY SYSTEM	2	37	8	23	1	3	4	93	132
Congestion of kidney	.....	.....	.....	.....	.....	....	.....	2	2
Acute nephritis	.....	3	.....	2	.....	1	.....	4	7
Bright's disease	1	16	.....	12	1	2	2	32	39
Pyelitis	.....	.....	.....	.....	.....	....	.....	1	1
Abscess of kidney	.....	1	.....	.....	.....	....	1	.....	1
Calculus in kidney	.....	2	2	.....	.....	....	.....	.....	2
Calculus in ureter	.....	1	.....	1	.....	....	.....	1	2
Diabetes insipidus	.....	.....	.....	.....	.....	....	.....	1	1
Hæmaturia	.....	1	.....	1	.....	....	.....	9	10
Lithuria	.....	.....	.....	.....	.....	....	.....	2	2
Phosphuria	.....	.....	.....	.....	.....	....	.....	1	1
Hæmorrhage of bladder	.....	1	.....	.....	.....	....	1	.....	1
Inflammation of bladder:									
Acute	.....	7	2	5	.....	....	.....	26	33
Subacute	1	.....	1	.....	.....	....	.....	10	11
Chronic	.....	2	1	1	.....	....	.....	2	4
Calculus of bladder	.....	.....	.....	.....	.....	....	.....	2	2
Irritability of bladder	.....	2	1	1	.....	....	.....	7	9
Retention of urine	.....	1	1	.....	.....	....	.....	.....	1
Incontinence of urine	.....	.....	.....	.....	.....	....	.....	3	3
DISEASES OF THE GENERATIVE SYSTEM.	3	88	46	39	2	1	3	337	428
Urethritis	.....	.....	.....	.....	.....	....	.....	13	13
Gleet	.....	.....	.....	.....	.....	....	.....	15	15
Urinary abscess	.....	1	.....	.....	.....	....	1	.....	1
Ulcer of the urethra	.....	.....	.....	.....	.....	....	.....	1	1
Stricture of urethra, organic	.....	17	7	8	1	1	.....	37	54
Urinary fistula	.....	1	.....	1	.....	....	.....	.....	1
Impacted calculus of urethra	.....	1	1	.....	.....	....	.....	.....	1
Hypertrophy of prostate gland	.....	.....	.....	.....	.....	....	.....	1	1
Atrophy of prostate gland	.....	.....	.....	.....	.....	....	.....	1	1
Chronic inflammation of prostate gland	.....	1	.....	1	.....	....	.....	6	7
Inflammation of the penis	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of glans penis	.....	.....	.....	.....	.....	....	.....	13	13
Ulcer of penis	2	34	16	19	1	....	.....	151	187
Gangrene of penis	.....	.....	.....	.....	.....	....	.....	1	1
Phimosis	.....	4	3	1	.....	....	.....	.....	4
Paraphimosis	.....	1	1	.....	.....	....	.....	5	6
Inflammation of the scrotum	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of spermatic cord	.....	.....	.....	.....	.....	....	.....	2	2
Varicocele	.....	2	1	1	.....	....	.....	13	15
Hydrocele of tunica vaginalis	.....	5	2	2	.....	....	1	18	23
Orchitis:									
Acute	1	11	7	5	.....	....	.....	25	37
Chronic	.....	.....	.....	.....	.....	....	.....	4	4
Epididymitis	.....	10	8	1	.....	....	1	17	27
Spermatorrhœa	.....	.....	.....	.....	.....	....	.....	3	3
Impotence	.....	.....	.....	.....	.....	....	.....	5	5

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE GENERATIVE SYSTEM—Continued.									
Dysmenorrhœa	.....	.....	.....	.....	.....	.....	.....	1	1
Abscess of the female breast	.....	.....	.....	.....	.....	.....	.....	2	2
Inflammation of the male breast	.....	.....	.....	.....	.....	.....	.....	1	1
DISEASES OF THE ORGANS OF LOCOMOTION	5	19	14	6	1	.....	3	38	62
Periostitis	.....	2	2	.....	.....	.....	.....	.....	2
Caries	.....	1	1	.....	.....	.....	.....	1	2
Necrosis	1	5	2	2	1	.....	1	1	7
Synovitis:									
Acute	1	6	5	2	.....	.....	.....	12	19
Chronic	1	1	1	1	.....	.....	.....	.....	2
Ankylosis	1	.....	.....	.....	.....	.....	1	.....	1
Loose body in joint	.....	1	1	.....	.....	.....	.....	.....	1
Caries and necrosis of spine	.....	.....	.....	.....	.....	.....	.....	1	1
Angular curvature of spine	1	1	.....	1	.....	.....	1	.....	2
Bruise of muscles	.....	1	1	.....	.....	.....	.....	2	3
Inflammation of muscles	.....	.....	.....	.....	.....	.....	.....	10	10
Inflammation of tendons	.....	.....	.....	.....	.....	.....	.....	2	2
Inflamed bursa	.....	1	1	.....	.....	.....	.....	6	7
Bunion	.....	.....	.....	.....	.....	.....	.....	1	1
Ganglion	.....	.....	.....	.....	.....	.....	.....	1	1
Bursal tumor	.....	.....	.....	.....	.....	.....	.....	1	1
DISEASES OF THE CONNECTIVE TISSUE	.....	32	27	5	.....	.....	.....	96	128
Œdema	.....	1	1	.....	.....	.....	.....	4	5
Inflammation	.....	14	12	2	.....	.....	.....	37	51
Abscess	.....	17	14	3	.....	.....	.....	55	72
DISEASES OF THE SKIN	2	53	29	19	2	1	4	442	497
Erythema	.....	.....	.....	.....	.....	.....	.....	4	4
Urticaria	.....	.....	.....	.....	.....	.....	.....	9	9
Eczema	.....	3	.....	3	.....	.....	.....	81	84
Ecthyma	.....	.....	.....	.....	.....	.....	.....	9	9
Prurigo	.....	.....	.....	.....	.....	.....	.....	4	4
Lichen	.....	.....	.....	.....	.....	.....	.....	1	1
Psoriasis	.....	2	2	.....	.....	.....	.....	9	11
Herpes	.....	1	1	.....	.....	.....	.....	29	30
Zona	.....	.....	.....	.....	.....	.....	.....	3	3
Pemphigus	.....	.....	.....	.....	.....	.....	.....	1	1
Acne	.....	.....	.....	.....	.....	.....	.....	5	5
Sycosis	.....	.....	.....	.....	.....	.....	.....	10	10
Steatorrhœa	.....	.....	.....	.....	.....	.....	.....	5	5
Alopecia	.....	.....	.....	.....	.....	.....	.....	1	1
Chilblain	.....	1	.....	1	.....	.....	.....	1	2
Frostbite	.....	11	10	1	.....	.....	.....	9	20
Ulcer	2	18	9	6	1	1	3	120	140
Cicatrices	.....	.....	.....	.....	.....	.....	.....	1	1
Fissures	.....	.....	.....	.....	.....	.....	.....	4	4
Boil	.....	4	2	2	.....	.....	.....	91	95
Carbuncle	.....	8	4	3	1	.....	.....	11	19
Whitlow	.....	4	1	2	.....	.....	1	18	22
Onychia	.....	.....	.....	.....	.....	.....	.....	4	4
Corn	.....	.....	.....	.....	.....	.....	.....	2	2
Lupus	.....	1	.....	1	.....	.....	.....	3	4
Wen	.....	.....	.....	.....	.....	.....	.....	2	2
Pruritus	.....	.....	.....	.....	.....	.....	.....	3	3
Hyperidrosis	.....	.....	.....	.....	.....	.....	.....	2	2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
PARASITIC DISEASES OF THE SKIN	.....	.....	.....	.....	.....	.....	.....	50	50
Ringworm	.....	.....	.....	.....	.....	.....	.....	10	10
Itch	.....	.....	.....	.....	.....	.....	.....	38	38
Phthiriasis	.....	.....	.....	.....	.....	.....	.....	2	2
Poisons	.....	.....	.....	.....	.....	.....	.....	3	3
Vegetable poisons	.....	.....	.....	.....	.....	.....	.....	2	2
Animal poisons	.....	.....	.....	.....	.....	.....	.....	1	1
Injuries	8	173	123	44	4	4	6	477	658
GENERAL INJURIES	.....	19	9	5	.....	3	2	17	36
Burns and scalds	.....	13	8	3	.....	2	.....	13	26
Heat stroke	.....	3	.....	.....	.....	1	2	1	4
Multiple injury	.....	.....	.....	.....	.....	.....	.....	1	1
Exhaustion	.....	3	1	2	.....	.....	.....	2	5
LOCAL INJURIES	8	154	114	39	4	1	4	460	622
Rupture of veins	.....	.....	.....	.....	.....	.....	.....	2	2
Wound of muscles	.....	.....	.....	.....	.....	.....	.....	1	1
Strain of muscles	.....	1	1	.....	.....	.....	.....	28	29
Abrasion of skin	.....	1	1	.....	.....	.....	.....	11	12
Foreign body in subcutaneous tissue	.....	.....	.....	.....	.....	.....	.....	3	3
Contusion of scalp	.....	.....	.....	.....	.....	.....	.....	3	3
Scalp wound:									
Bone not exposed	2	4	6	.....	.....	.....	.....	17	23
Bone exposed	.....	2	1	1	.....	.....	.....	1	3
Fracture of the base of the skull	.....	1	.....	.....	.....	1	.....	.....	1
Concussion of brain	.....	1	1	.....	.....	.....	.....	.....	1
Contusion of face	.....	4	4	.....	.....	.....	.....	1	5
Wound of face and mouth	.....	4	4	.....	.....	.....	.....	7	11
Fracture of facial bones	.....	2	1	1	.....	.....	.....	1	3
Contusion of the eye	.....	1	.....	1	.....	.....	.....	2	3
Foreign body in cornea or conjunctiva	.....	.....	.....	.....	.....	.....	.....	10	10
Wound of eyelid	.....	1	1	.....	.....	.....	.....	.....	1
Foreign body in external meatus	.....	.....	.....	.....	.....	.....	.....	1	1
Wound ofneck	.....	.....	.....	.....	.....	.....	.....	2	2
Injury of the œsophagus by ammonia	.....	.....	.....	.....	.....	.....	.....	1	1
Contusion of the chest	1	7	3	4	.....	.....	1	21	29
Fracture of the ribs	.....	5	3	2	.....	.....	.....	5	10
Wound of parietes of chest	.....	.....	.....	.....	.....	.....	.....	1	1
Perforating wound of chest	.....	1	.....	1	.....	.....	.....	.....	1
Penetrating wound of pleura or lung	.....	1	1	.....	.....	.....	.....	.....	1
Contusion of back	.....	7	7	.....	.....	.....	.....	11	18
Sprain of back	.....	6	6	.....	.....	.....	.....	24	30
Wound of back	.....	3	2	1	.....	.....	.....	.....	3
Contusion of abdomen	.....	3	3	.....	.....	.....	.....	2	5
Wound of parietes of abdomen	.....	1	1	.....	.....	.....	.....	.....	1
Wound of the urethra, perineum, scrotum, and penis	.....	2	1	.....	.....	.....	1	.....	2
Contusion of testicle	.....	2	1	1	.....	.....	.....	3	5
Contusion of upper extremities	.....	9	6	3	.....	.....	.....	21	39
Sprain of the shoulder	.....	2	1	.....	.....	.....	1	5	7
Sprain of the elbow	.....	.....	.....	.....	.....	.....	.....	5	5
Sprain of the wrist	.....	3	.....	3	.....	.....	.....	16	19
Wound of the upper extremities	1	23	18	6	.....	.....	.....	159	183
Fracture of the clavicle	.....	3	3	.....	.....	.....	.....	.....	3
Fracture of the humerus	1	.....	.....	.....	1	.....	.....	.....	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

SOUTH ATLANTIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Fracture of the radius		1			1			3	4
Fracture of both bones of forearm		3	2				1	1	4
Fracture of carpus, metacarpus, and phalanges		1	1						1
Dislocation of the humerus		3	2	1					3
Dislocation of the phalanges of fingers		2	1	1					2
Contusion of the lower extremities		10	10					20	30
Sprain of the hip		1			1				1
Sprain of the knee								7	7
Sprain of the ankle		8	4	4				28	36
Wound of joint, lower extremities	1	15	12	3	1			36	52
Fracture of femur		3	2	1					3
Fracture of cervix femoris		1		1					1
Fracture of patella		1	1					1	2
Fracture of leg, both bones		3	1	2					3
Fracture of fibula alone		1	1						1
Fracture of metatarsus		1		1					1
Dislocation of the femur at the hip	1			1					1
Dislocation of the foot at the ankle	1		1						1

THE GULF.

TOTAL CASES	70	1,307	845	396	38	40	58	4,856	6,233
General Diseases	34	637	429	191	13	17	21	2,340	3,011
Smallpox		3			3			7	10
Cowpox		2	2					282	284
Chicken pox								3	3
Measles		1	1					1	2
Epidemic rose rash		1					1		1
Dengue		1	1					3	4
Influenza		6	4	2				46	52
Mumps								1	1
Simple continued fever		4	4					1	5
Enteric fever		5	4				1		5
Typhomalarial fever		2	2						2
Sporadic cholera								1	1
Dysentery	5	31	28	5		3		56	92
Malarial intermittent fever	10	223	221	11			1	408	641
Malarial remittent fever	2	52	42	7	1	2	2	31	85
Malarial cachexia	1	26	21	5			1	129	156
Phagedæna		1		1					1
Erysipelas:									
Simple		1	1						1
Phlegmonous		1	1						1
Syphilis:									
Primary		10	1	9				31	41
Secondary	2	84		79	2		5	417	508
Gonorrhœa		21	13	8				369	390
Animal parasites		1	1					2	3
Effects of excessive venery								4	4
Effects of heat	1	3	4					4	8
Effects of cold		1	1					3	4
Scurvy		1		1				2	3
Alcoholism		13	10	1	1		1	12	25
Debility		10	8		1	1		62	72
Rheumatic fever	1	11	9	2			1	2	14

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
General Diseases—Continued.									
Rheumatism	4	87	49	35	2	1	4	397	488
Gout	.....	.....	.....	.....	.....	.....	.....	1	1
Cysts	.....	.....	.....	.....	.....	.....	.....	1	1
Nonmalignant new growth	.....	3	.....	2	.....	.....	1	11	14
Malignant new growth	.....	.....	.....	.....	.....	.....	.....	2	2
Tubercle	7	31	.....	22	3	10	3	45	83
Scrofula	1	.....	.....	1	.....	.....	.....	.....	1
Anæmia	.....	.....	.....	.....	.....	.....	.....	5	5
Diabetes mellitus	.....	1	1	.....	.....	.....	.....	1	2
Local Diseases	**30**	**515**	**299**	**170**	**24**	**20**	**32**	**2,075**	**2,620**
DISEASES OF THE NERVOUS SYSTEM	3	14	5	8	.....	.....	4	119	136
Hæmorrhage, cerebral	1	2	.....	1	.....	.....	2	.....	3
Spinal meningitis	1	.....	.....	.....	.....	.....	1	.....	1
Myelitis	.....	.....	.....	.....	.....	.....	.....	1	1
Neuritis	.....	3	2	.....	.....	.....	1	5	8
Locomotor ataxy	.....	1	.....	1	.....	.....	.....	.....	1
Paralysis	.....	.....	.....	.....	.....	.....	.....	6	6
Hemiplegia	1	1	.....	2	.....	.....	.....	2	4
Local paralysis	.....	2	.....	2	.....	.....	.....	2	4
Spasm of muscle	.....	.....	.....	.....	.....	.....	.....	4	4
Wryneck	.....	.....	.....	.....	.....	.....	.....	1	1
Hyperæsthesia, local	.....	1	1	.....	.....	.....	.....	.....	1
Neuralgia	.....	1	1	.....	.....	.....	.....	61	62
Facial	.....	1	1	.....	.....	.....	.....	2	3
Sciatica	.....	.....	.....	.....	.....	.....	.....	6	6
Vertigo	.....	1	.....	1	.....	.....	.....	16	17
Megrim	.....	.....	.....	.....	.....	.....	.....	7	7
Epilepsy	.....	1	.....	1	.....	.....	.....	6	7
MENTAL DISEASES	2	7	3	1	4	.....	1	.....	9
Hypochondriasis	.....	3	2	1	.....	.....	.....	.....	3
Insanity	1	1	.....	.....	2	.....	.....	.....	2
Mania	1	1	.....	.....	1	.....	1	.....	2
Dementia	.....	2	1	.....	1	.....	.....	.....	2
DISEASES OF THE EYE	.....	10	5	3	.....	.....	2	45	55
Conjunctivitis	.....	4	2	1	.....	.....	1	25	29
Ulcer of cornea	.....	.....	.....	.....	.....	.....	.....	3	3
Iritis	.....	2	1	.....	.....	.....	1	2	4
Retinitis	.....	1	.....	1	.....	.....	.....	.....	1
Cataract	.....	2	1	1	.....	.....	.....	7	9
Asthenopia	.....	.....	.....	.....	.....	.....	.....	2	2
Muscæ volitantes	.....	.....	.....	.....	.....	.....	.....	1	1
Abscess of lachrymal gland	.....	.....	.....	.....	.....	.....	.....	1	1
Hæmatoma	.....	1	1	.....	.....	.....	.....	.....	1
Bleareye	.....	.....	.....	.....	.....	.....	.....	1	1
Sty	.....	.....	.....	.....	.....	.....	.....	2	2
Abscess of eyelid	.....	.....	.....	.....	.....	.....	.....	1	1
DISEASES OF THE EAR	.....	1	1	.....	.....	.....	.....	31	32
Inflammation of the external meatus—acute	.....	1	1	.....	.....	.....	.....	1	2
Accumulation of wax	.....	.....	.....	.....	.....	.....	.....	15	15
Inflammation of the middle ear	.....	.....	.....	.....	.....	.....	.....	15	15
DISEASES OF THE NOSE	.....	5	3	2	.....	.....	.....	24	29
Hypertrophy	.....	1	.....	1	.....	.....	.....	1	2
Epistaxis	.....	.....	.....	.....	.....	.....	.....	1	1
Inflammation	.....	1	1	.....	.....	.....	.....	4	5
Nasal catarrh	.....	3	2	1	.....	.....	.....	18	21

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE CIRCULATORY SYSTEM	3	23	1	16	2	6	1	60	86
Pericarditis	.....	.....	.....	.....	.....	.....	.....	1	1
Valvular disease:									
Aortic	.....	2	.....	.....	.....	2	.....	4	6
Mitral	3	10	.....	9	2	2	.....	29	42
Hypertrophy of heart	.....	.....	.....	.....	.....	.....	.....	2	2
Palpitation and irregular action of heart	.....	1	1	.....	.....	.....	.....	17	18
Degeneration of arteries	.....	2	.....	1	.....	.....	1	.....	2
Aneurysm of arteries	.....	1	.....	.....	.....	1	.....	1	2
Obstruction of arteries	.....	1	.....	.....	.....	1	.....	.....	1
Phlebitis	.....	.....	.....	.....	.....	.....	.....	1	1
Varix	.....	6	.....	6	.....	.....	.....	5	11
DISEASES OF THE RESPIRATORY SYSTEM	4	71	42	32	2	7	2	399	474
Laryngitis, acute	.....	3	1	2	.....	.....	.....	6	9
Bronchitis:									
Acute	.....	18	13	3	.....	.....	2	325	343
Chronic	2	6	1	6	1	.....	.....	33	41
Catarrhal	.....	1	1	.....	.....	.....	.....	11	12
Spasmodic asthma	.....	8	2	6	.....	.....	.....	6	14
Hæmorrhage of lung	.....	1	.....	1	.....	.....	.....	.....	1
Pneumonia	1	27	19	2	.....	7	.....	4	32
Pleurisy:									
Acute	1	3	4	.....	.....	.....	.....	13	17
Chronic	.....	4	1	2	1	.....	.....	1	5
DISEASES OF THE DIGESTIVE SYSTEM	7	147	100	32	9	4	9	724	878
Ulcer of the lips	.....	.....	.....	.....	.....	.....	.....	1	1
Stomatitis	.....	.....	.....	.....	.....	.....	.....	2	2
Caries of dentine and cementum	.....	.....	.....	.....	.....	.....	.....	48	48
Necrosis of dentine and cementum	.....	.....	.....	.....	.....	.....	.....	5	5
Abscess of dental periosteum	.....	.....	.....	.....	.....	.....	.....	1	1
Inflammation of gums and alveoli	.....	.....	.....	.....	.....	.....	.....	1	1
Ulceration of gums and alveoli	.....	.....	.....	.....	.....	.....	.....	2	2
Toothache	.....	.....	.....	.....	.....	.....	.....	4	4
Elongated uvula	.....	.....	.....	.....	.....	.....	.....	3	3
Sore throat	.....	.....	.....	.....	.....	.....	.....	18	18
Quinsy	.....	.....	.....	.....	.....	.....	.....	1	1
Follicular tonsilitis	.....	6	4	2	.....	.....	.....	15	21
Ulceration of fauces	.....	2	2	.....	.....	.....	.....	.....	2
Salivation	.....	.....	.....	.....	.....	.....	.....	1	1
Follicular inflammation of the pharynx	.....	.....	.....	.....	.....	.....	.....	13	13
Post-pharyngeal abscess	.....	2	2	.....	.....	.....	.....	1	3
Stricture of œsophagus	.....	1	.....	.....	1	.....	.....	.....	1
Inflammation of the stomach	1	17	13	3	1	.....	1	18	36
Ulceration of the stomach	2	3	1	3	1	.....	.....	1	6
Dyspepsia	.....	3	1	.....	.....	1	1	135	138
Inflammation of the intestines:									
Catarrhal	.....	22	18	1	.....	.....	3	14	36
Ulcerative	.....	5	2	2	.....	1	.....	4	9
Obstruction of the intestines	.....	2	2	.....	.....	.....	.....	.....	2
Hernia	.....	8	2	5	.....	.....	1	103	111
Diarrhœa	.....	23	21	2	.....	.....	.....	109	132
Constipation	.....	1	1	.....	.....	.....	.....	90	91
Colic	1	.....	.....	1	.....	.....	.....	24	25
Abscess of the rectum	1	2	2	1	.....	.....	.....	5	8

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Ulceration of the rectum	.....	5	1	3	1	....	.....	1	6
Piles:									
Internal	.....	2	1	.....	.....	....	1	24	26
External	1	12	5	3	5	....	.....	9	22
Prolapsus of the rectum	.....	1	.....	1	.....	....	.....	.....	1
Fistula in ano	1	3	4	.....	.....	....	.....	2	6
Hypertrophy of the liver	.....	.....	.....	.....	.....	....	.....	3	3
Congestion of the liver	.....	18	15	2	.....	1	.....	54	72
Hepatitis	.....	.....	.....	.....	.....	....	.....	1	1
Cirrhosis of liver	.....	4	.....	2	.....	1	1	.....	4
Abscess of liver	.....	1	1	.....	.....	....	.....	.....	1
Jaundice	.....	2	1	.....	.....	....	1	6	8
Inflammation of hepatic ducts and gall bladder	.....	1	1	.....	.....	....	.....	3	4
Gallstones	.....	.....	.....	.....	.....	....	.....	2	2
Ascites	.....	1	.....	1	.....	....	.....	.....	1
DISEASES OF THE LYMPHATIC SYSTEM	.....	33	23	3	3	....	4	37	70
Hypertrophy of the spleen	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of lymph glands	.....	17	13	1	2	....	1	20	37
Suppuration of lymph glands	.....	16	10	2	1	....	3	16	32
DISEASES OF THE THYROID BODY	.....	1	.....	1	.....	....	.....	1	2
Goitre	.....	1	.....	1	.....	....	.....	1	2
DISEASES OF THE URINARY SYSTEM	2	16	5	10	2	1	.....	34	52
Acute nephritis	.....	1	.....	1	.....	....	.....	1	2
Bright's disease	1	6	.....	5	1	1	.....	6	13
Calculus in ureter	.....	1	1	.....	.....	....	.....	1	2
Nephralgia	1	.....	1	.....	.....	....	.....	.....	1
Diabetes insipidus	.....	1	.....	1	.....	....	.....	2	3
Suppression of urine	.....	.....	.....	.....	.....	....	.....	1	1
Hæmaturia	.....	1	.....	1	.....	....	.....	1	2
Chyluria	.....	.....	.....	.....	.....	....	.....	1	1
Hæmorrhage of bladder	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of bladder:									
Acute	.....	5	3	1	1	....	.....	17	22
Chronic	.....	1	.....	1	.....	....	.....	2	3
Distention of the bladder	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE GENERATIVE SYSTEM	6	106	58	47	1	1	5	271	383
Urethritis	.....	.....	.....	.....	.....	....	.....	16	16
Gleet	.....	.....	.....	.....	.....	....	.....	16	16
Stricture of urethra, organic	1	24	7	15	.....	1	2	58	83
Hypertrophy of prostate gland	.....	.....	.....	.....	.....	....	.....	5	5
Chronic inflammation of prostate gland	.....	.....	.....	.....	.....	....	.....	1	1
Ulcer of penis	3	57	30	26	1	....	3	117	177
Phimosis	.....	3	3	.....	.....	....	.....	2	5
Paraphimosis	.....	.....	.....	.....	.....	....	.....	1	1
Abscess of the scrotum	.....	.....	.....	.....	.....	....	.....	1	1
Pruritus of the scrotum	.....	.....	.....	.....	.....	....	.....	1	1
Varicocele	.....	1	1	.....	.....	....	.....	10	11
Hydrocele of tunica vaginalis	.....	1	1	.....	.....	....	.....	2	3
Inflammation of tunica vaginalis	.....	.....	.....	.....	.....	....	.....	1	1
Orchitis:									
Acute	1	11	8	4	.....	....	.....	16	28
Chronic	.....	1	.....	1	.....	....	.....	5	6

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE GENERATIVE SYSTEM—Continued.									
Epididymitis	1	8	8	1	.....	....	.....	13	22
Spermatorrhœa	.....	.....	.....	.....	.....	....	.....	1	1
Impotence	.....	.....	.....	.....	.....	....	.....	4	4
Inflammation of the male breast	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE ORGANS OF LOCOMOTION	.....	12	5	4	.....	1	2	27	39
Ostitis	.....	1	.....	1	.....	....	.....	.....	1
Periostitis	.....	1	1	.....	.....	....	.....	6	7
Necrosis	.....	4	2	.....	.....	1	1	6	10
Ununited fracture, or false joint	.....	.....	.....	.....	.....	....	.....	6	6
Dropsy of joints	.....	1	.....	1	.....	....	.....	.....	1
Synovitis:									
Acute	.....	1	1	.....	.....	....	.....	2	3
Chronic	.....	2	1	.....	.....	....	1	.....	2
Abscess of joints	.....	1	.....	1	.....	....	.....	.....	1
Loose body in joint	.....	.....	.....	.....	.....	....	.....	2	2
Inflammation of muscles	.....	.....	.....	.....	.....	....	.....	1	1
Inflamed bursa	.....	.....	.....	.....	.....	....	.....	4	4
Bunion	.....	1	.....	1	.....	....	.....	.....	1
DISEASES OF THE CONNECTIVE TISSUE	.....	49	34	15	.....	....	.....	65	114
Œdema	.....	1	1	.....	.....	....	.....	3	4
Inflammation	.....	9	5	4	.....	....	.....	11	20
Abscess	.....	39	28	11	.....	....	.....	51	90
DISEASES OF THE SKIN	3	20	14	6	1	....	2	223	246
Erythema	.....	.....	.....	.....	.....	....	.....	5	5
Urticaria	.....	.....	.....	.....	.....	....	.....	4	4
Eczema	1	4	2	2	1	....	.....	36	41
Impetigo	.....	.....	.....	.....	.....	....	.....	2	2
Ecthyma	.....	.....	.....	.....	.....	....	.....	4	4
Lichen	.....	.....	.....	.....	.....	....	.....	1	1
Miliaria	1	.....	1	.....	.....	....	.....	.....	1
Herpes	.....	.....	.....	.....	.....	....	.....	6	6
Zona	.....	.....	.....	.....	.....	....	.....	3	3
Pemphigus	.....	.....	.....	.....	.....	....	.....	1	1
Acne	.....	.....	.....	.....	.....	....	.....	1	1
Sycosis	.....	.....	.....	.....	.....	....	.....	1	1
Steatorrhœa	.....	.....	.....	.....	.....	....	.....	1	1
Chilblain	.....	.....	.....	.....	.....	....	.....	28	28
Erostbite	.....	1	1	.....	.....	....	.....	3	4
Ulcer	1	11	9	2	.....	....	1	71	83
Boil	.....	1	.....	.....	.....	....	1	31	32
Carbuncle	.....	.....	.....	.....	.....	....	.....	1	1
Whitlow	.....	.....	.....	.....	.....	....	.....	11	11
Onychia	.....	.....	.....	.....	.....	....	.....	3	3
Corn	.....	.....	.....	.....	.....	....	.....	1	1
Lupus	.....	3	1	2	.....	....	.....	1	4
Wen	.....	.....	.....	.....	.....	....	.....	3	3
Moluscum	.....	.....	.....	.....	.....	....	.....	1	1
Pruritus	.....	.....	.....	.....	.....	....	.....	4	4
PARASITIC DISEASES OF THE SKIN	.....	.....	.....	.....	.....	....	.....	15	15
Ringworm	.....	.....	.....	.....	.....	....	.....	8	8
Itch	.....	.....	.....	.....	.....	....	.....	3	3
Phthiriasis	.....	.....	.....	.....	.....	....	.....	4	4

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Poisons	.....	**1**	**1**	.....	.....	.....	.....	**5**	**6**
Lead colic	.....	1	1	.....	.....	.....	.....	.....	1
Acids and acid salts	.....	.....	.....	.....	.....	.....	.....	1	1
Vegetable poisons	.....	.....	.....	.....	.....	.....	.....	3	3
Animal poisons	.....	.....	.....	.....	.....	.....	.....	1	1
Injuries	**6**	**154**	**116**	**35**	**1**	**3**	**5**	**436**	**596**
GENERAL INJURIES	.....	15	10	3	.....	1	1	22	37
Burns and scalds	.....	12	10	2	.....	.....	.....	18	30
Heat stroke	.....	1	.....	.....	.....	1	.....	2	3
Multiple injury	.....	2	.....	1	.....	.....	1	1	3
Privation	.....	.....	.....	.....	.....	.....	.....	1	1
LOCAL INJURIES	6	139	106	32	1	2	4	414	559
Bruise of muscles	.....	2	2	.....	.....	.....	.....	3	5
Strain of muscles	.....	2	2	.....	.....	.....	.....	4	6
Abrasion of skin	.....	.....	.....	.....	.....	.....	.....	4	4
Foreign body in subcutaneous tissue	.....	.....	.....	.....	.....	.....	.....	2	2
Contusion of scalp	.....	1	2	.....	.....	.....	.....	1	2
Scalp wound, bone not exposed	.....	3	2	1	.....	.....	.....	20	23
Contusion of skull	.....	1	1	.....	.....	.....	.....	.....	1
Concussion of brain	.....	1	.....	1	.....	.....	.....	.....	1
Contusion of face	.....	1	1	.....	.....	.....	.....	1	2
Wound of face and mouth	.....	2	1	1	.....	.....	.....	15	17
Contusion of the eye	1	.....	1	.....	.....	.....	.....	2	3
Foreign body in cornea or conjunctiva	.....	.....	.....	.....	.....	.....	.....	4	4
Wound of eyelid	.....	.....	.....	.....	.....	.....	.....	1	1
Wound of the cornea	.....	.....	.....	.....	.....	.....	.....	1	1
Wound of neck	.....	1	1	.....	.....	.....	.....	1	2
Contusion of the chest	.....	5	2	3	.....	.....	.....	16	21
Fracture of the ribs	.....	4	2	2	.....	.....	.....	11	15
Wound of parietes of chest	.....	.....	.....	.....	.....	.....	.....	2	2
Perforating wound of chest	.....	.....	.....	.....	.....	.....	.....	1	1
Contusion of back	.....	4	4	.....	.....	.....	.....	23	27
Sprain of back	2	8	10	.....	.....	.....	.....	31	41
Wound of back	.....	2	1	1	.....	.....	.....	1	3
Contusion of abdomen	.....	3	2	1	.....	.....	.....	2	5
Wound of parietes of abdomen	.....	.....	.....	.....	.....	.....	.....	1	1
Contusion of the pelvis	.....	.....	.....	.....	.....	.....	.....	1	1
Contusion of the urethra, perineum, scrotum, and penis	.....	.....	.....	.....	.....	.....	.....	1	1
Rupture of urethra	.....	1	1	.....	.....	.....	.....	.....	1
Foreign body in the rectum	.....	1	1	.....	.....	.....	.....	.....	1
Contusion of testicle	.....	.....	.....	.....	.....	.....	.....	1	1
Contusion of upper extremities	.....	10	4	5	.....	.....	1	26	33
Sprain of the shoulder	.....	.....	.....	.....	.....	.....	.....	9	9
Sprain of the elbow	.....	.....	.....	.....	.....	.....	.....	1	1
Sprain of the wrist	.....	1	.....	1	.....	.....	.....	10	11
Wound of the upper extremities	.....	9	8	.....	.....	.....	1	93	102
Fracture of the clavicle	.....	2	2	.....	.....	.....	.....	.....	2
Fracture of the radius	.....	6	2	3	1	.....	.....	3	9
Fracture of the ulna	.....	1	.....	1	.....	.....	.....	.....	1
Fracture of carpus, metacarpus, and phalanges	.....	2	2	.....	.....	.....	.....	3	5
Dislocation of the clavicle	.....	.....	.....	.....	.....	.....	.....	2	2
Dislocation of the humerus	.....	4	4	.....	.....	.....	.....	1	5
Dislocation of the phalanges of fingers	.....	1	.....	1	.....	.....	.....	.....	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GULF—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Contusion of the lower extremities	3	24	23	3	.....	1	.....	57	84
Sprain of the hip	.....	1	1	.....	.....	.....	.....	2	3
Sprain of the knee	.....	3	3	.....	.....	.....	.....	7	10
Sprain of the ankle	.....	3	3	.....	.....	.....	.....	9	12
Sprain of the foot	.....	.....	.....	.....	.....	.....	.....	1	1
Wound of the lower extremities	.....	18	13	5	.....	.....	.....	39	57
Fracture of femur	.....	4	2	1	.....	.....	1	.....	4
Fracture of leg, both bones	.....	2	1	.....	.....	1	.....	.....	2
Fracture of tibia alone	.....	1	1	.....	.....	.....	.....	.....	1
Fracture of fibula alone	.....	2	.....	1	.....	.....	1	.....	2
Fracture of metatarsus	.....	2	1	1	.....	.....	.....	1	3
Fracture of phalanges of toes	.....	1	1	.....	.....	.....	.....	.....	1

THE OHIO.

TOTAL CASES	78	939	617	295	20	33	52	3,276	4,293
General Diseases	37	375	223	134	7	16	32	1,428	1,840
Cowpox	.....	2	2	.....	.....	.....	.....	2	4
Measles	.....	.....	.....	.....	.....	.....	.....	1	1
Influenza	1	45	39	6	.....	1	.....	104	150
Mumps	.....	1	1	.....	.....	.....	.....	.....	1
Diphtheria	.....	.....	.....	.....	.....	.....	.....	1	1
Enteric fever	5	20	19	2	.....	3	1	.....	25
Typhomalarial fever	.....	2	1	.....	.....	.....	1	.....	2
Sporadic cholera	.....	1	1	.....	.....	.....	.....	.....	1
Dysentery	.....	13	9	3	.....	.....	1	28	41
Malarial intermittent fever	5	55	50	5	.....	.....	5	233	293
Malarial remittent fever	3	27	24	3	.....	2	1	14	44
Malarial cachexia	.....	.....	.....	.....	.....	.....	.....	2	2
Erysipelas, simple	1	1	2	.....	.....	.....	.....	.....	2
Syphilis:									
Primary	2	9	6	5	.....	.....	.....	11	22
Secondary	2	52	2	45	1	.....	6	298	352
Gonorrhœa	2	19	10	10	.....	.....	1	299	320
Animal parasites	.....	.....	.....	.....	.....	.....	.....	2	2
Alcoholism	.....	9	5	3	1	.....	.....	3	12
Delirium tremens	.....	4	2	2	.....	.....	.....	1	5
Debility	.....	3	1	2	.....	.....	.....	87	90
Old age	1	.....	.....	.....	.....	.....	1	.....	1
Rheumatic fever	2	6	6	1	.....	.....	1	.....	8
Rheumatism	7	65	39	27	1	.....	5	297	369
Nonmalignant new growth	.....	2	2	.....	.....	.....	.....	8	10
Malignant new growth	.....	4	.....	2	.....	1	1	.....	4
Tubercle	6	34	2	18	4	9	7	33	73
Scrofula	.....	.....	.....	.....	.....	.....	.....	2	2
Anæmia	.....	.....	.....	.....	.....	.....	.....	2	2
Diabetes mellitus	.....	1	.....	.....	.....	.....	1	.....	1
Local Diseases	34	415	278	128	11	16	16	1,652	2,101
DISEASES OF THE NERVOUS SYSTEM	6	14	5	8	2	2	3	109	129
Congestion of spinal cord	.....	.....	.....	.....	.....	.....	.....	1	1
Neuritis	.....	1	.....	1	.....	.....	.....	.....	1
Locomotor ataxy	2	4	.....	3	.....	.....	3	7	13
Paralysis	.....	.....	.....	.....	.....	.....	.....	1	1
Hemiplegia	1	1	.....	1	.....	1	.....	.....	2
Local paralysis	1	4	2	3	.....	.....	.....	1	6

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE NERVOUS SYSTEM—Continued.									
Neuralgia	1		1					94	95
Facial								3	3
Sciatica		1	1					2	3
Vertigo		1	1						1
Epilepsy	1	2			2	1			3
MENTAL DISEASES		2		2				2	4
Hypochondriasis								2	2
Insanity		2		2					2
DISEASES OF THE EYE		7	5	2				37	44
Conjunctivitis		5	3	2				25	30
Pterygium								2	2
Ulcer of cornea		1	1					1	2
Opacity of cornea								2	2
Ametropia								1	1
Sty								3	3
Chalazion		1	1					3	4
DISEASES OF THE EAR	1	1		2				13	15
Inflammation of the external meatus, acute								1	1
Accumulation of wax								3	3
Inflammation of the middle ear	1	1		2				8	10
Tinitus								1	1
DISEASES OF THE NOSE								51	51
Inflammation								3	3
Nasal catarrh								47	47
Perforation of the septum								1	1
DISEASES OF THE CIRCULATORY SYSTEM		20	3	11	1	4	1	36	56
Valvular disease:									
Aortic		6		4		2			6
Mitral		8		4	1	2	1	18	26
Angina pectoris								1	1
Palpitation and irregular action of heart		1		1				13	14
Aneurysm of arteries		2		2				1	3
Phlebitis		2	2						2
Varix		1	1					3	4
DISEASES OF THE RESPIRATORY SYSTEM	1	77	53	20		4	1	270	348
Hay asthma								1	1
Laryngitis, acute		1		1				10	11
Bronchitis:									
Acute	1	24	20	5				216	241
Chronic		2		2				20	22
Catarrhal		1	1					1	2
Spasmodic asthma		9		8			1	14	23
Pneumonia		38	30	4		4		4	42
Pleurisy:									
Acute		2	2					3	5
Chronic								1	1
DISEASES OF THE DIGESTIVE SYSTEM	9	118	92	30	2	2	1	630	757
Fissure of the lips		1	1						1
Stomatitis								8	8
Abscess of the antrum		1		1					1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Caries of dentine and cementum	.....	1	1	.....	.....	.....	.....	2	3
Abscess of dental periosteum	.....	.....	.....	.....	.....	.....	.....	1	1
Inflammation of gums and alveoli	.....	.....	.....	.....	.....	.....	.....	2	2
Suppuration of the alveoli	.....	.....	.....	.....	.....	.....	.....	1	1
Toothache	.....	.....	.....	.....	.....	.....	.....	3	3
Ulcer of the tongue	.....	.....	.....	.....	.....	.....	.....	1	1
Sore throat	.....	.....	.....	.....	.....	.....	.....	2	2
Quinsy	.....	4	4	.....	.....	.....	.....	2	6
Follicular tonsilitis	.....	5	5	.....	.....	.....	.....	33	28
Follicular inflammation of the pharynx	.....	2	2	.....	.....	.....	.....	14	16
Inflammation of the stomach	1	20	13	8	.....	.....	.....	17	38
Ulceration of the stomach	.....	.....	.....	.....	.....	.....	.....	2	2
Dyspepsia	.....	.....	.....	.....	.....	.....	.....	199	199
Inflammation of the intestines:									
Catarrhal	4	25	22	6	.....	1	.....	15	44
Ulcerative	.....	12	10	2	.....	.....	.....	.....	12
Hernia	.....	4	2	2	.....	.....	.....	54	58
Diarrhœa	1	25	22	3	.....	.....	1	106	132
Constipation	.....	3	3	.....	.....	.....	.....	102	105
Colic	.....	1	1	.....	.....	.....	.....	5	6
Ulceration of the anus	.....	1	.....	1	.....	.....	.....	.....	1
Piles:									
Internal	1	2	2	1	.....	.....	.....	8	11
External	.....	1	.....	.....	1	.....	.....	31	32
Fistula in ano	1	2	2	.....	1	.....	.....	3	6
Fissure of the anus	.....	.....	.....	.....	.....	.....	.....	3	3
Hypertrophy of the liver	.....	.....	.....	.....	.....	.....	.....	1	1
Atrophy of the liver	.....	.....	.....	.....	.....	.....	.....	3	3
Congestion of the liver	1	.....	.....	1	.....	.....	.....	2	3
Hepatitis	.....	.....	.....	.....	.....	.....	.....	13	13
Cirrhosis of liver	.....	4	.....	3	.....	1	.....	1	5
Jaundice	.....	3	2	1	.....	.....	.....	6	9
Peritonitis	.....	1	.....	1	.....	.....	.....	.....	1
DISEASES OF THE LYMPHATIC SYSTEM	1	27	20	8	.....	.....	.....	33	61
Hypertrophy of lymph glands	.....	.....	.....	.....	.....	.....	.....	2	2
Inflammation of lymph glands	1	13	9	5	.....	.....	.....	21	35
Suppuration of lymph glands	.....	14	11	3	.....	.....	.....	10	24
DISEASES OF THE URINARY SYSTEM	2	17	6	9	2	1	1	61	80
Atrophy of the kidney	.....	.....	.....	.....	.....	.....	.....	1	1
Bright's disease	1	4	3	1	.....	.....	.....	6	11
Pyelitis	.....	10	.....	7	2	1	1	6	16
Abscess of kidney	.....	.....	.....	.....	.....	.....	.....	4	4
Diabetes insipidus	.....	.....	.....	.....	.....	.....	.....	8	8
Suppression of urine	.....	.....	.....	.....	.....	.....	.....	1	1
Hæmaturia	.....	.....	.....	.....	.....	.....	.....	2	2
Lithuria	.....	.....	.....	.....	.....	.....	.....	6	6
Inflammation of bladder:									
Acute	1	2	2	1	.....	.....	.....	19	22
Subacute	.....	1	1	.....	.....	.....	.....	1	2
Calculus of bladder	.....	.....	.....	.....	.....	.....	.....	1	1
Irritability of bladder	.....	.....	.....	.....	.....	.....	.....	2	2
Incontinence of urine	.....	.....	.....	.....	.....	.....	.....	4	4
DISEASES OF THE GENERATIVE SYSTEM	6	75	61	16	1	1	2	186	267
Urethritis	.....	.....	.....	.....	.....	.....	.....	2	2
Gleet	.....	.....	.....	.....	.....	.....	.....	4	4

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE GENERATIVE SYSTEM—Continued.									
Stricture of urethra, organic	2	12	11	2	1	....	.....	39	53
Hypertrophy of prostate gland	.....	1	.....	.....	.....	1	.....	1	2
Inflammation of glans penis	.....	.....	.....	.....	.....	....	.....	4	4
Ulcer of penis	3	43	35	9	.....	....	2	73	119
Phimosis	1	.....	.....	1	.....	....	.....	.....	1
Paraphimosis	.....	.....	.....	.....	.....	....	.....	1	1
Varicocele	.....	.....	.....	.....	.....	....	.....	5	5
Hydrocele of tunica vaginalis	.....	1	1	.....	.....	....	.....	4	5
Orchitis:									
Acute	.....	9	6	3	.....	....	.....	21	30
Chronic	.....	1	.....	1	.....	....	.....	3	4
Epididymitis	.....	3	3	.....	.....	....	.....	6	9
Spermatorrhœa	.....	.....	.....	.....	.....	....	.....	1	1
Impotence	.....	.....	.....	.....	.....	....	.....	3	3
Hæmorrhage of the uterus	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of the ovary	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of the uterus	.....	2	2	.....	.....	....	.....	15	17
Antiflexion of the uterus	.....	1	1	.....	.....	....	.....	.....	1
Fistula of the vagina	.....	1	1	.....	.....	....	.....	.....	1
Amenorrhœa	.....	.....	.....	.....	.....	....	.....	1	1
Leucorrhœa	.....	.....	.....	.....	.....	....	.....	1	1
Abortion	.....	1	1	.....	.....	....	.....	.....	1
DISEASES OF THE ORGANS OF LOCOMOTION	4	17	6	10	2	1	2	14	35
Osteo-myelitis	1	.....	.....	1	.....	....	.....	.....	1
Caries	.....	1	.....	1	.....	....	.....	.....	1
Necrosis	1	3	1	2	.....	....	1	2	6
Synovitis:									
Acute	.....	4	3	1	.....	....	.....	.....	4
Chronic	.....	2	.....	.....	1	....	1	.....	2
Angular curvature of spine	2	2	.....	2	1	1	.....	4	8
Inflammation of muscles	.....	2	.....	.....	.....	....	.....	.....	2
Inflammation of tendons	.....	2	2	.....	.....	....	.....	7	9
Inflamed bursa	.....	1	.....	1	.....	....	.....	.....	1
Bunion	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE CONNECTIVE TISSUE	.....	10	9	.....	.....	1	.....	18	28
Œdema	.....	1	.....	.....	.....	1	.....	.....	1
Inflammation	.....	.....	.....	.....	.....	....	.....	1	1
Abscess	.....	9	9	.....	.....	....	.....	17	26
DISEASES OF THE SKIN	4	29	17	10	1	....	5	186	219
Erythema	.....	.....	.....	.....	.....	....	.....	18	18
Urticaria	.....	1	.....	.....	1	....	.....	2	3
Eczema	.....	1	.....	1	.....	....	.....	42	43
Impetigo	.....	1	.....	1	.....	....	.....	.....	1
Pityriasis	.....	.....	.....	.....	.....	....	.....	2	2
Psoriasis	.....	.....	.....	.....	.....	....	.....	1	1
Miliaria	.....	.....	.....	.....	.....	....	.....	1	1
Herpes	.....	.....	.....	.....	.....	....	.....	15	15
Zona	.....	.....	.....	.....	.....	....	.....	3	3
Acne	.....	.....	.....	.....	.....	....	.....	5	5
Frostbite	.....	4	4	.....	.....	....	.....	4	8
Ulcer	4	15	8	7	.....	....	4	52	71
Fissures	.....	1	1	.....	.....	....	.....	.....	1
Boil	.....	.....	.....	.....	.....	....	.....	25	25
Carbuncle	.....	4	3	.....	.....	....	1	4	8
Whitlow	.....	2	1	1	.....	....	.....	9	11

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE SKIN—Continued.									
Onychia	.....	.....	.....	.....	.....	.....	.....	1	1
Corn	.....	.....	.....	.....	.....	.....	.....	1	1
Pruritus	.....	.....	.....	.....	.....	.....	.....	1	1
PARASITIC DISEASES OF THE SKIN	.....	1	1	.....	.....	.....	.....	6	7
Ringworm	.....	.....	.....	.....	.....	.....	.....	3	3
Itch	.....	1	1	.....	.....	.....	.....	4	5
Poisons	.....	.....	.....	.....	.....	.....	.....	**1**	**1**
Lead colic	.....	.....	.....	.....	.....	.....	.....	1	1
Injuries	**7**	**149**	**116**	**33**	**2**	**1**	**4**	**195**	**351**
GENERAL INJURIES	.....	12	10	1	.....	.....	1	8	20
Burns and scalds	.....	12	10	1	.....	.....	1	8	20
LOCAL INJURIES	7	137	106	32	2	1	3	187	331
Strain of nerves	.....	1	.....	1	.....	.....	.....	.....	1
Strain of muscles	.....	5	5	.....	.....	.....	.....	16	21
Strain of tendons	.....	.....	.....	.....	.....	.....	.....	2	2
Abrasion of skin	.....	.....	.....	.....	.....	.....	.....	1	1
Contusion of scalp	.....	.....	.....	.....	.....	.....	.....	1	1
Scalp wound, bone not exposed	.....	6	3	3	.....	.....	.....	4	10
Contusion of face	.....	1	.....	.....	.....	1	.....	.....	1
Wound of face and mouth	.....	6	4	2	.....	.....	.....	5	11
Fracture of facial bones	.....	1	1	.....	.....	.....	.....	.....	1
Foreign body in cornea or conjunctiva	.....	.....	.....	.....	.....	.....	.....	2	2
Wound of the cornea	.....	.....	.....	.....	.....	.....	.....	1	1
Obstruction of lachrymal duct	.....	1	.....	1	.....	.....	.....	.....	1
Wound of neck	.....	3	2	1	.....	.....	.....	.....	3
Contusion of the chest	.....	.....	.....	.....	.....	.....	.....	1	1
Fracture of the ribs	.....	3	.....	2	.....	.....	1	.....	3
Fracture of the sternum	.....	1	.....	1	.....	.....	.....	.....	1
Wound of parietes of chest	.....	1	1	.....	.....	.....	.....	.....	1
Contusion of back	.....	4	4	.....	.....	.....	.....	.....	4
Sprain of back	1	2	2	1	.....	.....	.....	3	6
Wound of back	.....	2	2	.....	.....	.....	.....	1	3
Contusion of abdomen	.....	1	1	.....	.....	.....	.....	.....	1
Wound of parietes of abdomen	.....	1	1	.....	.....	.....	.....	.....	1
Contusion of upper extremities	.....	5	5	.....	.....	.....	.....	18	23
Sprain of the shoulder	.....	1	1	.....	.....	.....	.....	3	4
Sprain of the elbow	.....	1	1	.....	.....	.....	.....	.....	1
Sprain of the wrist	.....	3	2	1	.....	.....	.....	9	12
Wound of the upper extremities	.....	19	17	2	.....	.....	.....	57	76
Fracture of the humerus	.....	.....	.....	.....	.....	.....	.....	2	2
Fracture of the radius	.....	1	.....	1	.....	.....	.....	1	2
Fracture of both bones of forearm	.....	1	1	.....	.....	.....	.....	.....	1
Fracture of carpus, metacarpus, and phalanges	.....	1	.....	1	.....	.....	.....	1	2
Dislocation of the clavicle	.....	1	.....	1	.....	.....	.....	.....	1
Dislocation of the humerus	.....	2	2	.....	.....	.....	.....	.....	2
Dislocation of the carpus	.....	1	.....	1	.....	.....	.....	.....	1
Dislocation of the phalanges of thumb	.....	.....	.....	.....	.....	.....	.....	1	1
Contusion of the lower extremities	3	15	17	1	.....	.....	.....	19	37
Sprain of the ankle	.....	3	3	.....	.....	.....	.....	5	8
Sprain of the foot	.....	10	5	3	.....	.....	2	19	29
Wound of the lower extremities	.....	3	3	.....	.....	.....	.....	.....	3
Wound of joint, lower extremities	1	24	19	6	.....	.....	.....	12	37

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE OHIO—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Fracture of femur	1	.....	.....	1	.....	.....	.....	.....	1
Fracture of leg, both bones	1	2	2	1	.....	.....	.....	.....	3
Fracture of tibia alone	.....	3	1	.....	2	.....	.....	.....	3
Fracture of fibula alone	.....	1	.....	1	.....	.....	.....	1	2
Fracture of metatarsus	.....	1	1	.....	.....	.....	.....	.....	1
Dislocation of the head of the fibula	.....	.....	.....	.....	.....	.....	.....	1	1
Dislocation of the foot at the ankle	.....	.....	.....	.....	.....	.....	.....	1	1

THE MISSISSIPPI.

TOTAL CASES	72	1,210	711	448	25	41	57	3,068	4,350
General Diseases	24	572	335	200	13	22	26	1,603	2,199
Smallpox	.....	3	.....	.....	2	1	.....	.....	3
Cowpox	.....	3	3	.....	.....	.....	.....	70	73
Measles	1	2	3	.....	.....	.....	.....	.....	3
Influenza	.....	8	5	2	.....	1	.....	72	80
Simple continued fever	1	.....	1	.....	.....	.....	.....	.....	1
Enteric fever	.....	9	9	.....	.....	.....	.....	.....	9
Dysentery	.....	31	22	6	.....	3	.....	20	51
Malarial intermittent fever	3	164	148	13	2	1	3	276	443
Malarial remittent fever	1	28	25	2	1	.....	1	21	50
Malarial cachexia	.....	15	8	7	.....	.....	.....	76	91
Erysipelas, simple	.....	2	2	.....	.....	.....	.....	1	3
Syphilis:									
Primary	1	13	2	12	.....	.....	.....	27	41
Secondary	3	95	.....	88	.....	1	9	349	447
Gonorrhœa	2	33	17	15	1	.....	2	299	334
Animal parasites	1	.....	1	.....	.....	.....	.....	.....	1
Effects of excessive venery	.....	.....	.....	.....	.....	.....	.....	1	1
Effects of cold	.....	1	1	.....	.....	.....	.....	.....	1
Alcoholism	.....	21	17	4	.....	.....	.....	9	30
Debility	.....	8	4	1	1	.....	2	8	16
Rheumatic fever	.....	2	1	.....	.....	.....	1	.....	2
Rheumatism	3	93	60	30	2	.....	4	273	369
Gout	.....	1	.....	1	.....	.....	.....	4	5
Nonmalignant new growth	1	3	3	1	.....	.....	.....	9	13
Malignant new growth	1	1	.....	1	.....	1	.....	.....	2
Tubercle	6	32	.....	17	4	14	3	61	99
Scrofula	.....	.....	.....	.....	.....	.....	.....	1	1
Anæmia	.....	4	3	.....	.....	.....	1	25	29
Diabetes mellitus	.....	.....	.....	.....	.....	.....	.....	1	1
Local Diseases	41	470	270	186	12	17	26	1,180	1,691
DISEASES OF THE NERVOUS SYSTEM	5	19	9	14	.....	.....	1	57	81
Hæmorrhage, cerebral	1	.....	.....	1	.....	.....	.....	.....	1
Myelitis	.....	1	.....	1	.....	.....	.....	.....	1
Sclerosis	1	.....	.....	1	.....	.....	.....	.....	1
Locomotor ataxy	1	.....	.....	.....	.....	.....	1	.....	1
Hemiplegia	.....	3	.....	3	.....	.....	.....	.....	3
Paraplegia	.....	1	.....	1	.....	.....	.....	.....	1
Spasm of muscle	.....	1	1	.....	.....	.....	.....	2	3
Paralysis agitans	1	.....	.....	1	.....	.....	.....	.....	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE NERVOUS SYSTEM—Continued.									
Neuralgia	1	10	6	5	.....	.....	.....	38	49
Facial	.....	.....	.....	.....	.....	.....	.....	5	5
Sciatica	.....	2	1	1	.....	.....	.....	.....	2
Vertigo	.....	1	1	.....	.....	.....	.....	6	7
Megrim	.....	.....	.....	.....	.....	.....	.....	6	6
MENTAL DISEASES	1	.....	.....	1	.....	.....	.....	5	6
Insanity	.....	.....	.....	.....	.....	.....	.....	4	4
Dementia	1	.....	.....	1	.....	.....	.....	1	2
DISEASES OF THE EYE	1	13	7	5	.....	.....	2	31	45
Conjunctivitis	.....	6	4	2	.....	.....	.....	23	29
Ulcer of cornea	.....	.....	.....	.....	.....	.....	.....	2	2
Iritis	.....	3	1	2	.....	.....	.....	2	5
Glaucoma	1	.....	1	.....	.....	.....	.....	.....	1
Atrophy of the retina	.....	1	.....	.....	.....	.....	1	.....	1
Cataract	.....	1	.....	.....	.....	.....	1	1	2
Amblyopia	.....	.....	.....	.....	.....	.....	.....	2	2
Squint	.....	.....	.....	.....	.....	.....	.....	1	1
Dacryocystitis	.....	1	.....	1	.....	.....	.....	.....	1
Chalazion	.....	1	1	.....	.....	.....	.....	.....	1
DISEASES OF THE EAR	.....	3	.....	1	.....	1	1	10	13
Inflammation of the external meatus, acute	.....	.....	.....	.....	.....	.....	.....	1	1
Abscess of the external meatus	.....	.....	.....	.....	.....	.....	.....	1	1
Accumulation of wax	.....	.....	.....	.....	.....	.....	.....	3	3
Inflammation of the middle ear	.....	3	.....	1	.....	1	1	5	8
DISEASES OF THE NOSE	.....	4	2	2	.....	.....	.....	36	40
Epistaxis	.....	2	2	.....	.....	.....	.....	.....	2
Inflammation	.....	.....	.....	.....	.....	.....	.....	13	13
Nasal catarrh	.....	1	.....	1	.....	.....	.....	14	15
Ulceration	.....	1	.....	1	.....	.....	.....	5	6
Ozæna	.....	.....	.....	.....	.....	.....	.....	2	2
Necrosis	.....	.....	.....	.....	.....	.....	.....	2	2
DISEASES OF THE CIRCULATORY SYSTEM	4	13	.....	15	.....	2	.....	37	54
Valvular disease:									
Aortic	.....	1	.....	1	.....	.....	.....	3	4
Mitral	4	10	.....	13	.....	1	.....	27	41
Hypertrophy of heart	.....	.....	.....	.....	.....	.....	.....	1	1
Degeneration of heart, fatty	.....	.....	.....	.....	.....	.....	.....	1	1
Palpitation and irregular action of heart	.....	.....	.....	.....	.....	.....	.....	2	2
Aneurysm of arteries	.....	1	.....	.....	.....	1	.....	.....	1
Varix	.....	1	.....	1	.....	.....	.....	3	4
DISEASES OF THE RESPIRATORY SYSTEM	.....	81	48	21	1	9	2	174	255
Hay asthma	.....	.....	.....	.....	.....	.....	.....	2	2
Laryngitis:									
Acute	.....	.....	.....	.....	.....	.....	.....	3	3
Chronic	.....	1	.....	1	.....	.....	.....	.....	1
Bronchitis:									
Acute	.....	29	23	4	.....	.....	2	83	112
Chronic	.....	4	.....	3	.....	1	.....	12	16
Catarrhal	.....	5	4	1	.....	.....	.....	50	55
Dilatation of bronchi	.....	.....	.....	.....	.....	.....	.....	1	1
Spasmodic asthma	.....	4	.....	3	.....	1	.....	14	18
Hæmorrhage of lung	.....	3	2	1	.....	.....	.....	1	4

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE RESPIRATORY SYSTEM—Continued.									
Œdema of lung	.....	.....	.....	.....	.....	.....	.....	1	1
Pneumonia	.....	24	15	2	.....	7	.....	2	26
Cirrhosis of lung	.....	2	.....	1	1	.....	.....	1	3
Pleurisy:									
Acute	.....	8	4	4	.....	.....	.....	2	10
Chronic	.....	.....	.....	.....	.....	.....	.....	2	2
Empyema	.....	1	.....	1	.....	.....	.....	.....	1
DISEASES OF THE DIGESTIVE SYSTEM	8	126	88	33	2	3	8	482	616
Stomatitis	.....	.....	.....	.....	.....	.....	.....	5	5
Caries of dentine and cementum	.....	.....	.....	.....	.....	.....	.....	26	26
Abscess of dental periosteum	.....	.....	.....	.....	.....	.....	.....	1	1
Inflammation of gums and alveoli	.....	.....	.....	.....	.....	.....	.....	1	1
Caries of the alveoli	1	.....	.....	1	.....	.....	.....	.....	1
Hypertrophy of tonsils	.....	.....	.....	.....	.....	.....	.....	2	2
Relaxed throat	.....	.....	.....	.....	.....	.....	.....	2	2
Sore throat	.....	3	1	2	.....	.....	.....	23	26
Quinsy	.....	5	4	1	.....	.....	.....	2	7
Follicular tonsilitis	.....	1	1	.....	.....	.....	.....	3	4
Ulceration of fauces	.....	.....	.....	.....	.....	.....	.....	1	1
Salivation	.....	.....	.....	.....	.....	.....	.....	1	1
Follicular inflammation of the pharynx	.....	2	2	.....	.....	.....	.....	9	11
Inflammation of the stomach	.....	10	5	3	.....	.....	2	9	19
Dyspepsia	.....	3	2	1	.....	.....	.....	72	75
Gastrodynia	.....	.....	.....	.....	.....	.....	.....	1	1
Inflammation of the intestines:									
Catarrhal	.....	33	21	9	.....	1	2	45	78
Ulcerative	.....	7	3	2	.....	1	1	4	11
Obstruction of the intestines	.....	3	3	.....	.....	.....	.....	.....	3
Hernia	1	8	5	3	.....	.....	1	44	53
Diarrhœa	4	26	26	2	.....	1	1	68	98
Constipation	.....	4	3	1	.....	.....	.....	110	114
Colic	.....	.....	.....	.....	.....	.....	.....	2	2
Ulceration of the rectum	1	.....	1	.....	.....	.....	.....	3	4
Piles:									
Internal	.....	7	4	3	.....	.....	.....	4	11
External	.....	1	.....	1	.....	.....	.....	20	21
Fistula in ano	.....	4	3	.....	1	.....	.....	1	5
Fissure of the anus	1	.....	1	.....	.....	.....	.....	.....	1
Pruritus ani	.....	.....	.....	.....	.....	.....	.....	1	1
Hypertrophy of the liver	.....	.....	.....	.....	.....	.....	.....	1	1
Congestion of the liver	.....	3	1	1	.....	.....	1	4	7
Hepatitis	.....	.....	.....	.....	.....	.....	.....	1	1
Cirrhosis of liver	.....	2	.....	1	1	.....	.....	1	3
Abscess of liver	.....	2	.....	2	.....	.....	.....	1	3
Jaundice	.....	1	1	.....	.....	.....	.....	14	15
Inflammation of hepatic ducts and gall bladder	.....	1	1	.....	.....	.....	.....	.....	1
DISEASES OF THE LYMPHATIC SYSTEM	5	26	24	4	1	.....	2	14	45
Hypertrophy of lymph glands	.....	.....	.....	.....	.....	.....	.....	4	4
Inflammation of lymph vessels	.....	1	1	.....	.....	.....	.....	.....	1
Suppuration of lymph vessels	5	23	21	4	1	.....	2	8	36
Inflammation of lymph glands	.....	2	2	.....	.....	.....	.....	2	4
DISEASES OF THE URINARY SYSTEM	4	21	2	16	1	2	4	50	75
Acute nephritis	.....	1	1	.....	.....	.....	.....	3	4
Bright's disease	3	14	.....	12	1	2	2	11	28

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE URINARY SYSTEM—Continued.									
Diabetes insipidus	.....	.....	.....	.....	.....	....	.....	3	3
Hæmorrhage of bladder	.....	.....	.....	.....	.....	....	.....	2	2
Inflammation of bladder:									
Acute	.....	3	1	2	.....	....	.....	5	8
Subacute	.....	.....	.....	.....	.....	....	.....	2	2
Chronic	1	3	.....	2	.....	....	2	3	7
Calculus of bladder	.....	.....	.....	.....	.....	....	.....	1	1
Irritability of bladder	.....	.....	.....	.....	.....	....	.....	17	17
Incontinence of urine	.....	.....	.....	.....	.....	....	.....	3	3
DISEASES OF THE GENERATIVE SYSTEM	6	89	51	30	5	....	.....	143	238
Urethritis	.....	1	.....	1	.....	....	.....	3	4
Gleet	.....	.....	.....	.....	.....	....	.....	3	3
Stricture of urethra, organic	2	10	6	6	.....	....	.....	19	31
Hypertrophy of prostate gland	.....	1	.....	1	.....	....	.....	5	6
Inflammation of glans penis	.....	.....	.....	.....	.....	....	.....	2	2
Ulcer of penis	1	49	23	24	3	....	.....	96	146
Phimosis	1	17	14	3	1	....	.....	.....	18
Paraphimosis	.....	1	1	.....	.....	....	.....	.....	1
Hydrocele of spermatic cord	.....	.....	.....	.....	.....	....	.....	1	1
Varicocele	.....	.....	.....	.....	.....	....	.....	1	1
Hæmatocele of tunica vaginalis	1	4	3	1	1	....	.....	.....	5
Orchitis, acute	1	4	2	3	.....	....	.....	8	13
Epididymitis	.....	1	1	.....	.....	....	.....	.....	1
Spermatorrhœa	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of the uterus	.....	1	1	.....	.....	....	.....	3	4
Monorrhagia	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE ORGANS OF LOCOMOTION	3	13	8	6	.....	....	2	8	24
Periostitis	.....	3	.....	3	.....	....	.....	3	6
Necrosis	1	.....	1	.....	.....	....	.....	1	2
Dropsy of joints	.....	2	1	1	.....	....	.....	2	4
Synovitis, acute	2	3	4	.....	.....	....	1	.....	5
Posterior curvature of spine	.....	1	.....	.....	.....	....	1	.....	1
Inflamed bursa	.....	1	.....	1	.....	....	.....	1	2
Bursal abscess	.....	3	2	1	.....	....	.....	1	4
DISEASES OF THE CONNECTIVE TISSUE	.....	19	6	13	.....	....	.....	18	37
Inflammation	.....	.....	.....	.....	.....	....	.....	1	1
Abscess	.....	18	6	12	.....	....	.....	17	35
Slough	.....	1	.....	1	.....	....	.....	.....	1
DISEASES OF THE SKIN	4	42	24	16	2	....	4	109	155
Urticaria	.....	1	1	.....	.....	....	.....	1	2
Eczema	1	4	3	2	.....	....	.....	27	32
Pityriasis	.....	1	.....	.....	.....	....	1	2	3
Lichen	.....	.....	.....	.....	.....	....	.....	3	3
Psoriasis	.....	.....	.....	.....	.....	....	.....	5	5
Herpes	.....	.....	.....	.....	.....	....	.....	7	7
Zona	.....	1	1	.....	.....	....	.....	1	2
Pemphigus	.....	2	.....	2	.....	....	.....	.....	2
Steatorrhœa	.....	.....	.....	.....	.....	....	.....	2	2
Chilblain	.....	.....	.....	.....	.....	....	.....	2	2
Frostbite	.....	.....	.....	.....	.....	....	.....	1	1
Ulcer	2	21	10	9	1	....	3	20	43
Fissures	.....	.....	.....	.....	.....	....	.....	1	1
Boil	.....	6	5	1	.....	....	.....	25	31
Carbuncle	.....	1	1	.....	.....	....	.....	1	2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE SKIN—Continued.									
Whitlow	1	5	3	2	1	....	.....	6	12
Wen	.....	.....	.....	.....	.....	....	.....	1	1
Hyperidrosis	.....	.....	.....	.....	.....	....	.....	4	4
PARASITIC DISEASES OF THE SKIN	.....	1	1	.....	.....	....	.....	6	7
Ringworm	.....	.....	.....	.....	.....	....	.....	3	3
Tinea versicolor	.....	.....	.....	.....	.....	....	.....	1	1
Itch	.....	1	1	.....	.....	....	.....	2	3
POISONS	.....	6	.....	6	.....	....	.....	17	23
Vegetable poisons	.....	6	.....	6	.....	....	.....	17	23
Injuries	**7**	**161**	**106**	**55**	.....	**2**	**5**	**268**	**436**
GENERAL INJURIES	.....	11	6	4	.....	1	.....	6	17
Burns and scalds	.....	9	4	4	.....	1	.....	6	15
Exhaustion	.....	1	1	.....	.....	....	.....	.....	1
Shock	.....	1	1	.....	.....	....	.....	.....	1
LOCAL INJURIES	7	150	100	51	.....	1	5	262	419
Strain of muscles	.....	.....	.....	.....	.....	....	.....	24	24
Strain of tendons	.....	1	1	.....	.....	....	.....	.....	1
Contusion of scalp	.....	.....	.....	.....	.....	....	.....	5	5
Scalp wound, bone not exposed	.....	7	4	3	.....	....	.....	5	12
Fracture of the base of the skull	.....	.....	.....	.....	.....	....	.....	1	1
Concussion of brain	.....	3	1	1	.....	....	1	.....	3
Contusion of face	.....	3	2	1	.....	....	.....	1	4
Wound of face and mouth	.....	3	1	2	.....	....	.....	4	7
Foreign body in cornea or conjunctiva	.....	.....	.....	.....	.....	....	.....	8	8
Wound of eyelid	.....	.....	.....	.....	.....	....	.....	3	3
Wound of pinna	.....	1	.....	1	.....	....	.....	.....	1
Foreign body in external meatus	.....	.....	.....	.....	.....	....	.....	1	1
Wound of neck	.....	4	3	1	.....	....	.....	3	7
Foreign body in the pharynx	.....	.....	.....	.....	.....	....	.....	1	1
Contusion of the chest	.....	6	2	3	.....	....	1	9	15
Fracture of the ribs	.....	3	2	1	.....	....	.....	.....	3
Wound of parietes of chest	.....	1	1	.....	.....	....	.....	.....	1
Penetrating wound of pleura or lung	.....	3	2	.....	.....	1	.....	.....	3
Contusion of back	.....	3	3	.....	.....	....	.....	5	8
Sprain of back	1	6	7	.....	.....	....	.....	21	28
Wound of back	.....	3	2	1	.....	....	.....	5	8
Contusion of abdomen	.....	1	1	.....	.....	....	.....	7	8
Wound of parietes of abdomen	.....	2	2	.....	.....	....	.....	3	5
Contusion of upper extremities	1	4	4	1	.....	....	.....	24	29
Sprain of the shoulder	.....	.....	.....	.....	.....	....	.....	1	1
Sprain of the wrist	.....	1	1	.....	.....	....	.....	11	12
Wound of the upper extremities	1	21	12	9	.....	....	1	50	72
Fracture of the humerus	.....	1	.....	1	.....	....	.....	1	2
Fracture of the radius	1	2	1	2	.....	....	.....	.....	3
Fracture of both bones of forearm	.....	2	1	1	.....	....	.....	.....	2
Fracture of carpus, metacarpus, and phalanges	.....	1	.....	1	.....	....	.....	5	6
Dislocation of the humerus	.....	1	1	.....	.....	....	.....	.....	1
Dislocation of the ulna	.....	1	.....	1	.....	....	.....	.....	1
Dislocation of the phalanges of fingers	.....	.....	.....	.....	.....	....	.....	1	1
Contusion of the lower extremities	2	15	12	5	.....	....	.....	30	47
Sprain of the hip	.....	1	.....	1	.....	....	.....	2	3
Sprain of the knee	.....	1	1	.....	.....	....	.....	3	4

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE MISSISSIPPI—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Sprain of the ankle	.....	12	9	3	.....	.....	.....	17	29
Sprain of the foot	.....	3	2	.....	.....	.....	1	.....	3
Wound of the lower extremities	.....	21	14	6	.....	.....	1	11	32
Fracture of femur	1	.....	1	.....	.....	.....	.....	.....	1
Fracture of patella	.....	1	.....	1	.....	.....	.....	.....	1
Fracture of leg, both bones	.....	9	7	2	.....	.....	.....	.....	9
Fracture of tibia alone	.....	1	.....	1	.....	.....	.....	.....	1
Fracture of fibula alone	.....	1	.....	1	.....	.....	.....	.....	1
Fracture of phalanges of toes	.....	1	.....	1	.....	.....	.....	.....	1
AMPUTATIONS	.....	1	.....	1	.....	.....	.....	.....	1
Amputation of fingers	.....	1	.....	1	.....	.....	.....	.....	1

THE GREAT LAKES.

TOTAL CASES	154	2,235	1,475	641	73	54	146	8,750	11,139
General Diseases	66	889	579	273	20	29	54	3,874	4,829
Cowpox	.....	1	1	.....	.....	.....	.....	.....	1
Chicken-pox	.....	1	1	.....	.....	.....	.....	.....	1
Measles	.....	3	3	.....	.....	.....	.....	.....	3
Influenza	1	68	63	4	.....	2	.....	171	240
Mumps	.....	2	2	.....	.....	.....	.....	2	4
Diphtheria	.....	1	1	.....	.....	.....	.....	2	3
Simple continued fever	.....	14	14	.....	.....	.....	.....	11	25
Enteric fever	8	133	113	9	1	10	8	15	156
Typhomalarial fever	1	1	2	.....	.....	.....	.....	.....	2
Sporadic cholera	2	5	7	.....	.....	.....	.....	15	22
Dysentery	.....	14	8	4	.....	1	1	12	26
Malarial intermittent fever	2	52	43	7	1	1	2	167	221
Malarial remittent fever	1	12	17	4	1	.....	1	7	30
Malarial cachexia	.....	2	2	.....	.....	.....	.....	5	7
Erysipelas:									
Simple	.....	8	8	.....	.....	.....	.....	11	19
Phlegmonous	.....	1	1	.....	.....	.....	.....	.....	1
Septicæmia	.....	3	2	1	.....	.....	.....	2	5
Syphilis:									
Primary	3	22	5	17	.....	.....	3	88	113
Secondary	3	61	9	50	.....	.....	5	841	905
Gonorrhœa	3	56	41	16	1	.....	1	1,179	1,238
Animal parasites	1	10	8	.....	2	.....	1	11	22
Effects of excessive venery	.....	.....	.....	.....	.....	.....	.....	1	1
Debility	2	9	5	4	2	.....	.....	211	222
Deflected nasal septum	.....	1	1	.....	.....	.....	.....	.....	1
Effects of heat	.....	5	5	.....	.....	.....	.....	8	13
Effects of cold	.....	.....	.....	.....	.....	.....	.....	1	1
Alcoholism	2	52	49	4	.....	1	.....	55	109
Delirium tremens	.....	18	17	1	.....	.....	.....	2	20
Rheumatic fever	2	29	16	12	.....	.....	3	5	36
Rheumatism	17	197	129	71	2	.....	12	866	1,080
Osteo-arthritis	1	1	.....	.....	.....	1	1	.....	2
Nonmalignant new growth	.....	5	4	.....	1	.....	.....	24	29
Malignant new growth	.....	5	2	1	2	.....	.....	2	7
Tubercle	17	82	.....	64	7	13	15	150	249
Scrofula	.....	.....	.....	.....	.....	.....	.....	2	2
Anæmia	.....	.....	.....	.....	.....	.....	.....	5	5
Diabetes mellitus	.....	5	.....	4	.....	.....	1	3	8

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases	**62**	**867**	**531**	**278**	**41**	**18**	**61**	**4,090**	**5,019**
DISEASES OF THE NERVOUS SYSTEM	15	52	19	26	6	3	13	227	294
Congestion of brain								6	6
Hæmorrhage, cerebral		1				1			1
Inflammation of cerebral membranes		1				1		1	2
Myelitis								2	2
Sclerosis		1		1				1	2
Locomotor ataxy	6	2		2	1		5	5	13
Apoplexy	1	2		2			1	2	5
Paralysis		2			1		1	3	5
Hemiplegia	3	9		6	2	1	3	10	22
Paraplegia	1				1				1
Local paralysis		4		2	1		1	8	12
Anæsthesia								1	1
Spasm of muscle		1	1					8	9
Wryneck								1	1
Hyperæsthesia								1	1
Neuralgia	1	10	6	5				97	108
Facial		2	2					19	21
Sciatica	2	12	8	6				18	32
Vertigo		3	1	1			1	11	14
Megrim								14	14
Epilepsy	1	1		1			1	18	20
Hysteria		1	1					1	2
MENTAL DISEASES		2					2	4	6
Hypochondriasis								3	3
Dementia		2					2	1	3
DISEASES OF THE EYE	1	28	13	11	2		3	105	134
Ecchymosis of the conjunctiva								2	2
Œdema of the conjunctiva		1	1					1	2
Conjunctivitis	1	12	8	4			1	65	78
Pterygium		1	1						1
Keratitis		5	2	3				6	11
Opacity of cornea		1					1	1	2
Iritis		3	1	1			1	3	6
Atrophy of optic disc or papilla								11	11
Detachment of the retina		1			1			6	7
Cataract		4		3	1			3	7
Hæmatoma								1	1
Blepharitis								1	1
Sty								3	3
Ptosis								1	1
Distension of frontal sinuses								1	1
DISEASES OF THE EAR		5	2	3				57	62
Inflammation of the external meatus, acute								10	10
Abscess of the external meatus		1		1				2	3
Accumulation of wax								14	14
Inflammation of the middle ear		4	2	2				30	34
Tinnitus								1	1
DISEASES OF THE NOSE								69	69
Epistaxis								1	1
Inflammation								2	2
Nasal catarrh								57	57
Ulceration								3	3
Ozæna								4	4
Necrosis								1	1
Sebaceous cyst								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE CIRCULATORY SYSTEM.	3	40	12	19	1	5	6	113	156
Pericarditis	.....	2	2	.....	.....	.....	.....	1	3
Valvular disease:									
Aortic	1	4	.....	4	.....	1	.....	6	11
Mitral	1	17	.....	11	1	3	3	42	60
Hypertrophy of heart	.....	1	.....	1	.....	.....	.....	4	5
Degeneration of heart, fatty	.....	1	.....	1	.....	.....	.....	2	3
Dilatation of heart	.....	.....	.....	.....	.....	.....	.....	4	4
Angina pectoris	.....	1	.....	1	.....	.....	.....	3	4
Palpitation and irregular action of heart	.....	2	2	.....	.....	.....	.....	16	18
Degeneration of arteries	1	.....	.....	.....	.....	.....	1	2	3
Aneurysm of arteries	.....	3	.....	1	.....	.....	2	13	16
Rupture of arteries	.....	1	.....	.....	.....	1	.....	.....	1
Phlebitis	.....	2	2	.....	.....	.....	.....	.....	2
Varix	.....	6	6	.....	.....	.....	.....	20	26
DISEASES OF THE RESPIRATORY SYSTEM.	6	155	100	48	6	3	4	853	1,014
Hay asthma	.....	.....	.....	.....	.....	.....	.....	3	3
Laryngitis, acute	.....	.....	.....	.....	.....	.....	.....	9	9
Bronchitis:									
Acute	2	73	59	15	.....	.....	1	665	740
Chronic	.....	7	.....	6	1	.....	.....	100	107
Catarrhal	.....	1	1	.....	.....	.....	.....	4	5
Spasmodic asthma	1	7	1	5	1	1	.....	15	33
Passive congestion of lung	.....	1	.....	1	.....	.....	.....	1	2
Hæmorrhage of lung	.....	4	1	3	.....	.....	.....	1	5
Pneumonia	2	26	20	5	1	2	.....	3	31
Pneumonic phthisis:									
Acute	.....	4	.....	4	.....	.....	.....	2	6
Chronic	.....	1	.....	1	.....	.....	.....	1	2
Emphysema	.....	1	1	.....	.....	.....	.....	.....	1
Pleurisy:									
Acute	.....	27	16	5	3	.....	3	32	59
Chronic	.....	3	.....	3	.....	.....	.....	17	20
Empyema	1	.....	1	.....	.....	.....	.....	.....	1
DISEASES OF THE DIGESTIVE SYSTEM.	10	172	133	30	5	2	12	1,419	1,601
Ulcer of the lips	.....	.....	.....	.....	.....	.....	.....	1	1
Stomatitis	.....	.....	.....	.....	.....	.....	.....	2	2
Ulcerative stomatitis	.....	.....	.....	.....	.....	.....	.....	3	3
Caries of dentine and cementum	.....	.....	.....	.....	.....	.....	.....	16	16
Inflammation of dental periosteum	.....	1	1	.....	.....	.....	.....	1	2
Abscess of dental periosteum	.....	2	2	.....	.....	.....	.....	6	8
Inflammation of gums and alveoli	.....	1	1	.....	.....	.....	.....	2	3
Ulceration of gums and alveoli	.....	.....	.....	.....	.....	.....	.....	2	2
Toothache	.....	.....	.....	.....	.....	.....	.....	3	3
Ulcer of the tongue	.....	.....	.....	.....	.....	.....	.....	1	1
Hypertrophy of tonsils	.....	.....	.....	.....	.....	.....	.....	2	2
Elongated uvula	.....	.....	.....	.....	.....	.....	.....	1	1
Sore throat	.....	2	2	.....	.....	.....	.....	44	46
Quinsy	.....	5	4	1	.....	.....	.....	17	32
Follicular tonsilitis	.....	7	7	.....	.....	.....	.....	57	64
Ulceration of fauces	.....	.....	.....	.....	.....	.....	.....	1	1
Sloughing sore throat	.....	.....	.....	.....	.....	.....	.....	1	1
Follicular inflammation of the pharynx	.....	2	1	.....	1	.....	.....	31	33
Stricture of the œsophagus	.....	.....	.....	.....	.....	.....	.....	1	1
Inflammation of the stomach	2	19	13	5	.....	.....	3	69	90
Ulceration of the stomach	.....	3	2	1	.....	.....	.....	1	4
Dyspepsia	.....	3	2	1	.....	.....	.....	329	332
Gastrodynia	.....	.....	.....	.....	.....	.....	.....	16	16
Pyrosis	.....	.....	.....	.....	.....	.....	.....	2	2

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Hæmorrhage of the intestines	.....	.....	.....	.....	.....	....	.....	2	2
Inflammation of the intestines:									
Catarrhal	.....	11	10	1	.....	....	.....	5	16
Ulcerative	1	8	5	1	.....	1	2	1	10
Abscess in the subperitoneal tissue	.....	1	1	.....	.....	....	.....	1	2
Obstruction of the intestines	.....	.....	.....	.....	.....	....	.....	1	1
Hernia	.....	32	17	1	1	....	3	132	154
Diarrhœa	2	32	26	4	2	....	2	226	260
Constipation	.....	.....	.....	.....	.....	....	.....	186	186
Colic	.....	6	6	.....	.....	....	.....	129	135
Abscess of the rectum	.....	1	1	.....	.....	....	.....	1	2
Abscess of the anus	.....	.....	.....	.....	.....	....	.....	1	1
Ulceration of the rectum	.....	1	.....	.....	.....	....	1	.....	1
Ulceration of the anus	1	.....	1	.....	.....	....	.....	.....	1
Piles:									
Internal	1	5	5	1	.....	....	.....	12	18
External	.....	14	11	3	.....	....	.....	43	57
Prolapsus of the rectum	.....	1	1	.....	.....	....	.....	.....	1
Fistula in ano	1	9	8	1	1	....	.....	3	13
Pruritus ani	.....	.....	.....	.....	.....	....	.....	32	32
Hypertrophy of the liver	.....	.....	.....	.....	.....	....	.....	3	3
Congestion of the liver	.....	4	1	3	.....	....	.....	18	22
Hepatitis	.....	.....	.....	.....	.....	....	.....	1	1
Cirrhosis of liver	.....	3	.....	3	.....	....	.....	2	5
Jaundice	.....	2	.....	1	.....	....	1	13	15
Inflammation of hepatic ducts and gall bladder	.....	2	1	1	.....	....	.....	3	5
Gallstones	.....	1	.....	1	.....	....	.....	2	3
Biliary colic	.....	.....	.....	.....	.....	....	.....	2	2
Ascites	1	1	.....	1	.....	1	.....	1	3
Peritonitis	1	3	4	.....	.....	....	.....	.....	4
DISEASES OF THE LYMPHATIC SYSTEM	6	57	40	18	1	....	4	100	172
Congestion of the spleen	.....	1	1	.....	.....	....	.....	.....	1
Hypertrophy of lymph glands	.....	.....	.....	.....	.....	....	.....	3	3
Inflammation of lymph vessels	.....	1	.....	1	.....	....	.....	.....	1
Inflammation of lymph glands	5	30	18	14	1	....	2	92	127
Suppuration of lymph glands	.....	25	20	3	.....	....	2	14	39
Obstruction of lymph vessels	1	.....	1	.....	.....	....	.....	.....	1
DISEASES OF THE THYROID BODY	.....	1	.....	.....	.....	1	.....	7	8
Goitre	.....	1	.....	.....	.....	1	.....	7	8
DISEASES OF THE URINARY SYSTEM	3	48	13	22	8	2	6	170	221
Congestion of kidney	.....	1	.....	.....	.....	....	1	.....	1
Acute nephritis	1	4	3	2	.....	....	.....	16	21
Bright's disease	2	24	.....	15	6	2	3	30	56
Abscess of kidney	.....	2	.....	.....	1	....	1	1	3
Diabetes insipidus	.....	.....	.....	.....	.....	....	.....	5	5
Calculus in kidney	.....	.....	.....	.....	.....	....	.....	1	1
Nephralgia	.....	.....	.....	.....	.....	....	.....	1	1
Movable kidney	.....	1	.....	.....	.....	....	1	.....	1
Suppression of urine	.....	.....	.....	.....	.....	....	.....	1	1
Hypertrophy of bladder	.....	10	7	2	1	....	.....	52	62
Hæmorrhage of bladder	.....	.....	.....	.....	.....	....	.....	6	6
Inflammation of bladder:									
Chronic	.....	2	.....	2	.....	....	.....	11	13
Suppurative	.....	1	1	.....	.....	....	.....	.....	1
Irritability of bladder	.....	1	1	.....	.....	....	.....	37	38
Retention of urine	.....	1	.....	1	.....	....	.....	1	2
Incontinence of urine	.....	1	1	.....	.....	....	.....	8	9

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE GENERATIVE SYSTEM.	5	110	64	39	8	....	4	461	576
Urethritis	.....	.....	.....	.....	.....	....	.....	23	23
Gleet	.....	1	.....	1	.....	....	.....	54	55
Stricture of urethra:									
Organic	1	22	9	12	1	....	1	76	99
Spasmodic	.....	.....	.....	.....	.....	....	.....	1	1
Urinary fistula	1	2	.....	3	.....	....	.....	2	5
Acute inflammation of prostate gland	.....	3	.....	2	.....	....	1	5	8
Chronic inflammation of prostate gland	.....	.....	.....	.....	.....	....	.....	1	1
Abscess of prostate gland	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of the penis	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of glans penis	.....	.....	.....	.....	.....	....	.....	16	16
Abscess of penis	.....	1	.....	1	.....	....	.....	.....	1
Ulcer of penis	.....	7	5	2	.....	....	.....	149	156
Phimosis	1	6	6	.....	1	....	.....	5	12
Paraphimosis	.....	1	.....	.....	.....	....	1	.....	1
Abscess of the scrotum	.....	1	1	.....	.....	....	.....	.....	1
Inflammation of spermatic cord	.....	.....	.....	.....	.....	....	.....	2	2
Varicocele	.....	12	9	2	1	....	.....	35	47
Hydrocele of tunica vaginalis	.....	4	2	1	1	....	.....	9	13
Orchitis:									
Acute	2	21	15	7	.....	....	1	27	50
Chronic	.....	3	.....	3	.....	....	.....	9	12
Epididymitis	.....	10	7	3	.....	....	.....	14	24
Cyst of testicle	.....	1	.....	.....	1	....	.....	.....	1
Retraction of testicle	.....	.....	.....	.....	.....	....	.....	1	1
Spermatorrhœa	.....	2	2	.....	.....	....	.....	12	14
Impotence	.....	.....	.....	.....	.....	....	.....	3	3
Inflammation of the ovary	.....	.....	.....	.....	.....	....	.....	2	2
Hæmorrhage of the uterus	.....	.....	.....	.....	.....	....	.....	1	1
Laceration of the cervix	.....	2	1	1	.....	....	.....	2	4
Inflammation of the uterus	.....	5	3	1	1	....	.....	1	6
Displacements and distortions of the uterus	.....	.....	.....	.....	.....	....	.....	3	3
Inflammation of the vagina	.....	.....	.....	.....	.....	....	.....	1	1
Prolapse of the vagina	.....	1	1	.....	.....	....	.....	.....	1
Ulcer of the ulva	.....	.....	.....	.....	.....	....	.....	1	1
Suppuration of the fallopian tube	.....	1	.....	.....	1	....	.....	.....	1
Scanty menstruation	.....	1	1	.....	.....	....	.....	.....	1
Dysmenorrhœa	.....	1	1	.....	.....	....	.....	.....	1
Menorrhagia	.....	.....	.....	.....	.....	....	.....	1	1
Leucorrhœa	.....	1	.....	.....	1	....	.....	3	4
Inflammation of the female breast	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of the male breast	.....	1	1	.....	.....	....	.....	.....	1
DISEASES OF THE ORGANS OF LOCOMOTION	4	43	18	27	1	1	.....	46	93
Ostitis	.....	1	1	.....	.....	....	.....	.....	1
Periostitis	.....	8	.....	7	.....	1	.....	5	13
Perichondritis	.....	.....	.....	.....	.....	....	.....	1	1
Caries	2	2	1	3	.....	....	.....	1	5
Necrosis	1	5	2	4	.....	....	.....	7	13
Dropsy of joints	.....	.....	.....	.....	.....	....	.....	1	1
Synovitis:									
Acute	.....	13	7	6	.....	....	.....	11	24
Chronic	.....	6	1	4	1	....	.....	3	9
Ankylosis	.....	1	.....	1	.....	....	.....	1	2
Relaxation of ligaments	.....	1	.....	1	.....	....	.....	2	3
Psoas, lumbar, and other abscesses	1	.....	.....	1	.....	....	.....	.....	1
Inflammation of muscles	.....	1	1	.....	.....	....	.....	3	4
Abscess of muscles	.....	.....	.....	.....	.....	....	.....	1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE ORGANS OF LOCOMOTION—Continued.									
Inflammation of tendons	.....	.....	.....	.....	.....	....	.....	1	1
Contraction of tendons and fasciæ	.....	2	2	.....	.....	....	.....	2	4
Inflamed bursa	.....	3	3	.....	.....	....	.....	6	8
Bunion	.....	1	1	.....	.....	....	.....	1	2
DISEASES OF THE CONNECTIVE TISSUE	5	49	44	9	.....	....	1	69	123
Œdema	.....	3	2	1	.....	....	.....	4	7
Inflammation	.....	9	9	.....	.....	....	.....	20	29
Abscess	5	37	33	8	.....	....	1	44	86
Slough	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE SKIN	4	104	73	25	3	1	6	335	443
Erythema	.....	1	1	.....	.....	....	.....	7	8
Urticaria	.....	1	1	.....	.....	....	.....	20	21
Eczema	1	1	2	.....	.....	....	.....	111	113
Impetigo	1	1	2	.....	.....	....	.....	.....	2
Pityriasis	.....	1	1	.....	.....	....	.....	2	3
Prurigo	.....	1	.....	1	.....	....	.....	5	6
Psoriasis	.....	3	.....	3	.....	....	.....	20	23
Herpes	.....	1	1	.....	.....	....	.....	21	22
Zona	.....	2	2	.....	.....	....	.....	3	5
Acne	.....	.....	.....	.....	.....	....	.....	26	26
Gutta rosea	.....	.....	.....	.....	.....	....	.....	1	1
Sycosis	.....	.....	.....	.....	.....	....	.....	5	5
Melasma	.....	.....	.....	.....	.....	....	.....	1	1
Chloasma	.....	.....	.....	.....	.....	....	.....	2	2
Alopecia	.....	.....	.....	.....	.....	....	.....	3	3
Linear atrophy of the skin	.....	.....	.....	.....	.....	....	.....	1	1
Frostbite	.....	1	1	.....	.....	....	.....	5	6
Ulcer	1	50	31	16	1	1	2	6	57
Fissures	.....	.....	.....	.....	.....	....	.....	3	3
Boil	1	13	11	2	1	....	.....	44	58
Carbuncle	.....	10	7	2	.....	....	1	13	33
Whitlow	.....	14	11	1	1	....	1	12	23
Onychia	.....	1	.....	.....	.....	....	1	5	6
Corn	.....	.....	.....	.....	.....	....	.....	5	5
Wen	.....	3	2	.....	.....	....	1	4	7
Moluscum	.....	.....	.....	.....	.....	....	.....	3	3
Pruritus	.....	.....	.....	.....	.....	....	.....	7	7
PARASITIC DISEASES OF THE SKIN	.....	1	.....	1	.....	....	.....	46	47
Ringworm	.....	.....	.....	.....	.....	....	.....	8	8
Tinea versicolor	.....	.....	.....	.....	.....	....	.....	4	4
Itch	.....	1	.....	1	.....	....	.....	32	33
Phthiriasis	.....	.....	.....	.....	.....	....	.....	12	12
Poisons	.....	**3**	**2**	**1**	.....	....	.....	5	8
Acids and acid salts	.....	1	.....	1	.....	....	.....	.....	1
Exanthema from cubebs	.....	1	1	.....	.....	....	.....	.....	1
Rhus	.....	1	1	.....	.....	....	.....	5	6
Injuries	**26**	**473**	**360**	**89**	**12**	**7**	**31**	**777**	**1,276**
GENERAL INJURIES	2	43	26	12	.....	1	6	44	89
Burns and scalds	2	34	24	6	.....	1	5	42	78
Effects of chemical irritants	.....	.....	.....	.....	.....	....	.....	1	1
Heat-stroke	.....	1	1	.....	.....	....	.....	1	2
Multiple injury	.....	2	.....	1	.....	....	1	.....	3
Exhaustion	.....	5	.....	5	.....	....	.....	.....	5
Shock	.....	1	1	.....	.....	....	.....	.....	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES	24	430	334	77	12	6	25	733	1,187
Contusion of nerves	.....	.....	.....	.....	.....	.....	.....	1	1
Wound of arteries	.....	1	1	.....	.....	.....	.....	.....	1
Rupture of veins	.....	1	.....	1	.....	.....	.....	.....	1
Bruise of muscles	.....	3	3	.....	.....	.....	.....	8	11
Strain of muscles	1	5	6	.....	.....	.....	.....	25	31
Rupture of muscles	.....	2	1	1	.....	.....	.....	.....	1
Strain of tendons	.....	1	.....	1	.....	.....	.....	4	1
Rupture of tendons	.....	.....	.....	.....	.....	.....	.....	1	2
Abrasion of skin	.....	1	1	.....	.....	.....	.....	3	5
Foreign body in subcutaneous tissue	.....	.....	.....	.....	.....	.....	.....	6	6
Contusion of scalp	.....	1	1	.....	.....	.....	.....	3	4
Scalp-wound:									
Bone not exposed	1	33	19	4	1	.....	.....	20	44
Bone exposed	.....	2	.....	1	1	.....	.....	2	4
Fracture of the vault of the skull	.....	6	5	.....	1	.....	.....	.....	6
Fracture of the base of the skull	.....	2	1	.....	.....	1	.....	1	3
Concussion of brain	1	6	6	.....	1	.....	.....	.....	7
Contusion of face	.....	2	2	.....	.....	.....	.....	6	8
Wound of face and mouth	.....	20	14	3	.....	1	2	35	45
Fracture of facial bones	1	8	6	1	.....	.....	2	2	11
Contusion of the eye	.....	.....	.....	.....	.....	.....	.....	4	4
Contusion of the eye with rupture of sclerotic	.....	1	1	.....	.....	.....	.....	.....	1
Foreign body in cornea or conjunctiva	.....	.....	.....	.....	.....	.....	.....	27	25
Wound of eyelid	.....	2	2	.....	.....	.....	.....	3	1
Wound of membrana tympani	.....	.....	.....	.....	.....	.....	.....	1	7
Contusion of soft parts of neck	.....	.....	.....	.....	.....	.....	.....	1	1
Wound of neck	.....	3	3	.....	.....	.....	.....	.....	3
Contusion of the chest	.....	10	8	2	.....	.....	.....	19	29
Fracture of the ribs	.....	20	15	5	.....	.....	.....	12	32
Contusion of back	1	12	12	1	.....	.....	.....	43	56
Sprain of back	1	8	8	1	.....	.....	.....	26	35
Wound of back	.....	1	1	.....	.....	.....	.....	1	2
Fracture of spine	.....	2	.....	.....	1	1	.....	.....	2
Contusion of abdomen	.....	4	3	.....	.....	1	.....	1	5
Contusion of pelvis	.....	1	1	.....	.....	.....	.....	.....	1
Wound of the urethra, perineum, scrotum, and penis	.....	3	3	.....	.....	.....	.....	1	4
Fracture of pelvis	.....	1	1	.....	.....	.....	.....	1	2
Contusion of testicle	.....	2	.....	2	.....	.....	.....	.....	2
Contusion of upper extremities	1	13	9	4	.....	.....	1	72	86
Sprain of the shoulder	.....	1	1	.....	.....	.....	.....	.....	1
Sprain of the elbow	.....	4	3	1	.....	.....	.....	4	8
Sprain of the wrist	1	7	6	2	.....	.....	.....	20	28
Sprain of the fingers	.....	.....	.....	.....	.....	.....	.....	3	3
Sprain of thumb	.....	.....	.....	.....	.....	.....	.....	4	4
Wound of the upper extremities	4	45	37	10	.....	.....	2	160	209
Fracture of the clavicle	.....	6	4	.....	1	.....	1	.....	6
Fracture of the scapula	1	2	3	.....	.....	.....	.....	.....	3
Fracture of the humerus	.....	3	3	.....	.....	.....	.....	2	5
Fracture of the radius	2	12	7	4	1	.....	2	15	29
Fracture of the ulna	.....	3	3	.....	.....	.....	.....	.....	3
Fracture of both bones of forearm	.....	3	2	.....	.....	.....	1	.....	3
Fracture of carpus, metacarpus, and phalanges	.....	6	4	1	.....	.....	1	11	17
Dislocation of the clavicle	.....	2	1	1	.....	.....	.....	.....	2
Dislocation of the humerus	.....	6	4	1	.....	.....	1	4	10
Dislocation of the radius	.....	4	2	2	.....	.....	.....	1	5
Dislocation of the ulna	.....	1	1	.....	.....	.....	.....	.....	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE GREAT LAKES—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Dislocation of the carpus	.....	.....	.....	.....	.....	....	.....	1	1
Dislocation of the metacarpus	.....	1	.....	1	.....	....	.....	.....	1
Dislocation of the phalanges of thumb	.....	.....	.....	.....	.....	....	.....	1	1
Dislocation of the phalanges of fingers	.....	1	.....	1	.....	....	.....	.....	1
Contusion of the lower extremities	2	36	28	6	1	....	3	72	110
Sprain of the hip	.....	2	1	1	.....	....	.....	4	6
Sprain of the knee	1	12	8	3	2	....	.....	11	24
Sprain of the ankle	1	36	32	3	2	....	.....	53	90
Sprain of the foot	.....	.....	.....	.....	.....	....	.....	2	2
Wound of the lower extremities	2	37	27	9	.....	....	3	38	77
Fracture of femur	1	11	7	1	.....	1	3	2	14
Fracture of leg, both bones	.....	7	3	.....	.....	1	3	.....	7
Fracture of tibia alone	2	2	4	.....	.....	....	.....	.....	4
Fracture of fibula alone	.....	7	6	1	.....	....	.....	2	9
Fracture of tarsus	.....	1	1	.....	.....	....	.....	2	3
Fracture of metatarsus	.....	2	1	1	.....	....	.....	2	4
Fracture of phalanges of toes	.....	1	1	.....	.....	....	.....	.....	1
Dislocation of the femur at the hip	.....	1	1	.....	.....	....	.....	.....	1
Dislocation of the knee	.....	1	.....	1	.....	....	.....	.....	1
AMPUTATIONS	.....	3	3	.....	.....	....	.....	4	7
Amputation of arm	.....	1	1	.....	.....	....	.....	.....	1
Amputation of fingers	.....	.....	.....	.....	.....	....	.....	4	4
Amputation of toes	.....	2	2	.....	.....	....	.....	.....	2

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TOTAL CASES	166	1,366	875	435	42	72	108	4,055	5,587
General Diseases	55	492	290	173	15	36	33	1,603	2,150
Measles	.....	1	1	.....	.....	....	.....	.....	1
Scarlet fever	.....	1	1	.....	.....	....	.....	.....	1
Influenza	1	29	22	6	1	1	.....	81	111
Mumps	.....	1	.....	1	.....	....	.....	8	9
Enteric fever	1	24	22	.....	.....	1	2	2	27
Dysentery	.....	22	14	8	.....	....	.....	9	31
Malarial intermittent fever	.....	38	33	4	.....	....	1	79	117
Malarial remittent fever	1	8	7	1	.....	1	.....	3	12
Malarial cachexia	.....	.....	.....	.....	.....	....	.....	1	1
Erysipelas:									
Simple	1	8	8	.....	1	....	.....	4	13
Phlegmonous	.....	1	1	.....	.....	....	.....	.....	1
Septicæmia	.....	2	2	.....	.....	....	.....	1	3
Syphilis:									
Primary	1	6	.....	2	.....	....	5	12	19
Secondary	10	64	4	62	3	1	4	286	360
Gonorrhœa	3	26	10	16	3	....	.....	551	580
Animal parasites	.....	1	1	.....	.....	....	.....	2	3
Effects of heat	.....	.....	.....	.....	.....	....	.....	1	1
Effects of cold	.....	6	5	1	.....	....	.....	38	44
Scurvy	.....	7	5	2	.....	....	.....	1	8
Alcoholism	1	20	19	1	1	....	.....	18	39
Debility	.....	4	2	1	.....	....	1	25	29
Rheumatic fever	4	48	40	8	1	....	3	9	61
Rheumatism	10	122	86	35	.....	1	10	413	545
Osteo-arthritis	1	.....	.....	.....	.....	....	1	.....	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
General Diseases—Continued.									
Nonmalignant new growth	1	4	4	.....	.....	...	1	13	18
Malignant new growth	2	6	3	.....	2	...	1	1	9
Tubercle	18	39	.....	22	3	28	4	37	94
Scrofula	.....	1	.....	1	.....	....	.....	.....	1
Anæmia	.....	.....	.....	.....	.....	....	.....	2	2
Diabetes mellitus	.....	3	.....	2	.....	1	.....	6	9
Local Diseases	**83**	**592**	**364**	**201**	**22**	**31**	**57**	**1,947**	**2,622**
DISEASES OF THE NERVOUS SYSTEM	23	45	22	25	3	4	14	115	183
Hæmorrhage, cerebral	.....	1	1	.....	.....	....	.....	.....	1
Inflammation of cerebral membranes	.....	1	.....	.....	1	....	.....	.....	1
Spinal meningitis	.....	1	.....	.....	.....	1	.....	.....	1
Myelitis	.....	1	.....	1	.....	....	.....	.....	1
Neuritis	1	4	1	2	1	...	1	6	11
Sclerosis	4	1	.....	1	.....	1	3	.....	5
Locomotor ataxy	3	.....	.....	1	1	....	1	.....	3
Paralysis	2	1	.....	2	.....	....	1	.....	3
Hemiplegia	6	4	1	4	.....	2	3	.....	10
Local paralysis	.....	1	1	.....	.....	....	.....	7	8
Toxic paralysis	.....	.....	.....	.....	.....	....	.....	1	1
Spasm of muscle	.....	1	1	.....	.....	....	.....	.....	1
Wryneck	.....	.....	.....	.....	.....	....	.....	1	1
Neuralgia	2	21	16	7	.....	....	.....	55	78
Facial	.....	.....	.....	.....	.....	....	.....	17	17
Sciatica	1	2	.....	1	.....	....	2	3	6
Vertigo	.....	2	1	.....	.....	....	1	2	4
Megrim	.....	.....	.....	.....	.....	....	.....	15	15
Epilepsy	4	4	.....	6	.....	....	2	8	16
MENTAL DISEASES	1	3	2	1	1	....	.....	.....	4
Hypochondriasis	.....	2	2	.....	.....	....	.....	.....	2
Insanity	.....	1	.....	.....	1	....	.....	.....	1
Melancholia	1	.....	.....	1	.....	....	.....	.....	1
DISEASES OF THE EYE	3	13	8	5	2	....	1	61	77
Conjunctivitis	.....	3	2	1	.....	....	.....	36	39
Keratitis	.....	1	1	.....	.....	....	.....	1	2
Ulcer of cornea	.....	2	2	.....	.....	....	.....	.....	2
Iritis	1	3	2	2	.....	....	.....	7	11
Atrophy of optic disc or papilla	1	1	.....	.....	1	....	1	1	3
Hæmorrhage of the retina	.....	1	.....	1	.....	....	.....	.....	1
Retinitis	.....	2	1	.....	1	....	.....	3	5
Cataract	.....	.....	.....	.....	.....	....	.....	1	1
Ametropia	.....	.....	.....	.....	.....	....	.....	2	2
Nystagmus	1	.....	.....	1	.....	....	.....	.....	1
Hæmatoma	.....	.....	.....	.....	.....	....	.....	1	1
Blepharitis	.....	.....	.....	.....	.....	....	.....	1	1
Sty	.....	.....	.....	.....	.....	....	.....	3	3
Trichiasis	.....	.....	.....	.....	.....	....	.....	5	5
DISEASES OF THE EAR	.....	3	1	2	.....	....	.....	35	38
Inflammation of the external meatus	.....	.....	.....	.....	.....	....	.....	2	2
Accumulation of wax	.....	.....	.....	.....	.....	....	.....	5	5
Inflammation of the middle ear	.....	2	1	1	.....	....	.....	20	23
Perforation of membrana tympani	.....	.....	.....	.....	.....	....	.....	7	7
Deafness	.....	1	.....	1	.....	....	.....	1	2
DISEASES OF THE NOSE	.....	3	1	1	1	....	.....	24	27
Epistaxis	.....	1	1	.....	.....	....	.....	.....	1
Nasal catarrh	.....	1	.....	1	.....	....	.....	21	23
Ulceration	.....	.....	.....	.....	.....	....	.....	1	1
Ozæna	.....	1	.....	.....	1	....	.....	2	3

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE CIRCULATORY SYSTEM.	12	31	2	23	1	12	5	72	115
Pericarditis	.....	.....	.....	.....	.....	.....	.....	1	1
Endocarditis	.....	.....	.....	.....	.....	.....	.....	6	6
Valvular disease:									
Aortic	.....	.....	.....	.....	.....	.....	.....	15	15
Mitral	8	33	.....	17	1	10	3	33	64
Hypertrophy of heart	.....	1	.....	1	.....	.....	.....	2	3
Angina pectoris	.....	1	.....	1	.....	.....	.....	1	2
Palpitation and irregular action of heart	.....	2	1	1	.....	.....	.....	5	7
Aneurysm of arteries	4	3	1	3	.....	2	1	6	13
Obstruction of arteries	.....	1	.....	.....	.....	.....	1	.....	1
Varix	.....	.....	.....	.....	.....	.....	.....	3	3
DISEASES OF THE RESPIRATORY SYSTEM.	8	100	58	32	1	6	11	341	449
Laryngitis, acute	.....	2	1	1	.....	.....	.....	6	8
Bronchitis:									
Acute	2	57	39	14	1	.....	5	270	329
Chronic	.....	5	.....	4	.....	.....	1	29	34
Spasmodic asthma	.....	9	.....	6	.....	1	2	18	27
Passive congestion of lung	.....	3	1	.....	.....	2	.....	1	4
Hæmorrhage of lung	1	.....	.....	1	.....	.....	.....	.....	1
Pneumonia	1	12	6	4	.....	3	.....	3	16
Emphysema	.....	.....	.....	.....	.....	.....	.....	1	1
Hydrothorax	1	.....	.....	1	.....	.....	.....	.....	1
Pleurisy, acute	2	10	11	1	.....	.....	.....	13	25
Empyema	1	2	.....	.....	.....	.....	3	.....	3
DISEASES OF THE DIGESTIVE SYSTEM.	5	141	99	31	4	6	6	525	671
Ulcer of the lips	.....	1	1	.....	.....	.....	.....	1	2
Stomatitis	.....	.....	.....	.....	.....	.....	.....	11	11
Ulcerative stomatitis	.....	.....	.....	.....	.....	.....	.....	10	10
Abscess of the antrum	1	.....	1	.....	.....	.....	.....	.....	1
Caries of dentine and cementum	.....	.....	.....	.....	.....	.....	.....	7	7
Inflammation of dental periosteum	.....	.....	.....	.....	.....	.....	.....	1	1
Abscess of dental periosteum	.....	1	1	.....	.....	.....	.....	1	2
Inflammation of gums and alveoli	.....	.....	.....	.....	.....	.....	.....	1	1
Ulceration of gums and alveoli	.....	.....	.....	.....	.....	.....	.....	1	1
Necrosis of the alveoli	.....	.....	.....	.....	.....	.....	.....	1	1
Toothache	.....	.....	.....	.....	.....	.....	.....	8	8
Ulcer of the tongue	.....	1	1	.....	.....	.....	.....	.....	1
Hypertrophy of tonsils	.....	.....	.....	.....	.....	.....	.....	6	6
Sore throat	.....	1	1	.....	.....	.....	.....	61	62
Quinsy	.....	4	3	.....	.....	.....	1	12	16
Follicular tonsilitis	.....	6	4	2	.....	.....	.....	20	26
Abscess of salivary glands	.....	1	.....	1	.....	.....	.....	.....	1
Salivation	.....	1	1	.....	.....	.....	.....	.....	1
Follicular inflammation of the pharynx	.....	.....	.....	.....	.....	.....	.....	4	4
Ulceration of pharnyx	.....	.....	.....	.....	.....	.....	.....	3	3
Inflammation of the stomach	.....	23	14	7	2	.....	.....	46	69
Ulceration of the stomach	.....	5	3	2	.....	.....	.....	5	10
Dilatation of the stomach	.....	2	1	.....	.....	1	.....	.....	2
Dyspepsia	1	12	9	4	.....	.....	.....	128	141
Gastrodynia	.....	.....	.....	.....	.....	.....	.....	1	1
Inflammation of the intestines:									
Catarrhal	.....	1	1	.....	.....	.....	.....	3	4
Ulcerative	1	4	3	1	.....	.....	1	.....	5
Abscess in the subperitoneal tissue	.....	1	1	.....	.....	.....	.....	.....	1
Tympanites	.....	1	.....	.....	.....	.....	1	.....	1
Obstruction of the intestines	.....	1	1	.....	.....	.....	.....	.....	1
Hernia	2	28	24	2	1	2	1	53	83
Diarrhœa	.....	4	3	.....	.....	1	.....	45	49

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE DIGESTIVE SYSTEM—Continued.									
Constipation	.....	2	1	1	.....	....	.....	31	33
Colic	.....	4	4	.....	.....	....	.....	20	24
Abscess of the rectum	.....	1	1	.....	.....	....	.....	.....	1
Ulceration of the anus	.....	1	1	.....	.....	....	.....	.....	1
Piles:									
Internal	.....	12	9	3	.....	....	.....	7	19
External	.....	2	1	1	.....	....	.....	10	12
Prolapsus of the anus	.....	.....	.....	.....	.....	....	.....	2	2
Fistula in ano	.....	6	4	1	1	....	.....	5	11
Fissure of the anus	.....	1	1	.....	.....	....	.....	1	2
Hypertrophy of the liver	.....	1	1	.....	.....	....	.....	6	7
Congestion of the liver	.....	5	2	3	.....	....	.....	7	12
Hepatitis	.....	1	1	.....	.....	....	.....	3	4
Cirrhosis of liver	.....	5	.....	2	.....	1	2	.....	5
Jaundice	.....	.....	.....	.....	.....	....	.....	3	3
Ascites	.....	1	.....	1	.....	....	.....	.....	1
Peritonitis	.....	1	.....	.....	.....	1	.....	.....	1
Adhesions of the peritonæum	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE LYMPHATIC SYSTEM.	3	20	12	9	1	....	1	44	67
Congestion of the spleen	.....	.....	.....	.....	.....	....	.....	2	2
Hypertrophy of lymph glands	.....	.....	.....	.....	.....	....	.....	5	5
Inflammation of lymph glands	1	7	4	3	.....	....	1	26	34
Suppuration of lymph glands	2	13	8	6	1	....	.....	11	26
DISEASES OF THE URINARY SYSTEM	3	15	5	10	.....	2	1	70	88
Acute nephritis	.....	3	1	2	.....	....	.....	11	14
Bright's disease	2	4	.....	5	.....	1	.....	8	14
Hæmaturia	.....	.....	.....	.....	.....	....	.....	1	1
Inflammation of bladder:									
Acute	1	6	3	2	.....	1	1	42	49
Chronic	.....	2	1	1	.....	....	.....	4	6
Calculus of bladder	.....	.....	.....	.....	.....	....	.....	1	1
Irritability of bladder	.....	.....	.....	.....	.....	....	.....	1	1
Incontinence of urine	.....	.....	.....	.....	.....	....	.....	2	2
DISEASES OF THE GENERATIVE SYSTEM.	3	85	63	21	3	....	1	192	280
Urethritis	.....	.....	.....	.....	.....	....	.....	1	1
Gleet	.....	.....	.....	.....	.....	....	.....	3	3
Stricture of urethra, organic	1	32	19	3	1	....	.....	32	55
Hypertrophy of prostate gland	.....	.....	.....	.....	.....	....	.....	2	2
Acute inflammation of prostate gland	.....	1	1	.....	.....	....	.....	.....	1
Inflammation of the penis	1	.....	1	.....	.....	....	.....	1	2
Inflammation of glans penis	.....	.....	.....	.....	.....	....	.....	1	1
Ulcer of penis	.....	13	7	6	.....	....	.....	92	105
Phimosis	.....	5	5	.....	.....	....	.....	.....	5
Paraphimosis	.....	2	2	.....	.....	....	.....	.....	2
Œdema of the scrotum	.....	1	1	.....	.....	....	.....	.....	1
Abscess of the scrotum	.....	1	1	.....	.....	....	.....	.....	1
Varicocele	.....	2	2	.....	.....	....	.....	8	10
Hydrocele of tunica vaginalis	.....	4	2	1	1	....	.....	4	8
Orchitis:									
Acute	1	19	14	6	.....	....	.....	16	36
Chronic	.....	.....	.....	.....	.....	....	.....	1	1
Epididymitis	.....	15	8	5	1	....	1	14	29
Spermatorrhœa	.....	.....	.....	.....	.....	....	.....	16	16
Impotence	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE ORGANS OF LOCOMOTION	11	20	15	11	1	....	4	45	76
Ostitis	1	.....	1	.....	.....	....	.....	2	3

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of present year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Local Diseases—Continued.									
DISEASES OF THE ORGANS OF LOCOMOTION—Continued.									
Periostitis								6	6
Caries		7	3	4				1	8
Necrosis		1	1					1	2
Ununited fracture, or false joint	2	1	2	1				1	4
Dropsy of joints		1		1					1
Synovitis:									
Acute	2	3	4				1	21	26
Chronic	1	1	2						2
Abscess of joints		1	1						1
Ankylosis		1			1			2	3
Degeneration of cartilage	2						2		2
Loose body in joint		1		1					1
Dislocation of articular cartilage		1		1					1
Angular curvature of spine	1			1					1
Posterior curvature of spine	1						1		1
Atrophy of the muscles		1		1					1
Contraction of tendons and fasciæ								1	1
Flat foot	1			1					1
Inflamed bursa								9	9
Bursal abscess		1	1						1
Ganglion								1	1
DISEASES OF THE CONNECTIVE TISSUE.	3	36	26	8		1	4	102	141
Hæmorrhage								1	1
Œdema								4	4
Inflammation		10	7	2			1	31	41
Abscess	3	25	19	5		1	3	62	90
Slough		1		1				4	5
DISEASES OF THE SKIN	8	75	48	22	4		9	299	382
Erythema								2	2
Urticaria		1	1					3	4
Eczema	1	10	7	3			1	44	55
Impetigo		3		3					3
Lichen								8	8
Psoriasis								7	7
Miliaria								1	1
Herpes		1	1					8	9
Zona		1	1					1	2
Pemphigus								1	1
Acne								4	4
Gutta rosea								1	1
Sycosis								8	8
Alopecia								1	1
Frostbite		2					2	1	3
Ulcer	7	44	28	14	4		5	78	129
Fissures								4	4
Boil		5	4	1				86	91
Carbuncle								3	3
Whitlow		4	3	1				31	35
Onychia		2	1				1		2
Corn								3	3
Lupus								1	1
Wen		2	2					3	5
PARASITIC DISEASES OF THE SKIN		2	2					22	24
Ringworm								8	8
Tinea versicolor								1	1
Itch		2	2					12	14
Phthiriasis								1	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Poisons	.....	.....	.....	.....	.....	...	.....	7	7
Vegetable poisons	.....	.....	.....	.....	.....	...	.....	6	6
Animal poisons	.....	.....	.....	.....	.....	...	.....	1	1
Injuries	28	281	220	61	5	5	18	492	801
GENERAL INJURIES	2	20	12	9	.....	1	.....	19	41
Burns and scalds	.....	8	6	2	.....	...	.....	17	25
Effects of chemical irritants	.....	.....	.....	.....	.....	...	.....	1	5
Multiple injury	2	7	6	2	.....	1	.....	1	10
Exhaustion	.....	5	.....	5	.....	...	.....	.....	5
LOCAL INJURIES	26	261	208	52	5	4	18	473	760
Contusion of nerves	.....	.....	.....	.....	.....	...	.....	2	2
Strain of muscles	1	3	4	.....	.....	...	.....	11	15
Contusion of scalp	.....	2	2	.....	.....	...	.....	.....	2
Scalp wound:									
Bone not exposed	.....	10	9	1	.....	...	.....	22	32
Bone exposed	.....	1	1	.....	.....	...	.....	.....	1
Fracture of the vault of the skull	.....	1	.....	1	.....	...	.....	.....	1
Concussion of brain	.....	2	1	1	.....	...	.....	1	3
Wound of the brain	.....	1	1	.....	.....	...	.....	.....	1
Contusion of face	1	3	3	1	.....	...	.....	7	11
Wound of face and mouth	.....	9	6	3	.....	...	.....	15	24
Fracture of facial bones	1	6	4	3	.....	...	.....	.....	7
Contusion of the eye	.....	1	1	.....	.....	...	.....	1	2
Foreign body in cornea or conjunctiva	.....	.....	.....	.....	.....	...	.....	16	16
Wound of eyelid	.....	.....	.....	.....	.....	...	.....	1	1
Chemical injuries of the eye	.....	1	.....	.....	.....	...	1	.....	1
Contusion of pinna	.....	.....	.....	.....	.....	...	.....	2	2
Foreign body in external meatus	.....	.....	.....	.....	.....	...	.....	2	2
Wound of neck	.....	1	1	.....	.....	...	.....	.....	1
Contusion of the chest	1	6	5	2	.....	...	.....	10	17
Fracture of the ribs	.....	23	13	5	.....	1	4	8	31
Wound of parietes of chest	.....	2	2	.....	.....	...	.....	.....	2
Contusion of back	.....	8	7	1	.....	...	.....	9	17
Sprain of back	.....	11	9	2	.....	...	.....	24	35
Wound of back	.....	3	.....	3	.....	...	.....	1	4
Wound of spine	.....	1	.....	.....	.....	1	.....	.....	1
Contusion of abdomen	.....	1	1	.....	.....	...	.....	5	6
Wound of parietes of abdomen	.....	1	1	.....	.....	...	.....	.....	1
Fracture and dislocation of pelvis	.....	1	1	.....	.....	...	.....	.....	1
Contusion of testicle	1	.....	.....	.....	.....	1	.....	1	2
Contusion of upper extremities	1	7	5	3	.....	...	.....	30	38
Sprain of the shoulder	.....	1	1	.....	.....	...	.....	3	4
Sprain of the elbow	.....	1	1	.....	.....	...	.....	3	4
Sprain of the wrist	.....	2	1	1	.....	...	.....	15	17
Sprain of the fingers	.....	.....	.....	.....	.....	...	.....	6	6
Wound of upper extremities	.....	21	16	3	1	...	1	116	137
Fracture of the clavicle	.....	4	3	.....	1	...	.....	.....	4
Fracture of the scapula	.....	1	1	.....	.....	...	.....	1	2
Fracture of the humerus	.....	1	1	.....	.....	...	.....	.....	1
Fracture of the radius	1	5	4	1	1	...	.....	3	9
Fracture of the ulna	.....	5	4	1	.....	...	.....	5	10
Fracture of both bones of forearm	.....	2	.....	.....	.....	1	1	.....	2
Fracture of carpus, metacarpus, and phalanges	.....	2	1	.....	1	...	.....	2	4
Dislocation of the clavicle	.....	3	1	2	.....	...	.....	1	4
Dislocation of the humerus	1	8	8	.....	1	...	.....	2	11
Dislocation of the radius	.....	.....	.....	.....	.....	...	.....	1	1
Dislocation of the ulna	.....	.....	.....	.....	.....	...	.....	1	1
Dislocation of the carpus	.....	1	1	.....	.....	...	.....	1	2
Contusion of the lower extremities	1	32	26	5	.....	...	2	47	80

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

THE PACIFIC—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
Injuries—Continued.									
LOCAL INJURIES—Continued.									
Sprain of the hip	.....	1	1	.....	.....	.....	.....	1	2
Sprain of the knee	.....	3	1	2	.....	.....	.....	17	20
Sprain of the ankle	1	13	8	3	.....	.....	3	24	38
Sprain of the foot	.....	1	1	.....	.....	.....	.....	8	9
Wound of the lower extremities	2	18	17	3	.....	.....	.....	40	60
Fracture of femur	4	6	7	1	.....	.....	2	2	12
Fracture of patella	1	.....	1	.....	.....	.....	.....	.....	1
Fracture of leg, both bones	8	6	11	1	.....	.....	2	3	17
Fracture of tibia alone	.....	6	3	2	.....	.....	1	1	7
Fracture of fibula alone	1	11	10	1	.....	.....	1	2	14
Fracture of metatarsus	.....	1	1	.....	.....	.....	.....	.....	1
Dislocation of the foot at the ankle	.....	1	1	.....	.....	.....	.....	.....	1
AMPUTATIONS	.....	1	1	.....	.....	.....	.....	6	7
Amputation of fingers	.....	1	1	.....	.....	.....	.....	.....	1
Amputation of leg	.....	.....	.....	.....	.....	.....	.....	1	1
Amputation of toes	.....	.....	.....	.....	.....	.....	.....	5	5
QUARANTINE.									
TOTAL CASES	2	40	37	3	.....	2	.....	260	302
General Diseases	2	20	19	2	.....	1	.....	73	95
Smallpox	.....	3	3	.....	.....	.....	.....	.....	3
Influenza	.....	.....	.....	.....	.....	.....	.....	1	1
Simple continued fever	.....	.....	.....	.....	.....	.....	.....	1	1
Yellow fever	.....	9	8	.....	.....	1	.....	.....	9
Cholera	.....	1	1	.....	.....	.....	.....	.....	1
Sporadic cholera	.....	1	1	.....	.....	.....	.....	.....	1
Dysentery	.....	.....	.....	.....	.....	.....	.....	1	1
Malarial intermittent fever	2	2	4	.....	.....	.....	.....	12	16
Malarial remittent fever	.....	2	2	.....	.....	.....	.....	13	15
Malarial cachexia	.....	.....	.....	.....	.....	.....	.....	7	7
Erysipelas, simple	.....	1	.....	1	.....	.....	.....	.....	1
Syphilis, secondary	.....	1	.....	1	.....	.....	.....	4	5
Gonorrhœa	.....	.....	.....	.....	.....	.....	.....	14	14
Animal parasites	.....	.....	.....	.....	.....	.....	.....	2	2
Alcoholism	.....	.....	.....	.....	.....	.....	.....	2	2
Debility	.....	.....	.....	.....	.....	.....	.....	1	1
Rheumatism	.....	.....	.....	.....	.....	.....	.....	15	15
Local Diseases	.....	4	2	1	.....	1	.....	141	145
DISEASES OF THE NERVOUS SYSTEM	.....	1	.....	.....	.....	1	.....	6	7
Inflammation of cerebral membranes	.....	1	.....	.....	.....	1	.....	.....	1
Neuralgia	.....	.....	.....	.....	.....	.....	.....	5	5
Facial	.....	.....	.....	.....	.....	.....	.....	1	1
DISEASES OF THE EYE	.....	.....	.....	.....	.....	.....	.....	6	6
Conjunctivitis	.....	.....	.....	.....	.....	.....	.....	6	6
DISEASES OF THE EAR	.....	.....	.....	.....	.....	.....	.....	3	3
Accumulation of wax	.....	.....	.....	.....	.....	.....	.....	1	1
Inflammation of the middle ear	.....	.....	.....	.....	.....	.....	.....	1	1
Tinnitus	.....	.....	.....	.....	.....	.....	.....	1	1
DISEASES OF THE CIRCULATORY SYSTEM	.....	1	.....	1	.....	.....	.....	.....	1
Valvular disease, pulmonic	.....	1	.....	1	.....	.....	.....	.....	1

TABLE VII.—TABULAR STATEMENT, BY DISTRICTS, OF DISEASES AND INJURIES TREATED DURING THE YEAR ENDED JUNE 30, 1896—Continued.

QUARANTINE—Continued.

Diseases.	Number of cases.								
	Remaining under treatment from previous year.	Admitted during the year.	Discharged.			Died.	Remaining under treatment at close of the year.	Number furnished office relief.	Number treated in hospital and dispensary.
			Recovered.	Improved.	Not improved.				
General Diseases—Continued.									
DISEASES OF THE RESPIRATORY SYSTEM	.....	.....	.....	.....	.....	....	.....	21	21
Bronchitis, acute	.....	.....	.....	.....	.....	....	.....	20	20
Spasmodic asthma	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE DIGESTIVE SYSTEM	.....	1	1	.....	.....	....	.....	89	90
Ulcer of the lips	.....	.....	.....	.....	.....	....	.....	1	1
Stomatitis	.....	.....	.....	.....	.....	....	.....	1	1
Caries of dentine and cementum	.....	.....	.....	.....	.....	....	.....	13	13
Ulceration of gums and alveoli	.....	.....	.....	.....	.....	....	.....	1	1
Dyspepsia	.....	.....	.....	.....	.....	....	.....	19	19
Inflammation of the intestines, catarrhal	.....	.....	.....	.....	.....	....	.....	1	1
Hernia	.....	.....	.....	.....	.....	....	.....	3	3
Diarrhœa	.....	1	1	.....	.....	....	.....	15	16
Constipation	.....	.....	.....	.....	.....	....	.....	27	27
Colic	.....	.....	.....	.....	.....	....	.....	6	6
Piles, internal	.....	.....	.....	.....	.....	....	.....	1	1
Jaundice	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE URINARY SYSTEM	.....	1	1	.....	.....	....	.....	1	2
Hæmorrhage of bladder	.....	1	1	.....	.....	....	.....	.....	1
Inflammation of bladder, acute	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE GENERATIVE SYSTEM	.....	.....	.....	.....	.....	....	.....	2	2
Stricture of urethra, organic	.....	.....	.....	.....	.....	....	.....	1	1
Ulcer of penis	.....	.....	.....	.....	.....	....	.....	1	1
DISEASES OF THE SKIN	.....	.....	.....	.....	.....	....	.....	13	13
Eczema	.....	.....	.....	.....	.....	....	.....	2	2
Ecthyma	.....	.....	.....	.....	.....	....	.....	1	1
Acne	.....	.....	.....	.....	.....	....	.....	1	1
Alopecia	.....	.....	.....	.....	.....	....	.....	2	2
Frostbite	.....	.....	.....	.....	.....	....	.....	4	4
Ulcer	.....	.....	.....	.....	.....	....	.....	2	2
Boil	.....	.....	.....	.....	.....	....	.....	1	1
Injuries	.....	**16**	**16**	.....	.....	....	.....	**46**	**62**
GENERAL INJURIES	.....	16	16	.....	.....	....	.....	3	19
Burns and scalds	.....	.....	.....	.....	.....	....	.....	2	2
Heat stroke	.....	.....	.....	.....	.....	....	.....	1	1
Privation	.....	16	16	.....	.....	....	.....	.....	16
LOCAL INJURIES	.....	.....	.....	.....	.....	....	.....	43	43
Foreign body in subcutaneous tissue	.....	.....	.....	.....	.....	....	.....	8	8
Wound of face and mouth	.....	.....	.....	.....	.....	....	.....	1	1
Contusion of back	.....	.....	.....	.....	.....	....	.....	1	1
Sprain of back	.....	.....	.....	.....	.....	....	.....	10	10
Wound of the urethra, perineum, scrotum, and penis	.....	.....	.....	.....	.....	....	.....	1	1
Contusion of upper extremities	.....	.....	.....	.....	.....	....	.....	2	2
Sprain of the shoulder	.....	.....	.....	.....	.....	....	.....	1	1
Sprain of the elbow	.....	.....	.....	.....	.....	....	.....	1	1
Sprain of the wrist	.....	.....	.....	.....	.....	....	.....	2	2
Wound of the upper extremities	.....	.....	.....	.....	.....	....	.....	6	6
Dislocation of the phalanges of fingers	.....	.....	.....	.....	.....	....	.....	1	1
Contusion of the lower extremities	.....	.....	.....	.....	.....	....	.....	4	4
Sprain of the ankle	.....	.....	.....	.....	.....	....	.....	1	1
Wound of the lower extremities	.....	.....	.....	.....	.....	....	.....	4	4

TABLE VIII.—TABULAR STATEMENT, BY DISTRICTS, OF CAUSES OF MORTALITY AMONG PATIENTS OF THE SERVICE DURING THE YEAR ENDED JUNE 30, 1896.

Causes of death.	Total.	Districts.								
		North Atlantic.	Middle Atlantic.	South Atlantic.	The Gulf.	The Ohio.	The Mississippi.	The Great Lakes.	The Pacific.	Quarantine stations.
Total Deaths from all Causes	**430**	**39**	**86**	**63**	**40**	**33**	**41**	**54**	**72**	**2**
FROM DISEASES	403	38	82	59	37	32	39	47	67	2
FROM INJURIES	27	1	4	4	3	1	2	7	5	.....
General Diseases	**218**	**17**	**48**	**32**	**17**	**16**	**22**	**29**	**36**	**1**
Smallpox	1	.....	.....	.....	.....	.....	1	.....	.....	.....
Influenza	5	.....	.....	.....	.....	1	1	2	1	.....
Enteric fever	29	5	4	6	.....	3	.....	10	1	.....
Typho-malarial fever	1	.....	.....	1	.....	.....	.....	.....	.....	.....
Yellow fever	1	.....	.....	.....	.....	.....	.....	.....	.....	1
Dysentery	11	.....	3	1	3	.....	3	1	.....	.....
Malarial intermittent fever	8	1	2	2	.....	.....	1	1	1	.....
Malarial remittent fever	10	1	.....	5	2	2	.....	.....	.....	.....
Malarial cachexia	1	.....	.....	1	.....	.....	.....	.....	.....	.....
Beriberi	1	.....	1	.....	.....	.....	.....	.....	.....	.....
Erysipelas, simple	1	.....	.....	1	.....	.....	.....	.....	.....	.....
Pyæmia	1	.....	1	.....	.....	.....	.....	.....	.....	.....
Syphilis, secondary	2	.....	.....	.....	.....	.....	1	.....	1	.....
Alcoholism	1	.....	.....	.....	.....	.....	.....	1	.....	.....
Debility	1	.....	.....	.....	1	.....	.....	.....	.....	.....
Rheumatism	2	.....	1	.....	1	.....	.....	.....	.....	.....
Gout	2	.....	.....	.....	.....	.....	.....	1	1	.....
Malignant new growth	6	2	.....	.....	.....	1	1	.....	2	.....
Tubercle	130	8	34	14	10	9	14	13	28	.....
Scrofula	1	.....	.....	1	.....	.....	.....	.....	.....	.....
Diabetes mellitus	3	.....	2	.....	.....	.....	.....	.....	1	.....
Local Diseases	**185**	**21**	**34**	**27**	**20**	**16**	**17**	**18**	**31**	**1**
DISEASES OF THE NERVOUS SYSTEM	20	3	1	6	.....	2	.....	3	4	1
Hæmorrhage, cerebral	2	.....	.....	1	.....	.....	.....	1	.....	.....
Inflammation:										
Of membranes of brain and spinal cord	1	.....	1	.....	.....	.....	.....	.....	.....	.....
Of cerebral membranes	3	.....	.....	1	.....	.....	.....	1	.....	1
Spinal meningitis	1	.....	.....	.....	.....	.....	.....	.....	1	.....
Sclerosis	1	.....	.....	.....	.....	.....	.....	.....	1	.....
Apoplexy	2	.....	.....	2	.....	.....	.....	.....	.....	.....
Hemiplegia	6	1	.....	1	.....	1	.....	1	2	.....
Acute ascending paralysis	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Neuralgia	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Epilepsy	2	.....	.....	1	.....	1	.....	.....	.....	.....
MENTAL DISEASES	2	1	.....	1	.....	.....	.....	.....	.....	.....
Melancholia	1	1	.....	.....	.....	.....	.....	.....	.....	.....
Dementia	1	.....	.....	1	.....	.....	.....	.....	.....	.....
DISEASES OF THE EYE	1	.....	1	.....	.....	.....	.....	.....	.....	.....
Cataract	1	.....	1	.....	.....	.....	.....	.....	.....	.....
DISEASES OF THE EAR	1	.....	.....	.....	.....	.....	1	.....	.....	.....
Inflammation of the middle ear	1	.....	.....	.....	.....	.....	1	.....	.....	.....
DISEASES OF THE CIRCULATORY SYSTEM	49	7	7	6	6	4	2	5	12	.....
Valvular disease:										
Aortic	16	3	4	4	2	2	.....	1	.....	.....
Mitral	24	4	1	1	2	2	1	3	10	.....
Degeneration of the arteries	1	.....	1	.....	.....	.....	.....	.....	.....	.....
Aneurysm of the arteries	6	.....	1	1	1	.....	1	.....	2	.....
Rupture of the arteries	2	.....	.....	.....	1	.....	.....	1	.....	.....
DISEASES OF THE RESPIRATORY SYSTEM	53	1	17	6	7	4	9	3	6	.....
Laryngitis, acute	1	.....	1	.....	.....	.....	.....	.....	.....	.....
Bronchitis:										
Acute	3	1	2	.....	.....	.....	.....	.....	.....	.....
Chronic	2	.....	1	.....	.....	.....	1	.....	.....	.....
Spasmodic asthma	4	.....	.....	1	.....	.....	1	1	1	.....
Passive congestion of lung	2	.....	.....	.....	.....	.....	.....	.....	2	.....
Pneumonia	40	.....	13	4	7	4	7	2	3	.....
Pleurisy, acute	1	.....	.....	1	.....	.....	.....	.....	.....	.....

TABLE VIII.—TABULAR STATEMENT, BY DISTRICTS, OF CAUSES OF MORTALITY AMONG PATIENTS OF THE SERVICE, ETC.—Continued.

Causes of death.	Total.	Districts.								
		North Atlantic.	Middle Atlantic.	South Atlantic.	The Gulf.	The Ohio.	The Mississippi.	The Great Lakes.	The Pacific.	Quarantine stations.
Local Diseases—Continued.										
DISEASES OF THE DIGESTIVE SYSTEM	28	4	4	3	4	2	3	2	6	
Abscess of the antrum	1									
Ulceration of the stomach	3			1	1				1	
Inflammation of the intestines:										
Catarrhal	2						1			
Ulceration	3				1	1	1	1		
Hernia	2								2	
Diarrhœa	4	1	1				1		1	
Fistula in ano	1	1								
Congestion of liver	1				1					
Hepatitis	1		1							
Cirrhosis of liver	5	1		1	1				1	
Jaundice	1			1		1				
Ascites	2							1	1	
Peritonitis	2		2							
DISEASES OF THE THYROID BODY	1							1		
Goitre	1							1		
DISEASES OF THE URINARY SYSTEM	15	1	3	3	1		2	2	2	
Acute nephritis	2		1	1		1				
Bright's disease	5		2	2	1					
Pyelitis	6						2	2	1	
Inflammation of bladder	2	1				1			1	
DISEASES OF THE GENERATIVE SYSTEM	5	2		1	1					
Stricture of urethra, organic	2			1	1	1				
Urinary fistula	1	1								
Recto-urethral fistula	1	1								
Hypertrophy of prostate gland	1									
DISEASES OF THE ORGANS OF LOCOMOTION	5	1		1	1	1		1		
Periostitis	1					1		1		
Necrosis	3	1		1	1					
Angular curvature of spine	1									
DISEASES OF THE CONNECTIVE TISSUE	2					1			1	
Œdema	1					1				
Abscess	1					1			1	
DISEASES OF THE SKIN	3	1	1					1		
Ulcer	2		1					1		
Gangrene	1	1								
Injuries	**27**	**1**	**4**	**4**	**3**	**1**	**2**	**7**	**5**	
GENERAL INJURIES	10		3	3	1		1	1	1	
Burns and scalds	7		3	2			1	1		
Heat stroke	3			1	1				1	
LOCAL INJURIES	17	1	1	1	2	1	1	6	4	
Fracture of the base of the skull	2			1				1		
Contusion of face	1									
Wound of face and mouth	1					1		1		
Fracture of ribs	1								1	
Penetrating wound of pleura	1						1			
Wound of spine	1								1	
Fracture of spine	1							1		
Contusion of abdomen	1							1		
Contusion of testicle	1								1	
Fracture of both bones of forearm	1								1	
Contusion of lower extremity	2		1		1					
Wound of lower extremity	1	1								
Fracture of femur	1							1		
Fracture of leg, both bones	2				1			1		

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1896.

Operations.	Number of cases.	Remarks.
Total Number of Operations	**1,042**	
REMOVAL OF TUMORS	51	
For papilloma	5	Excision.
For condyloma	1	Do.
For epithelioma	8	Excision; excision lower jaw, 1.
For polypi (antrum)	1	Removed through incision in cheek; death.
For polypi (uterus)	1	Removed.
For chondroma	1	Excision.
For cyst	16	Injected tincture iodine, 1; excised.
For lipoma	5	Excision.
For sarcoma	4	Excision; death, 1; returned, 1.
For fibroma	2	Excision.
For carcinoma of rectum	1	
For carcinoma of testicle	1	Castration.
For fibro-chondroma	1	Excision.
For warts	1	Do.
For keloid	1	Do.
REMOVAL OF FOREIGN BODIES	2	
In finger	1	Removed.
In bladder	1	Suprapubic cystotomy.
OPENING OF ABSCESSES	74	
For alveolar abscess	1	Incision.
For abscess of knee	1	Aspiration.
For abscess of connective tissue	33	Incised; unsuccessful, 2.
For abscess of hand	3	Incised.
For abscess of liver	5	Incision and drainage.
For periurethral abscess	1	Incision.
For abscess prostate gland	1	Perineal incision; death, 1.
For abscess of elbow joint	1	Total excision of joint.
For vesico-recto-perineal abscess	1	Perineal cystotomy; death, 1.
For psoas abscess	3	Incision.
For ischio-rectal abscess	6	Do.
For perineal abscess	2	Do.
For whitlow	4	Do.
For abscess of axilla	3	Incised.
For abscess of neck	2	Do.
For abscess of testicle	1	Castration.
For subperitoneal connective tissue	1	Laparotomy.
For submaxillary gland	3	Incision, 2; excision, 1.
For sublingual gland	1	Curetted.
For perinephritic abscess	1	Incision.
OPERATIONS ON THE NERVES	4	
For neuralgia	3	Nerve stretched; unsuccessful, 1.
For neuralgia, fifth nerve	1	Nerve removed at foramen ovale.
OPERATIONS ON THE EYE	19	
For lenticular cataract	7	Extracted; iridectomy, 1.
For pterygium	4	Excision.
For panophthalmitis	1	Excision of eye.
For chalazion	1	Incised and curetted.
For epiphora	1	Unsuccessful.
For hypopion	1	Pus evacuated.
For injury to eye	1	Excision of eye.
For sarcoma of eye	1	Do.
Rupture, sclerotic	1	Do.
For dacryocystitis	1	Incision.
OPERATIONS ON THE NOSE	2	
For deflected septum	1	Straightened.
For polypus	3	Removal.
OPERATIONS ON THE HEAD AND MOUTH	19	
For lacerated wound of scalp	1	Sutured.
For elongated uvula	3	Excision.
For suppuration in mastoid cells	4	Trephined.
For depressed fracture of skull	3	Depressed bone removed.
For polypi external ear	2	Removed.
For enlarged tonsil	1	Excision.
For painful scar of face	1	Do.
For fissure of lip	1	Plastic operation.
For penetrating wound of brain	1	Fragments of bone removed.
For hemiplegia	1	Trephined (slightly improved).
For necrosis of skull	1	Incised, curetted, and drained.
OPERATIONS ON THE ARTERIES	4	
For wound of intercostal artery	1	Ligation.
For aneurysm of femoral artery	1	Ligation left external iliac.

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1896—Continued.

Operations.	Number of cases.	Remarks.
OPERATIONS ON THE ARTERIES—Continued.		
For gunshot wound of femur	1	Ligation of femoral artery.
For aneurysm of popliteal artery	1	Incision of sac and ligation of popliteal artery.
OPERATIONS ON THE VEINS	12	
For varicose veins	12	Excision; Schade's operation, 3.
OPERATIONS ON THE RESPIRATORY ORGANS	4	
For penetrating wound of lung	2	Resection of ninth rib and drainage.
For syphilis of larynx	1	Tracheotomy.
For goitre	1	Partial removal of gland; death.
OPERATIONS ON THE THORAX	23	
For pleurisy with effusion	12	Paracentesis of pleural cavity.
For empyema	7	Paracentesis of pleural cavity; partial resection of rib, 2.
For hydrothorax	3	Paracentesis of pleural cavity.
For gunshot wound of chest	1	Ball removed.
OPERATIONS ON THE ORGANS OF DIGESTION	163	
For fistula in ano	33	Incised; elastic ligature, 1.
For hæmorrhoids, internal	17	Ligation; clamp and cautery, 3.
For hæmorrhoids, external	13	Ligation; clamp and cautery, 3; Whitehead's operation, 1.
For hernia, inguinal, double	1	Radical cure.
For hernia, inguinal, congenital	5	Do.
For hernia, inguinal, strangulated	5	Reduction; radical cure, 2.
For hernia, inguinal, scrotal	3	Radical cure.
For hernia, inguinal, oblique	60	Radical cure; unsuccessful, 1.
For hernia, inguinal, direct	8	Radical cure; necrosed gut excised, 1.
For hernia, inguinal, diaphragmatic	.....	
For hernia, inguinal, ventral	2	Sheaths of recti united.
For hernia, femoral	1	Ring closed.
For appendicitis	9	Appendix removed; died, 1.
For peritonitis (traumatic)	1	Laparotomy; death.
For prolapsus ani	2	Ligature and excision.
For obstruction of bowel	2	Exploratory laparotomy; died, 2.
For obstruction common bile duct	1	Exploratory laparotomy; died.
OPERATIONS ON THE ABDOMEN AND PELVIS	14	
For ascitis	7	Paracentesis abdominalis; died, 1.
For penetrating wound, abdomen	1	Laparotomy.
For rupture of kidney	1	Abdomen opened and drained; died, 1.
For gummata of liver	1	Exploratory laparotomy and part of tumor removed.
For tubercle of kidney	1	Kidney removed through side.
For movable kidney	1	Nephrorrhaphy.
For cancer of mesentery and stomach	1	Laparotomy; death.
For gunshot wound, abdomen	1	Incised, and bullet removed.
OPERATIONS ON THE LYMPHATIC ORGANS	185	
For inflammation lymph glands:		
Groin	40	Removed; incised, and curetted, 3.
Axilla	4	Removed.
Neck	3	Removed; incised, and curetted, 1.
For suppuration lymph glands:		
Groin	132	Removed; incised, and curetted, 30.
Axilla	3	Removed; incised, and curetted, 1.
Neck	3	Do.
OPERATIONS ON THE URINARY ORGANS	107	
For organic stricture urethra	45	Internal urethrotomy; unsuccessful, 1.
Do	5	External urethrotomy.
Do	26	Dilatation, gradual.
Do	18	Divulsion; unsuccessful, 1.
Do	3	Meatotomy.
For urinary fistula	3	Incision, 2; perineal section, 1.
For chronic cystitis	3	Perineal section and drainage; supra-cystotomy, 2.
For rupture urethra	1	Perineal section.
For wound of urethra	1	Dilatation of urethra.
For pyonephrosis	2	Incision and drainage; died, 1.
OPERATIONS ON THE ORGANS OF GENERATION	183	
For phimosis	109	Circumcision.
Do	7	Prepuce slit.
For paraphimosis	1	Circumcision.
Do	2	Prepuce slit.
For ulcer of penis	4	Circumcision; curetted, 2.

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1896—Continued.

Operations.	Number of cases.	Remarks.
OPERATIONS ON THE ORGANS OF GENERATION—Continued.		
For varicocele	19	Excision; ligation, 4.
For hydrocele	21	Aspirated; radical cure, 7; injected carbolic acid, 3.
For orchitis (degeneration of testicle)	1	Castration.
For hypertrophy of scrotum	1	Plastic operation.
For inflammation of uterus (catarrhal)	6	Cavity scraped.
For cystocele	1	Plastic operation.
For retro-version of uterus with chronic ovaritis.	1	Ovariotomy with ventrofixation of uterus.
For chronic endometritis with chronic ovaritis.	1	Abdomino-vaginal hysterectomy with ovaries and tubes.
For tumor of testicle	1	Castration.
For vulvovaginal fistula	1	Incised, curetted, and sutured.
For tubercle of testicle	3	Castration.
For lacerated cervix	1	Emmett's operation.
For cyst of testicle	1	Castration.
For redundant prepuce	2	Circumcision.
OPERATIONS ON THE BONES	51	
For fracture of superior maxillary	1	Bone scraped.
For fracture of inferior maxillary	1	Wired.
For fracture of clavicle	1	Reduction.
For fracture of radius	1	Do.
For fracture of femur	1	Do.
For fracture of patella	4	Bones wired.
For fracture of leg (compound)	1	Reduction.
For fracture of tibia	2	Bones wired; reduction, 1.
For fracture of fibula	1	Reduction.
For ununited fracture	3	Bone wired; iodine injected, 1; bone freshened, 1.
For diffuse periostitis	3	Periosteotomy.
For necrosis of clavicle	2	Curetted.
For necrosis of humerus	1	Bone scraped.
For necrosis of ribs	1	Removal of bone.
For necrosis of foot	4	Do.
For caries of frontal bone	1	Curetted.
For caries of superior maxillary	2	Portion of bone removed.
For caries of inferior maxillary	1	Bone scraped.
For caries of sternum	1	Diseased bone removed.
For caries of metacarpal bone	2	Curetted.
For caries of femur	2	Do.
For caries of olecranon process	2	Do.
For caries of tarsal bone	1	Do.
For caries of metatarsal bones	1	Partial resection.
For caries of phalanges	1	Curetted.
For osteomyelitis humerus	2	Excision upper extremity of humerus; curetted, 1.
For osteomyelitis femur	1	Bone chiseled and curretted.
For tubercle of humerus	1	Diseased bone removed.
For tubercle of radius	2	Periosteotomy.
For lacerated wound of fingers	1	Resection of phalanges.
For wound of fingers	1	Excision of bone.
For contused wound of hand	1	Partial excision of wrist.
For gunshot wound of spinal cord	1	Laminectomy and extraction of ball; died.
For suppurative arthritis great toe	1	Head of metatarsal bone removed.
OPERATIONS ON THE JOINTS	26	
For dislocation of shoulder	12	Reduction.
For dislocation of thumb	1	Head of metacarpal bone removed.
For dislocation of femur	1	Reduction.
For dropsy of kneejoint	1	Aspirated.
For fibrous ankylosis of shoulder joint	2	Forcible extension.
For fibrous ankylosis of elbow	1	Forcible extension; unsuccessful.
For fibrous ankylosis of wrist	1	Do.
For fibrous ankylosis of kneejoint	1	Forcible extension.
For acute synovitis, kneejoint	2	Aspirated.
For tubercle of shoulder joint	1	Excision head of humerus.
For loose cartilage in elbow joint	1	Cartilage removed.
For inflamed bursa of knee	2	Aspirated; unsuccessful, 1.
OPERATIONS ON TENDONS AND FASCIA	2	
For contraction palmar fascia	2	Subcutaneous division and extension.
AMPUTATIONS	54	
Of finger	37	
Of thumb	5	
Of thigh for gangrene	1	Died.
Of thigh for necrosis of femur	1	
Of thigh, middle third (second operation)	1	Do.

TABLE IX.—SURGICAL OPERATIONS, FISCAL YEAR 1896—Continued.

Operations.	Number of cases.	Remarks.
AMPUTATIONS—Continued.		
Of necrosis of femur	1	At hip joint; died.
Of leg for gangrene	1	Died.
Of leg for necrosis of bone	1	
Of leg for lacerated wound	1	
Of leg for frostbite of foot	2	
Of leg for compound comminuted fracture	2	
Of thigh for osteitis of femur	1	
REAMPUTATIONS	5	
Of finger for caries	1	
Of leg for caries	1	Do.
Of leg for gangrene	3	Death, 1.
OPERATIONS ON THE SKIN AND CONNECTIVE TISSUES.	35	
For lupus	2	Excision, 1; skin grafting, 1.
For chronic ulcer of groin	4	Edges freshened and stitched; skin graft, 1.
For furuncle	2	Incised.
For ulcer of skin	23	Skin grafting; curetted, 11.
For burn of leg	1	Skin grafting.
For carbuncle	3	Incised and curetted.
For gunshot wound of back	1	Bullet removed.
For gunshot wound of arm	1	Do.

TABLE X.—RATIO OF DEATHS FROM SPECIFIC CAUSES.

Deaths from—	Per 100 from all causes.	Deaths from—	Per 100 from all causes.
General diseases	50.70	Diseases of the digestive system	6.51
Diseases of the nervous system	4.65	Diseases of the urinary system	3.49
Diseases of the circulatory system	11.39	Injuries	6.28
Diseases of the respiratory system	12.33	From all other causes	4.65

TABLE XI.—RATIO OF DEATHS IN EACH DISTRICT.

District.	Per 100 patients treated in hospital.	District.	Per 100 patients treated in hospital.
North Atlantic	2.73	The Mississippi	3.20
Middle Atlantic	4.10	The Great Lakes	2.26
South Atlantic	3.49	The Pacific	4.70
The Gulf	2.90	The quarantine stations	4.76
The Ohio	3.24		

TABLE XII.—COMPARATIVE EXHIBIT—MORTALITY PER 100 PATIENTS TREATED IN HOSPITAL, BY DISTRICTS, 1887–1896.

Districts.	General average.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.
North Atlantic	2.82	3.04	3.53	3.25	2.65	2.50	2.62	2.46	2.36	3.09	2.73
Middle Atlantic	4.20	4.85	4.80	3.92	4.66	3.77	3.44	3.69	4.17	4.56	4.12
South Atlantic	3.30	3.53	2.54	3.55	3.64	2.56	2.71	3.37	4.00	3.56	3.55
The Gulf	3.21	3.82	2.78	3.08	3.40	3.88	3.63	3.29	2.38	2.98	2.90
The Ohio	2.69	3.06	2.01	3.52	2.26	2.54	1.53	3.01	2.51	3.23	3.24
The Mississippi	3.66	4.19	4.78	3.52	3.04	3.67	3.37	3.64	3.99	2.53	3.20
The Great Lakes	2.78	2.72	2.83	2.93	2.63	2.44	4.11	2.76	2.61	2.54	2.26
The Pacific	4.26	4.59	4.45	4.22	4.42	4.43	3.83	3.73	3.76	4.38	4.70
The quarantine stations	4.76	------	------	------	------	------	------	------	------	------	4.76

TABLE XIII.—COMPARATIVE EXHIBIT—RATIO OF DEATHS FROM SPECIFIC CAUSES, 1887–1896.

Deaths from—	General average.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.
General diseases	47.40	45.63	46.58	45.47	50.20	52.66	43.42	47.70	47.70	43.94	50.70
Diseases of the—											
Nervous system	5.12	4.79	6.84	5.69	4.06	3.69	6.05	4.81	5.58	4.81	4.65
Circulatory system	8.69	7.29	10.04	7.58	5.81	9.84	9.60	8.99	5.58	10.76	11.39
Respiratory system	15.82	17.50	14.96	17.26	19.10	15.16	15.85	13.38	16.51	16.24	12.23
Digestive system	7.49	7.08	8.97	7.37	6.30	5.33	7.30	7.11	8.48	10.53	6.51
Urinary system	5.19	6.25	5.34	4.63	4.67	4.71	4.80	6.48	5.35	6.17	3.49
Injuries	6.35	7.92	4.50	8.00	5.81	5.33	7.72	8.99	5.58	3.43	6.28
From all other causes	3.94	3.54	2.77	4.00	3.65	3.28	5.26	2.54	5.57	4.12	4.65

TABLE XIV.—COMPARATIVE EXHIBIT—AVERAGE DURATION OF TREATMENT IN HOSPITAL IN EACH DISTRICT, 1887–1896.

Districts.	General average.	1887.	1888.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.
North Atlantic	27.53	23.89	26.76	30.05	29.21	29.68	24.37	24.12	26.14	29.97	31.07
Middle Atlantic	27.79	29.21	26.99	26.92	26.32	26.81	26.87	26.29	24.60	34.21	29.68
South Atlantic	27.85	27.99	26.53	27.91	28.27	26.19	26.26	29.23	29.48	29.80	26.83
The Gulf	22.40	20.82	23.24	24.55	23.21	21.07	21.97	22.33	22.13	22.46	22.24
The Ohio	23.60	21.87	21.62	22.52	24.52	24.92	23.81	23.37	22.80	25.18	25.43
The Mississippi	21.46	21.72	21.23	22.60	20.88	22.61	20.59	19.84	21.51	22.92	20.74
The Great Lakes	28.04	26.31	26.72	29.69	30.82	27.09	27.82	27.07	28.32	28.34	28.25
The Pacific	35.74	29.72	29.96	31.12	33.68	32.68	36.92	40.27	43.57	40.66	38.81
The quarantine stations	14.99	.....	.....	.....	.....	.....	.....	.....	.....	19.97	10.00

TABLE XV.—STATEMENT OF MORTALITY OF PASSENGERS ON VOYAGES FROM FOREIGN PORTS TO THE UNITED STATES, FROM JULY 14, 1894, TO JUNE 23, 1896.

Name of vessel.	Where from.	Date.	Sex.	Age.	Cause of death.
				Years.	
Stuttgart	Bremen	Apr. 13, 1895	Male	40	Pneumonia.
Catalonia	Liverpool	Apr. 20, 1895	do	35	Phthisis.
Carolina	Antwerp, via Havre	Jan. 2, 1895	do	65	Senile debility.
California	Palmero, via Naples	Oct. 30, 1894	do	69	Apoplexy.
Venetia	Hamburg	July 14, 1894	do	64	Do.
State of Nebraska	Glasgow	July 17, 1894	do	53	Coma.
Veendam	Rotterdam	July 27, 1894	do	44	Marasmus.
Edam	Amsterdam	Dec. 3, 1894	do	28	Suicide (supposed).
Werra	Mediterranean ports	Dec. 26, 1894	do	33	Inflamation brain.
Germanic	Liverpool	Oct. 5, 1894	do	36	No cause given.
Majestic	do	Mar. 21, 1895	Female	50	Heart failure.
State of California	Glasgow	Jan. 2, 1895	Male	54	Jaundice.
Britannic	Liverpool	Apr. 13, 1895	Female	33	Syncope.
Victoria	Mediterranean ports	Apr. 28, 1895	do	50	Exhaustion.
Bothnia	do	May 11, 1895	do	8	Diphtheria.
Spaarndam	Rotterdam	May 13, 1895	do	58	Bronchitis.
Thingvalla	Copenhagen	May 17, 1895	Male	18	Heart disease.
Fuerst Bismarck	Hamburg	May 24, 1895	do	54	Do.
La Touraine	Havre	June 8, 1895	Female	53	Do.
Lord Gough	Liverpool	Nov. 14, 1894	Male	34	Delirium tremens.
Switzerland	Antwerp	do	Female	54	Heart disease.
Ohio	Liverpool	Apr. 16, 1895	Male	26	Heart failure.
Indiana	do	May 4, 1895	do	40	Pneumonia.
Labrabor	do	Mar. 25, 1895	do	27	Apoplexy.
Gallia	do	Aug. 2, 1895	do	17	Heart disease.
Do	do	Sept. 7, 1895	do	45	Suicide.
Maasdam	Rotterdam	July 6, 1895	do	24	Heart failure.
Neustria	Marseilles	Sept. 22, 1895	do	31	Pneumonia.
Alsatia	Mediterranean ports	Oct. 3, 1895	Female	34	Syncope.
Paris	Southampton	Oct. 6, 1895	Male	31	Acute alcoholism.
La Gascogne	Havre	Oct. 13, 1895	Female	15	Peritonitis.
Amalfi	Hamburg	Nov. 2, 1895	Male	55	Pneumonia.
Venetia	Stettin	Jan. 7, 1896	Female	60	Paralysis of heart.
Aachen	Bremen	Jan. 27, 1896	Male	46	Inflammation lungs.

TABLE XV.—STATEMENT OF MORTALITY OF PASSENGERS ON VOYAGES FROM FOREIGN PORTS TO THE UNITED STATES, ETC.—Continued.

Name of vessel.	Where from.	Date.	Sex.	Age.	Cause of death.
				Years.	
La Gascogne	Havre	Feb. 10, 1896	Female	55	Aneurysm.
Ethiopia	Glasgow	Feb. 14, 1896	Male	9	Abdominal phthisis.
Albano	Hamburg	do	do	26	Heart disease.
Southwark	Antwerp	Feb. 20, 1896	do	40	Pneumonia.
Alsatia	Mediterranean ports	Mar. 9, 1896	do	35	Do.
Alesia	do	Apr. 13, 1896	do	60	Apoplexy.
Teutonic	Liverpool	Apr. 15, 1896	do	27	Syncope.
Elysia	Meditteranean ports	Apr. 22, 1896	do	24	Pneumonia.
Do	do	do	do	34	Do.
Majestic	Liverpool	Apr. 29, 1896	do	9	Heart disease.
Belgravia	Mediterranean ports	Apr. 30, 1896	do	52	Pneumonia.
Hesperia	do	May 2, 1896	do	56	Apoplexy.
Chandernagor	Marseilles	May 8, 1896	do	45	Pneumonia.
Boun	Bremen	May 9, 1896	do	24	Heart disease.
Burgundia	Havre	May 17, 1896	Female	32	Paralysis.
Amsterdam	Rotterdam	May 18, 1896	do	23	Enteric fever.
Majestic	Liverpool	May 20, 1896	Male	25	Heart failure.
Amsterdam	Rotterdam	June 23, 1896	do	58	Heart disease.
Pennland	Liverpool	Apr. 28, 1896	do	29	Pneumonia.
Roland	Bremen	May 7, 1896	do	69	Inflammation lungs.
Indiana	Liverpool	May 20, 1896	Female	20	Probably heart disease.
Gallic	Hongkong	July 12, 1895	Male	41	No cause given.
San Jose	Panama	July 13, 1895	do	25	Do.
Do	do	do	do	31	Do.
City of Sydney	do	Sept. 10, 1895	do	30	Do.

TABLE XVI.—NATIVITIES OF PATIENTS TREATED IN UNITED STATES MARINE HOSPITALS DURING THE FISCAL YEAR ENDED JUNE 30, 1896.

Countries.	Number.	Countries.	Number.
Total	12,954	Ireland	624
		Italy	47
Africa	5	Japan	22
Australia	74	Mexico	18
Azores Islands	7	New Zealand	15
Bavaria	10	Norway	614
Belgium	63	Peru	13
Brazil	9	Poland	23
Canada	340	Portugal	47
Chili	9	Prince Edward Island	19
China	4	Russia	94
Denmark	240	Scandinavia	2
England	431	Scotland	191
Finland	245	Spain	66
France	94	Sweden	684
Germany	551	Switzerland	15
Greece	32	United States	8,011
Holland	30	Wales	10
Hungary	7	West Indies	189
Iceland	5	Unknown	90
India	4		

PUBLIC HEALTH SERVICE.

PUBLIC HEALTH SERVICE.

CHOLERA.

CHOLERA IN 1896.

The survey of the situation in Europe as respects this disease, as given in my annual report of 1895, closed with November of that year. At that time cholera was still persistent in the Russian Empire, the German Empire, the Austrian Empire, Belgium, the Netherlands, and France, although in the three latter countries it had appeared only in isolated places. During the last three months of the period stated the number of cases had been gradually decreasing, with a possibility that a cessation during the winter would be followed by an outbreak during the summer of 1896, but this expectation has not been realized except in Egypt.

In Egypt, by the middle of December, cholera was present in 19 vilayets, and a total of 1,056 cases had been reported by that time, with a mortality of 874, showing its particularly fatal character.

A commission, consisting of Dr. H. Le Grand, member of the sanitary council of Egypt; Dr. Burlazzi, official director of the port of Alexandria, and Dr. A. J. Gauthier, physician at the sanitary station of Suez and the Wells of Moses, reported to the sanitary and maritime quarantine council of Egypt the results of an investigation of this epidemic.

Their conclusions were:

First. The disease which broke out at Damietta October 10, 1895, was Asiatic cholera.

Second. Cholera was imported to Damietta by land or by way of Lake Menzaleh.

Third. Cholera previously existed in the localities to the southward.

Fourth. Cholera was propagated among the fellahs and bedouins, assembled for date gathering.

For full report of this commission see Public Health Reports, January 17, 1896.

During December cholera was still prevalent in scattered communes in the Province of Galicia, in Austria-Hungary, in Russia, in a number of the civil governments, and in the city of St. Petersburg itself.

The number of vilayets in Egypt which had become infected with cholera by the close of the year was 31.

In January the progress of the disease in Galicia had practically ceased. The total number of cases reported since August 23, 1895, was 453, with 296 deaths.

In February the decadence of the disease in the civil governments of the Russian Empire was evident from the consular reports, and the character of the disease was noted as of less virulence, some reports stating it passed under the name of cholerine.

In St. Petersburg, from December 1 to February 15, 569 cases have been reported, with 234 deaths.

The province in Russia most afflicted with this scourge was the government of Volhynia, where about 3,000 cases were reported from the middle of October to the middle of January.

In March the Empire of Russia was considered free from cholera and the quarantine restrictions of adjoining countries were declared off.

In Egypt, during March, no marked progress was noted, except at Alexandria, and in that city from January to April 26 there were 130 cases, of which 115 proved fatal. All the rest of the Egyptian ports were free from the disease after the latter part of January, excepting an isolated case here and there. In April the disease was on the increase in Alexandria, and although it was observed mostly among the natives and lower class of Europeans, yet it continued as a source of danger to countries in commercial connection with Egypt through its principal seaport.

The great mortality is to be noted. The total number of cases and deaths reported in Egypt up to the first week in May was 1,279 and 1,069, respectively, a mortality of about 80 per cent. Of these, 179 cases and 133 deaths occurred in Alexandria. By the close of May the total number of cases in all Egypt was 2,256, of which 1,878 were fatal. The disease increased in frequency and virulence in Alexandria during May, the mortality increasing to about 20 or 25 per diem, and it was evident to the authorities that the epidemic could not be stamped out. Energetic measures were taken in Cairo to keep the capital city from a visitation, and the city was divided into sanitary districts, with an experienced corps of medical officers detailed to carry into effect measures tending to guard the public health.

Fifty vilayets had been visited with the disease up to the close of May.

From the beginning of December to the last of June the total number of deaths from cholera in Alexandria was 726, and in Cairo 927, a mortality which was very slight, compared with the epidemics of 1865 and 1883, when, for a time, the deaths in Cairo were numbered by the thousand.

By September of this year the mortality of the present epidemic in Egypt was reported as about 16,841 out of a total of 20,289 cases.

The epidemic in Japan, noted in my previous report, had practically terminated at the close of 1895, but a few cases and deaths were reported in isolated places during the early part of 1896.

Table showing the prevalence of cholera as reported to the Supervising Surgeon-General United States Marine-Hospital Service, November 1, 1895, to November 1, 1896.

Place.	Date.	Cases.	Deaths.	Remarks.
Argentina:				
Buenos Ayres	Dec. 21-Dec. 28	3		
Austria-Hungary	Nov. 5-Nov. 18	47	39	From outbreak (Aug. 23, 1895) to date 453 cases, 296 deaths.
	Nov. 19-Dec. 2	43	25	
	Dec. 10-Dec. 30	21	11	
	Dec. 31-Jan. 27	16	11	
Egypt: *				
Alexandria	Dec. 24-Dec. 31		1	
	Dec. 29-Apr. 26	130	115	
	May 1-May 13		145	
	May 14-May 20		162	
	May 19-May 28		202	
	May 29-June 7		66	
	June 9-June 14		15	
	June 15-July 20		80	
	Aug. 9-Aug. 15	22	21	
	Aug. 16-Aug. 29	64	55	
	Aug. 29-Sept. 5	18	15	
	Sept. 13-Sept. 19	3	1	
	Oct. 7†			
Cairo	Dec. 7-Dec. 11	1	2	
	Jan. 10-Jan. 11	1	1	
	May 7-May 20		138	
	May 19-May 28		372	
	May 29-June 7		246	
	June 9-June 14		109	
	June 15-July 20		159	
	Aug. 4-Aug. 10	14	4	
	Aug. 11-Aug. 24		15	
	Aug. 24-Aug. 31		46	
	Sept. 1-Sept. 5		111	
	Sept. 8-Sept. 21	119	31	
	Oct. 1-Oct. 7		1	
	Oct. 29-Nov. 12		20	
India:				
Bombay	Nov. 19-Dec. 24		15	
	Jan. 14-Feb. 4		8	
	Feb. 18-Feb. 25		1	
	Mar. 3-Mar. 31		18	
	Apr. 2-Apr. 28		33	
	Apr. 28-June 30		307	
	July 1-Sept. 22		226	
Calcutta	Nov. 10-Dec. 28		332	
	Dec. 28-Jan. 4		41	
	Jan. 4-Jan. 31		165	
	Feb. 1-Feb. 29		200	
	Mar. 1-Apr. 25		1,809	
	Apr. 25-May 30		817	
	May 31-June 27		167	
	June 27-Sept. 12		90	
Madras	June 6-June 13		3	
	July 4-July 17		3	
	July 25-July 31		1	
	Aug. 28-Sept. 18		36	
Singapore	Mar. 1-Mar. 31		4	
	July 1-July 31		7	
Japan:				
Yokohama	Nov. 8-Nov. 15	1	1	
	June 12-June 19	1	1	
	June 19-July 3	3	3	
	Aug. 20-Aug. 26	3		
Chiba Ken	Nov. 1-Nov. 7	17	12	
	Jan. 6-Jan. 25	20	13	
	Jan. 24-Feb. 16	23	16	
	July 2-July 11	1		
Ibaraki Ken	Nov. 1-Nov. 7	2	2	
	Jan. 24-Feb. 3	3		
	Feb. 12-Feb. 15		2	
	July 2-July 11	2	1	
	July 13-July 21	2	1	
Fukuoka Ken	Nov. 1-Nov. 7	11	2	
	Feb. 29	1		
	June 8-July 11	23		
	July 13-July 21	5		
Hokkaido Ken	Nov. 1-Nov. 7		2	
Saga Ken	do	2	0	
Shimane Ken	do	2	2	

* To date of October 7, 21,569 cases of cholera, with 18,110 deaths, have been reported throughout Egypt.

† No cases for a fortnight.

Table showing the prevalence of cholera as reported to the Supervising Surgeon-General United States Marine-Hospital Service, etc.—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Japan—Continued.				
Kumamota Ken	Nov. 1-Nov. 7	6	2	
Akita Ken	do	18	10	
Okinaya Ken	do	58	35	
Niigata Ken	do	139	90	
Nara Ken	do	1	1	
Miya Ken	do	19	15	
Aichi Ken	do		34	
Shiga Ken	do	1		
Nagano Ken	do	3	2	
Fukushima Ken	do	12	3	
Iwate Ken	do		8	
Yamagata Ken	do	21	11	
Fukui Ken	do		4	
Toyama Ken	do		26	
Tottori Ken	do	2	2	
Hiroshima Ken	do	6	5	
Osaka Fu	do		13	
	Apr. 25	1		
	Apr. 28-May 8	1	1	
	May 23-May 30	1		
	June 8-June 17	1		
	July 13-July 21	1		
Miyazaki Ken	Nov. 1-Nov. 7		3	
	July 2-July 11	1	1	
Yamanashi Ken	June 24-July 13	3		
Saitama Ken	Nov. 1-Nov. 7		1	
	June 24-July 3	1		
	July 13-July 21	1		
Okayama Ken	Nov. 1-Nov. 7	3	3	
	June 24-July 11	4		
	July 13-July 21	1		
Nagasaki Ken	Nov. 1-Nov. 7	1	1	
	Aug. 11-Aug. 20	1	1	
Ishikawa Ken	Nov. 1-Nov. 7	19	17	
	June 24-July 3	2		
Kioto Fu	Nov. 1-Nov. 7	7	5	
	June 17-July 3	2	1	
	July 13-July 21	1	1	
Hiogo Ken	Nov. 1-Nov. 7	9	2	
	June 17-July 11	4		
	Aug. 11-Aug. 20	1		
Kagawa Ken	Nov. 1-Nov. 7	3	2	
	June 17-July 21	3		
Kanagawa Ken	Nov. 1-Nov. 7	5	4	
	June 17-July 21	9	4	
	Aug. 21-Sept. 4	3		
Miyagi Ken	Nov. 1-Nov. 7	10	8	
	June 17-July 3	2	2	
Shidzuoka Ken	Nov. 1-Nov. 7	2	1	
	June 17-July 11	3	1	
	July 13-July 21	1		
Yamaguchi Ken	June 17-July 3	1	1	
Shimane Ken	Apr. 18	1		
Tokyo Fu	Nov. 1-Nov. 7		87	
	Apr. 17	1	1	
	June 8-June 17	4		
	June 24-July 11	31	5	
	July 13-July 21	10	4	
	Aug. 11-Sept. 30	27	8	
Gumba Ken	Nov. 1-Nov. 7	1	1	
	June 24-July 3	1		
Kochi Ken	Nov. 1-Nov. 7	8	5	
	June 24-July 3	1		
Tochigi Ken	Nov. 1-Nov. 7	2	1	
	June 24-July 11	2		
Wakayama Ken	Nov. 1-Nov. 7	5	4	
	June 24-July 3	1		
	July 13-July 21	2	1	
Yamaguchi Ken	Nov. 1-Nov. 7	2	1	
	June 24-July 3	1		
Yehime Ken	Nov. 1-Nov. 7	2	2	
	June 8-July 11	3		
	July 13-July 21	2		
Oyama Ken	Aug. 21-Sept. 4	6		
Nagano Ken	Sept. 5-Sept. 14	1		
Morocco:				
Casa Blanca	Jan. 11			Cholera reported.
Mazagan	do			Do.
Stellen	Dec. 15		13	

Table showing the prevalence of cholera as reported to the Supervising Surgeon-General United States Marine-Hospital Service, etc.—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Russia:				
Kiev (Government)	Oct. 13-Nov. 11	156	64	
	Nov. 11-Dec. 21	52	24	
	Dec. 22-Jan. 11	10	5	
	Jan. 12-Jan. 25	12	14	
St. Petersburg (Government).	Nov. 1-Nov. 9	43	21	
	Nov. 17-Dec. 7	21	----	
	Dec. 8-Dec. 28	27	11	
	Dec. 29-Jan. 11	8	8	
	Jan. 12-Jan. 25	3	----	
	Feb. 1-Feb. 8	2	----	
Volhynia (Government)	Oct. 13-Nov. 10	2,297	952	
	Nov. 10-Nov. 30	609	294	
	Dec. 1-Dec. 14	104	55	
	Dec. 14-Dec. 28	24	12	
	Dec. 29-Jan. 11	----	1	
Turkey:				
Constantinople	Dec. 17-Jan. 15	3	3	Reports dated Jan. 21, 1896, state "about 1 death per week."
Brena	Jan. 17	----	----	Cholera reported.
Bitlis and Seert	Jan. 15-Jan. 20	11	7	
Diarbekir	Jan. 16	----	----	Cholera reported in 3 localities.
Gazran	Dec. 21-Jan. 14	67	42	

The Bureau, during the past season, kept a close watch upon the epidemic of cholera in Egypt, and particularly Alexandria, and made arrangements for prompt information provided the disease should at any time reach Naples, whence the emigration to the United States has been very large during the summer. A stringent observation of the regulation forbidding the exportation of rags from cholera-infected districts was enforced at Alexandria, as previously narrated under the caption "Quarantine administration in foreign ports."

RESPONSIBILITY OF GOVERNMENTS HAVING TERRITORIAL JURISDICTION.

It is impossible to read of these severe epidemics of cholera in Egypt, caused by the pilgrimages from India to Mecca, extending thence to Europe and threatening all parts of the civilized world, without a feeling that the time has come when the Government exercising authority over the territory in which the disease has its initium, and in which the primary movements—the first stages—of the pilgrimages are begun, should be made to feel its responsibility in the matter.

The following contribution to this topic has been received from Dr. James F. Love, a citizen of the United States now resident in Alexandria:

CHOLERA THROUGH SUEZ.

Since the cutting of the Suez Canal Egypt has regained the position, lost to her for three hundred years, of being the key to Eastern commerce. In reassuming this commercial vantage she has become the land of passage for numerous currents of travel and trade hitherto deflected. But the great commercial gain has been and is still tempered by the serious consideration of murderous sanitation.

A constant stream of travel from the delta of the Ganges, where the germ of cholera flourishes perpetually, to Mecca and from this point to Damietta, Alexandria, and Cairo brings in its train the active cause of cholera. In the past the stream of pilgrimages was attended by the same evils. To-day, owing to the unique position of Egypt, this current is ever increasing, and with its increase the danger of the dreadful disease also multiplies. The stream of travel through Egypt meets that which is ever crossing Europe to America, and the question arises, Will the cholera, with its attendant horrors, join the procession to this side of the Atlantic? Time and time again cholera has been transferred to the holy place of Islam by the Mohammedans of India, and thence diffused by the pilgrims of other lands in their return from Mecca. This fact has been noted in a recent work by the inspector-general of the French sanitary service, Professor Provost, and it is now a well-recognized fact that cholera is endemic in portions of India, particularly in the delta of the Ganges. Under conditions not clearly known to the medical profession, and consequently hard to overcome, the terrible monster shakes off the shackles binding it to one locality and stalks abroad to carry consternation and desolation in its path. The scourge was most noticeable in its outbreakings in 1830, 1840, 1865, 1883, and again in 1895. These years were horribly memorable in the history of India.

BREEDING PLACE OF DISEASE.

It had long been supposed, and was demonstrated by the celebrated Koch commission in 1883, that the source of this malignant disease is in the region of the Ganges, bounded on the west by a branch of the Hoogly and upon the east by the Brahmapootra rivers, and extending as far into the interior as Benares, and in this place of its birth Professor Provost declares it is still on the increase. This region, forming a triangle, is filled on its upper part by deserted villages, and its base is but a wild waste of land covering over 7,000 square miles.

Here the Ganges and the Brahmapootra unite to form one immense river, where, at the rising of the tide, the inrush of the ocean water causes the backing of the river water till the overflowing of each flood tide resembles an inundation.

By reason of its pestilential influences this section of India, being covered by vast marshes and decomposing vegetation, is inhabited only by wild beasts. To this dreaded condition is added the sewage from the upper Indian country, forming a combination which can scarcely be duplicated in a first-class bacteriological laboratory.

These contaminated waters and their branches supply in great part the drinking water of the natives. The introduction of American filters has been a blessing to the cities of India. Where before the death rate in Calcutta from cholera alone was 4,000, since the introduction of filters it has fallen to 1,400. Even with the falling off in the death rate in Calcutta, that of India generally seems to have increased.

In the year 1881, through the pestilences of this country, 4,485,097 perished, and in 1891 the number of deaths increased to 5,940,485. Of course the ignorant natives, who are careless as to health and superstitious as to any disease-preventing invention, keep up the long list, and thus the source of the disease is constantly growing.

WHERE RESPONSIBILITY RESTS.

If cholera is to be successfully combated the warfare must be carried into its own country and the destroying agent aimed directly at the source of the dreadful scourge. Mr. Baldwin Tatham, an English sanitary officer sent to India to study the subject, found that the great heat and decomposing matter but partially explained the high death rate. He asserts that there is absolutely no attention paid to hygiene or sanitation.

PREVENTIVE MEASURES.

If properly carried out by the sanitary department of the British police in India, not only in the delta but in all parts of India, the scourge would be kept well in hand, its spread prevented, and eventually its source confined in a much smaller section of the country. To prevent the spread of cholera from India certain precautions should be and can be taken. The Mohammedan exodus from India should be effectually stopped until it is shown that no pilgrim carries contagious or infectious disease with him. When pilgrims congregate prior to the departure for Mecca, rigid sanitary measures should be instituted in order that no germ-laden devotee shall depart. Again, all pilgrims should be detained to determine whether any cholera exists among them. The secondary points of departure from Mecca should also be carefully watched, which might best be done at entrances to the Suez Canal.

These recommendations should be impressed upon the British Government and their officials in India to the end that the Asiatic cholera, in these days of rapid transportation and large transcontinental travel, might not be allowed to follow all who may pass through India or have intercourse with those who have resided there. Since the arrival of a body of British troops from India at Suakim, several cases of cholera appeared among them, which, with the statements of the Koch commission, of Professor Provost, and of many other distinguished gentlemen and scientists who have passed through that country, go to prove that the seat of the Asiatic cholera is in that section of the country surrounding the Ganges.

CONCERNING THE LAST PILGRIMAGE IN THE HEDJAZ.

The following has been received through the Department of State from the representative of the United States upon the sanitary commission at Constantinople:

CONSTANTINOPLE, *March 26, 1896.*

I have the honor to forward to the Department a copy, printed in French, of the general movement of the last pilgrimage, 1894–95, in the Hedjaz, or the Holy Land of the Islam. I think it necessary to accompany it by some details which I consider interesting.

By a telegram under date of the 23d of April, 1895, it was announced that a cholera death had occurred in Mecca, a pilgrim among those who arrived from Singapore on board the English steamship *Stentor*. According to the board's papers of the above-mentioned steamship *Stentor*, no illness on board had occurred during her voyage from Singapore to Jeddah, including the five days' quarantine at Camaran. The epidemic on which we lay stress was rather light, and though, as above mentioned, on the 23d of April, the largest number of cholera deaths (27) occurred on the 30th of the same month. Cholera broke out among the pilgrims who composed the caravan, which from Mecca goes to Medina. This caravan was composed of 12,000 camels and 25,000 pilgrims, 4,000 of whom fell victims of the scourge. In the village of Rebuk alone there occurred 500 deaths. Rebuk is a village four days distant from Mecca.

In the beginning of the journey death immediately followed the attack, but, as is well known, traveling is the best way to get rid of cholera. When the above-mentioned caravan arrived at Medina, as well as when it came back to Mecca, cholera had already disappeared and the pilgrims were quite free of the scourge. There is no doubt that the sanitary improvements performed in the Hedjaz—of however little importance—have contributed to check the spread of the epidemic. Not a single case of cholera has been observed in Jeddah.

The number of pilgrims landed in the Holy Land at the last pilgrimage was 60,000, and 60,000 or 70,000 more have to be added who had reached the holy cities through the desert. If we compare the number of pilgrims who visit the Hedjaz every year we will see that this number becomes, every year, larger. This augmentation is due to the great facilities of communication. Pilgrims of the interior of India can reach the coast very easily by railroad, and the steamship companies facilitate very much their transportation. But if there exist great facilities by which Indian, or Javanese, or Chinese pilgrims can reach the Holy Land, this security and well-being, as well as the comfort, are far from existing in the Hedjaz. I fear, though, that when security and comfort exist in the latter place the number of pilgrims will decrease. When Christian pilgrims were going in large numbers to Palestine, security and comfort were unknown in the latter place. Now that a Christian pilgrim can be sure that nobody will disturb him and that he can have comfort, Christian pilgrimage is not worth mentioning.

From 1870 to 1874 there was an average of 38,378 pilgrims per year; from 1875 to 1879 there were 38,029; from 1880 to 1884 the number of pilgrims was 41,775; from 1885 to 1889 their number was 47,019, and from 1890 to 1894 it was 57,819. We do not know if the number of pilgrims reaching the Holy Land through the desert is also increasing.

In the places from which the largest number of pilgrims came cholera is endemic, and the conditions of health, education, and lack of cleanliness of these men contribute to the spread of the disease. Indians, for instance, are thin and lean, and when they walk they resemble rather walking shadows. They are very far from being clean, they are very miserably dressed, and their clothes exceedingly dirty. Rarely will you meet among them a man well built. I may say that without the X-rays you can see very easily the bones of their skeletons. They are very miserably fed, and the great majority of them are beggars. They never pay their own teskeré, or sanitary pass, the price of which is 10 piasters (nearly 10 cents). The great majority of pilgrims are Indians, and it is among them that cholera breaks out very often.

The Malays, Afghans, Persians, and those coming from Central Asia are certainly stronger than the Indians; their constitutions are better, but their cleanliness does not differ considerably. The percentage of poor is nearly the same. About 50 per cent of them can not pay their teskeré. During their travel they are crowded on board the ships, the pilgrim ships' agents embarking always a larger number than that allowed by the law. The English steamship *Devonhurst*, for instance, had 66 pilgrims more than the number registered at the port of her departure. The English steamship *Saladin* had 71 pilgrims more. There were 1,082 pilgrims on board the steamship *Jubeda*, instead of 1,059 as registered. There were 647, instead of 630, on board the steamship *Mobile;* 784, instead of 749, on board the steamship *Husseim;* 261, instead of 257, on board the *Eleaface*, and 727, instead of 711, on board the steamship *Naseri*.

Besides being crowded on board the steamship, there is something to say about the price that the pilgrims have to pay for their voyage. There is a difference between the price which they pay coming to the Hedjaz and that going back home. They pay, for instance, from Batavia to Jeddah 18 thalers, but from Jeddah to Batavia 26 thalers. There are many poor pilgrims who can not pay their passage at the end of the pilgrimage. They ought to go back gratuitously. There is a way to exploit these poor victims of their faith. There is the firm Seyed Omar Elsagoff, the agent of which pays the passage of the above-mentioned poor pilgrims, and the latter have to return the amount with the interest by laboring on the arable lands of the above-mentioned firm in the states of the Sultan of Johore (south of Mallacca). The poor pilgrims have to toil for a long time until

they get the necessary money to pay their debt. It is stated that English and Dutch authorities try to interfere in the bargains among steamship agencies and pilgrims in order to prevent the above-mentioned kind of slavery.

Let me give some details of the way that the pilgrims are treated at the port of Jeddah. The poor pilgrim on his arrival at Jeddah is at the mercy of the sambookjis and mutavifs. The sambookji is the owner of the sambook (boat) by which he has to land the pilgrims, and the mutavif is the guide of the latter through the Holy Land. Before the mooring of the steamship carrying the pilgrims the sambookji is already on board the steamer, and he gets hold of the pilgrim's baggage in order to get hold of the pilgrim himself. He throws the pilgrim's baggage overboard into the sambook, and it is not rare to see this baggage floating on the sea.

It is not possible to give a description of the terrible looks of the sambookjis when they deal with the pilgrims. The noise and bluster is above all description. The pilgrim is a victim of the terrible-looking man, who acts without conscience or control of law. He stops the sambook midway between the steamer and the shore, in order to extort money by means of screams, threats, and very often blows. The sambook is so much overcrowded that very often at low tide she strands, and the poor pilgrims are obliged to stay for hours and hours under the burning sun or in the rain. Fancy the condition of these wretched men, the victims of their faith and at that moment the victims of these pirates whom they call sambookjis. We must not forget that very often the sea is rough and the sambook is liable to capsize.

Once the pilgrims are landed, there is the mutavif, who clings to them and is the intermediate agent between the pilgrims and the persons who deal with them. If the description they make of the mutavif is true he is worse than the sambookji. He tries at every step to rob his victim and after his death he inherits his possessions. The sanitary authorities try to control them, and it must be stated that last year the control and survey of the authorities having been more stringent, the unlawful trade has been somewhat abated; but the mutavifs, in order to be revenged, have excited the Bedouins against the sanitary authorities and against the non-Moslem. The latter are the sanitary physicians and the foreign consuls. As a consequence of the above-mentioned incitement of the Bedouins the criminal attempt against the consuls of Russia and France resulted. They were shot and wounded on the 30th of May, 1895. Besides that, the above-mentioned Bedouins have destroyed the disinfecting furnace, which had just been built. The most astonishing thing is that the local authorities of Mecca, the muhtessib, for instance (governor of the town), has assisted and incited the above-mentioned troubles and misdeeds. I do not think it necessary to report that, though the central Government in Constantinople has ordered the spending of some money for sanitary improvements of Mecca, the local authorities of Mecca not only have not spent it, but they have behaved as rebels. I must state, however, that the Imperial Government has dismissed the above-mentioned muhtessib and another governor has been appointed in his place.

It is known that two years ago the number of cholera deaths in the Hedjaz during the pilgrimage was about half of the total number of pilgrims who entered the Hedjaz by sea. The total number was 94,963 pilgrims, and the number of cholera deaths was 40,991. (See my report, No. 87, of the 31st of December, 1893.) At the last pilgrimage the number of cholera deaths was 5,000. The epidemic of smallpox, on the contrary, has caused a very large number of deaths, as well as the epidemic of dysentery. It is stated that more than 15,000 deaths have been attributed to smallpox. It is not possible to give exactly the number of deaths, as it is impossible to know exactly the number of pilgrims. We know the

number of pilgrims who arrive by sea, because each of them has to pay a teskeré, or fee; but who can state their number when they arrive through the desert?

I have, in my previous reports on the pilgrimage, given a description of the sanitary condition of Jeddah, as well as that of the holy cities.

The sanitary news from Camaran, as well as from the Hedjaz, is good. The pilgrims are arriving in good health, the number already arrived, up to the 15th instant, being 27,991. * * *

REPORT UPON THE CHOLERA EPIDEMIC AT HONOLULU DURING AUGUST AND SEPTEMBER, 1895.

In the last report, pages 354–356, may be found a partial account of the cholera epidemic in Honolulu, but a more complete report of later date has been received, and is herewith published:

HONOLULU, HAWAIIAN ISLANDS, *December 20, 1895.*

SIR: I have the honor to submit the epitomized report for which you ask in your communication of November 12, 1895. In conjunction with my report of October 17, 1895, I will add, there is positive evidence that the waters of the Honolulu Harbor became infected shortly after the arrival of the steamship *Belgic* from the Orient, August 9, 1895, and not in a single case could the infection be traced to the freight or provisions imported. From the affidavits of the Chinese steerage passengers, one of whom was an old resident Chinese merchant returning to his island home, and from the statements made by the officer in charge of the Hawaiian quarantine station relative to the symptoms and deaths of the Chinese during the passage over and after landing, there is no question but that the *Belgic* brought cholera here through her Chinese steerage passengers upon that occasion. The harbor became infected and formed a good culture medium for the cholera germs, due to its sluggishness, alkalinity, and the organic matter contained therein.

By eating raw crabs, which had been feeding on the infected material in the harbor, the first native woman became infected, and from a feast held in her house it spread to various parts of the city. This originally infected district was immediately placed in quarantine, under guard, and the houses and furnishings thoroughly disinfected and fumigated.

A cholera hospital for the care of the sick and quarantine quarters for the care and isolation of the other members of the family were established.

It was impossible for the authorities to find and isolate all the people that had attended that feast, owing to the secrecy and lack of cooperation on the part of the natives.

One of the natives from this feast was taken down with the disease, and it was washing his soiled clothing in the Nunana stream, a half mile from its mouth, that infected its water from that point down to the harbor. It was from eating crabs caught in this stream and washing their bowls therein that others living along this stream became infected.

Various rice and tarrow patches and water pools became infected from other cases that attended the feast, and it began to appear here and there through the city.

The authorities put forth tremendous efforts to stem the scourge, but the natives, who were the people most affected, and among whom the epidemic played most havoc, handicapped matters by drinking surface and infected waters and eating raw the infected crabs, also by secreting the cases that were taken sick and not reporting the same, and after death they would dress the body in clean clothing and carry away the soiled and infected articles, which would form sources of new

infection in new sections of the city. They were ill advised, thinking that the foreigners were trying to kill them off. Under these circumstances this community deserves great credit in stamping out this epidemic in so short a time. The citizens, almost to a man, gave their time and means to eradicate the same.

It became necessary to divide the city into sections and for the citizens to make twice daily a house-to-house investigation to find and isolate cases before they had infected others, in order that the cases and families might be moved to the hospital and quarantine headquarters, the houses disinfected, and burned in many instances.

All sources of infection, as water pools, fishing districts, harbor, etc., were placed under strict guard. All infected tarrow and rice fields were dried up and burned. The city then had a thorough cleaning from end to end.

Travel upon this island was restricted by permit.

The interisland commerce and travel were placed under strict quarantine.

The city was supplied during the epidemic with pure artesian well water, and partly to this is due the fact that the epidemic did not become general.

The Hawaiian Government is dredging and deepening the Nunana stream at its mouth and walling in the same to remove this foul culture bed, which might become infected from any infected oriental vessel that touched at this port.

In reference to our own country, the greatest credit and praise is due the Hon. Ellis Mills, United States consul-general, for his indefatigable efforts. He labored day and night, and was here and there in person, keeping a strict lookout that cholera did not leave this port for the United States. It was due to his efforts, by strict quarantine, fumigation, and disinfection of the steamers and shipping while in this port, that they were able to enter the seaports of the United States perfectly safe and clean, thus preventing an outbreak of this dread disease, which would have cost our country many thousands of lives and many millions in money if it had gained a foothold on her soil.

It has been claimed that the disease was not Asiatic cholera.

That statement I am able to entirely refute, for, as one of the examining and investigating physicians, I saw nearly all the cases personally and made post-mortem, microscopical, and bacteriological investigations thereof. Symptoms: Vomiting, purging of rice water and pasty stools, cramps in the abdomen and extremities, with cold extremities, sunken and glary eyes, weak and rapid pulse, labored respiration with collapse, coma, and death in a few hours in many of the cases, the temperature ranging from 96° to 102° just before death.

Post-mortem: Extensive gastrointestinal inflammation, especially of the ileum and colon, with much ecchymosis and denudation of the lining mucous membrane, especially of the ileum. The intestinal contents consisted of whey-like material. The veins contained thick tarry dehydrated blood.

The microscopical examinations of the intestinal contents showed many comma bacilli mixed with other intestinal micro-organisms. I obtained separate colonies of the same.

Treatment.—The treatment of the disease ranged from the voodooism of the Chinese doctors to the rational scientific treatment by modern methods. The plan of treatment which gave the best results was the following: Thorough flushing of the lower bowel by a 4 per cent tannic acid solution; opium to quiet the intestinal peristalsis. Stimulation of respiration and circulation by hypodermics of strychnine and digitalis. Hypodermoclysis of the physiological blood solutions of 6 per cent NaCl. This plan of procedure showed a high list of recoveries, especially so when the case was seen early. Fifty-two cases had this form of treatment with 25 recoveries. Many of the cases were not reported until they were dead, or nearly so.

Tabulated report of cholera cases during the epidemic.

Reported soon after being taken sick	53
Reported when dying	19
Reported when dead	16
Total	88
Living, completely recovered	25
Deaths	63
Total	88

Nationality:	
Native Hawaiians	76
Part Hawaiians	4
Americans	4
Portuguese	2
Chinese	1
Japanese	1
Total	88

Last case and death October 3, 1895.

The marine inspection, quarantine, and disinfection consisted of maintaining a strict quarantine day and night, guarded by land and water, upon the dock, steamer, crew, and stevedores of the line of steamers that run between this port and San Francisco. This quarantine was maintained from the time of arrival until departure of the steamer, there being especially quarantined men to handle freight, the cargoes coming from bonded warehouses or from the other non-infected islands. All other craft not held in strict quarantine. All suspicious holds, cargoes, forecastles, and cabins thereof were thoroughly fumigated and disinfected; the crews disinfected and their effects fumigated; the effects of all passengers thoroughly fumigated. All water to wash decks was taken from the city mains.

These precautions were kept up until all danger from infection from the harbor had passed. To-day Honolulu is as free from cholera as though it had never been there.

C. CLIFFORD RYDER, M. D.,
Late United States Sanitary Inspector, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

YELLOW FEVER.

Following is a table, prepared in the division of sanitary report and statistics, showing the prevalence of yellow fever in all countries as reported to the Bureau:

Yellow fever as reported to the Supervising Surgeon-General United States Marine-Hospital Service, November 1, 1895, to November 1, 1896.

YELLOW FEVER.

Place.	Date.	Cases.	Deaths.	Remarks.
Argentina:				
Buenos Ayres	Mar. 1-Mar. 31		5	On vessels from Rio de Janeiro.
	Apr. 1-Apr. 30		3	
Brazil:				
Ceara	Nov. 30	1	1	
	Dec. 24-Dec. 31		4	
	Mar. 1-Mar. 31		3	
	July 1-July 31		1	
Rio de Janeiro	Nov. 2-Nov. 9		11	
	Nov. 9-Nov. 30		43	
	Dec. 1-Dec. 28		136	
	Dec. 28-Jan. 11		190	
	Jan. 11-Feb. 1		382	
	Feb. 1-Feb. 8		111	
	Feb. 8-Feb. 29		594	
	Mar. 1-Mar. 14		468	
	Mar. 14-Mar. 28		459	
	Mar. 28-Apr. 11		305	
	Apr. 11-June 27		376	
	June 27-Aug. 29		30	
Nitheroy	Apr. 21			Yellow fever reported.
Pernambuco	Nov. 1-Nov. 15	8		
	Apr. 1-Apr. 30		8	
	May 1-May 31		2	
Bahia	Mar. 31			Do.
Sao Paulo	Mar. 31			Do.
	Jan. 1-Jan. 31	5	3	
Araraguara	Apr. 4			Do.
Belem	Apr. 4			Do.
Bicas	Apr. 4			Do.
Barrado Pirahy	Apr. 4			Do.
Campinas	Apr. 7-May 5	115		Do.
Casa Branca	May 5			Do.
Descalvado	Apr. 4			Do.
Dores de Pirahy	Apr. 11			Do.
Iahu	Apr. 4-May 5			Do.
Iaboticabal	Apr. 4-May 5			Do.
Limeira	Apr. 4-May 5			Do.
Leopoldina	Apr. 11			Do.
Parahybuna	Apr. 4			Do.
Porto Novo	Apr. 11			Do.
Sao Carlos de Pinhal	Apr. 4			Do.
San Joso Nepomuceno	Apr. 4			Do.
Santos	Apr. 4-May 5			Do.
Parahyba do Sul Valenca	Apr. 4-May 5			Do.
Rio Claro	Apr. 4-May 5			Do.
Sorocaba	Apr. 4-May 5			Do.
Uba	Apr. 11			Do.
Valenca	Apr. 4			Do.
Vassouras	Apr. 4			Do.
Volta Grande	Apr. 4			Do.
Cuba:*				
Buena Vista	Aug. 1			Yellow fever reported epidemic.

* Official reports of the Spanish army sanitary corps show that 1,835 cases of yellow fever were admitted to the Spanish military hospitals in Cuba during the twenty days ended July 20. During the same period there were in the hospitals 497 deaths from that disease.

Yellow fever as reported to the Supervising Surgeon-General United States Marine-Hospital Service, etc.—Continued.

YELLOW FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Cuba—Continued.				
Caibarien	Aug. 1			Yellow fever reported epidemic.
Camajuani	Aug. 1			Do.
Cardenas	June 6–June 27	13	4	
	June 27–July 25	39	14	
	July 25–Aug. 29	128	39	
	Aug. 29–Sept. 19	104	27	
	Sept. 19–Oct. 17		16	
Cienfuegos	Nov. 3–Dec. 8		12	
	Dec. 8–Dec. 22		2	
	Dec. 29–Jan. 19		5	
	Feb. 16–Feb. 23		1	
	Apr. 19–May 3	1	1	
	May 25	1		
	June 1–June 7	9	2	
	June 14–June 28		9	
	June 28–July 26		39	
	July 26–Aug. 30		45	
	Aug. 30–Oct. 18		90	
Guantanamo	July 1–July 31		13	
	Sept. 1–Sept. 30		6	
Habana	Nov. 1–Nov. 28	92	35	
	Nov. 28–Dec. 19	40	14	
	Dec. 26–Jan. 2	7	3	In military hospital.
	Jan. 2–Mar. 28	40	14	
	Apr. 2—Apr. 30		13	
	May 1–May 28	53	26	
	May 28–June 18	59	29	
	June 18–June 25	20	9	
	June 25–July 9	105	45	
	July 9–July 23	115	46	
	July 23–July 30	90	40	
	July 31–Aug. 6	120	55	
	Aug. 6–Aug. 20	303	108	
	Aug. 20–Sept. 3	300	131	
	Sept. 3–Sept. 10	120	43	
	Sept. 10–Oct. 1	257	123	
	Oct. 1–Oct. 8	150	54	
Manzanillo	Mar. 15–Mar. 31		2	
	July 15–July 31		8	
	Aug. 1–Aug. 31		5	
	Sept. 1–Sept. 15		3	
Matanzas	June 17–June 24	56	42	
	June 24–July 8	124	85	
	July 8–July 29	200	134	
	July 29–Sept. 30		267	
	Oct. 1–Oct. 21		41	
Placetas	Aug. 1			Yellow fever reported epidemic.
Remedios	Aug. 1			Do.
Santiago	Nov. 2–Dec. 7		97	
	Dec. 7–Dec. 21		29	
	Dec. 21–Dec. 28		12	
	Dec. 28–Jan. 4		15	
	Jan. 4–Feb. 15		47	
	Feb. 22–Feb. 29		15	
	Mar. 1–Apr. 4		20	
	Apr. 4–May 30		22	
	June 1–June 6		2	
	June 6–June 27		14	
	June 27–July 4		7	
	July 4–Aug. 1		71	
	Aug. 8–Sept. 19		98	
Sagua la Grande	Nov. 18–Nov. 23		17	
	Dec. 1–Dec. 21	43	3	
	Dec. 25–Jan. 25	31	6	
	Feb. 1–Feb. 15	8		
	Mar. 13–Mar. 20	5		
	Apr. 4–Apr. 11		3	
	May 11–May 18			Yellow fever reported.
	May 25–June 6		30	Yellow fever reported among troops.
	June 6 June 27	171	14	
	July 4–July 18	124	15	
	July 18–Aug. 8	265	26	
	Aug. 8–Aug. 29	230	35	
	Aug. 29–Oct. 3	302	50	
	Oct. 3–Oct. 10	63	12	

Yellow fever as reported to the Supervising Surgeon-General United States Marine-Hospital Service, etc.—Continued.

YELLOW FEVER—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Cuba—Continued.				
Yaguajay	Aug. 1			Yellow fever reported epidemic.
Vueltas	Aug. 1			Do.
Zulueta	Aug. 1			Do.
Ecuador:				
Guayaquil	Nov. 1-Nov. 8		4	
Salvador	Nov. 1			Yellow fever reported.
	Oct. 1			Do.
Martinique, West Indies:				
Fort de France	Aug. 3-Aug. 6		2	
Mexico:				
Acapulco	July 11-July 18	1		
Tuxpan	Jan. 11-Jan. 25		4	
Vera Cruz	May 21-May 28	5		
	May 28-June 5			Do.
	July 29	3		
	July 30-Aug. 13	6		
	Aug. 20-Aug. 27	1		
	Nov. 14-Nov. 28		3	
Peru:				
Callao	Apr. 5	2	2	On vessels from Guayaquil
Puerto Rico:				
San Juan	Nov. 29-Dec. 20	63	23	
	Dec. 20-Jan 17	104	24	
	May 1-May 31	14	4	
	June 1-June 30	15	1	
	Sept. 1-Sept. 7	2	1	
United States of Colombia:				
Panama	Aug. 15-Aug. 22	2	1	

Yellow fever has not appeared within the limits of the United States since my last report, although its appearance might have been expected upon the coast line contiguous to Cuba, where, in consequence of the disturbed conditions prevailing in that island, there has been an increased prevalence among the foreign troops. In Brazil the epidemic reported as in progress last year still continues, and for the twelve months ended October 1, 1896, there have been reported 3,107 deaths from it in Rio de Janeiro alone, while it has existed in 29 other districts, principally during the spring months, but no reliable statistics are obtainable. Santos, for example, where it was especially fatal last year, is only represented in the table as among those points where yellow fever is "reported."

In Cuba, as above noted, the disturbed internal conditions continue to prevent to a great extent the gathering of exact information relative to the prevalence of yellow fever in the interior districts held by the insurrectionists. From the seaports the Bureau receives periodical advices from its sanitary inspectors of the health conditions existing therein, and from these places it is reported in epidemic form. Sixteen districts report this condition. Up to the 1st of October there were 753 deaths from yellow fever in Habana, 528 in Matanzas, 352 in Santiago, and 182 in Sagua la Grande. To this, of course, must be added the large, probably indeterminate, number of deaths in the military hospitals among the unacclimated troops.

Official reports of the Spanish army sanitary corps show that 1,835 cases of yellow fever were admitted to the Spanish military hospitals in Cuba during the twenty days ended July 20. During the same period there were in the hospitals 497 deaths from that disease.

It is gratifying to note the decrease of the disease in the adjoining Republic of Mexico. In the past it has been quite prevalent at various seaports, especially in Vera Cruz, where 137 deaths were reported last year. From an examination of the table it will be seen that Mexico has been practically free from it during the past year, and from Vera Cruz there were but 15 cases reported, with no deaths.

Report upon the History of Yellow Fever in Rio de Janeiro since 1849.

By E. Cleary, M. D., *Sanitary Inspector, M. H. S.*

Rio de Janeiro *April 24, 1896.*

Sir: I have the honor to acknowledge the receipt of your letter dated March 16, 1896.

The report alluded to, which was not received, was a condensed history of the health of Rio de Janeiro from 1835 to the end of 1892, and of course included yellow fever, which disease never appeared in this town until 1849.

The following is modified from that report, with such additions as may be necessary to complete the information up to date:

History of yellow fever in Rio de Janeiro.—Yellow fever made its first appearance in Rio de Janeiro in the last days of the month of December, 1849, having been brought by an American ship to Bahia, and thence to this port. Being a new and almost unknown disease, it rapidly extended itself among the shipping and throughout the town, and, as it found a favorable soil for its propagation, it made many victims and became almost endemic in the place, whose population at that time was, more or less, 200,000. It made 4,160 victims in the year 1850, its propagation being favored by the situation of the town on the low, flat margins of an immense bay, fed with fresh marsh water, and with only one small outlet, so that it is safe to say that thousands of acres of surface have stagnant water; and at that time modern sanitary science was not as well understood as at present. Besides, there was no drainage system, nor any method to get rid of garbage and fecal matter, except by carrying it in carts and on the heads of negroes to the beach of the bay, where it was cast into the water to powerfully aid in increasing the putrescent matter already contained in the still waters which almost surround the town. Under such circumstances it at once obtained a fixed status.

In 1851 there were 471 deaths from the disease, and in 1852 there were 1,943. I have no information for the years 1853 and 1854, but from 1855 to 1859 there were 2,725 deaths. In 1860 there were 1,236 deaths; in 1861, 247; in 1862, 12; in 1863, 15, and to the end of 1868 there were no more cases reported.

This immunity may, perhaps, be attributed to the great system of drainage commenced soon after 1860; but at the commencement of these works they doubtless contributed to the extension of the disease by opening up the streets in every direction, but as soon as they could carry off immense amounts of deleterious matter a better condition ensued. Now, after many years, the works are considered inefficacious, if not positively deleterious, as the pipes and galleries are made of very porous materials and admit of the escape of poisonous matter sufficient to contaminate the subsoil, and, as street excavations are constantly being

made, exhalations from this poisoned earth are of daily occurrence. Says a highly respectable and competent hygienist on this subject:

"It was at this time that the subterraneous drainage works were commenced, a colossal work and destined to produce good future results; but, because of the great carelessness displayed in the beginning and the bad quality of the materials used, highly competent Brazilian hygienists attribute to the drainage system the perpetuation of yellow fever by means of the exudations from the pipes into the subsoil of the town, but it is without doubt true that the new works caused the complete extinction of the disease until 1868."—(Dr. Aureliano Portugro.)

In the year 1868 it is believed that the disease was reimported (and by another American ship), and up to the end of 1869 there were 293 deaths from yellow fever.

From 1870 to 1874 yellow fever killed 5,922 persons; in 1873 alone there were 3,659 deaths.

From 1875 to 1879 the disease increased in intensity and killed 7,218 victims, including the great epidemic of 1876, in which year 3,476 persons died from this fell disease.

From 1880 to 1889 there were 9,563 deaths from yellow fever. In 1890 there were only 719 deaths, while 1891 had 4,454 victims and 1892 4,312. At this time the population was estimated at 566,800, and the death rate was 33.5 per 1,000.

In 1893 the disease victimized only 742, while in 1894 4,715 died of the disease, the greatest number yet in any one year, due perhaps to the fact of the town being blockaded and the garbage not having a free exit. In 1895 the number fell again to 818. In the present year of 1896 we have another epidemic, but it will not be as great as in several of the former years.

The above is a sad picture, and I hope something may be done toward stamping out the pest, or at least for its amelioration, but I doubt it, for every year, after the evil is done, the newspapers, the authorities, everybody, cry out against the bad sanitary and quarantine arrangements, and threaten to bring about great reforms, but as yet no real great improvement has been effected, and the evil remains without remedy.

More effective drainage, more effective disinfecting, more effective isolation, better habitations for the lowest class, a better supply of filtered water, and cleaner streets are all absolutely necessary.

Respectfully, yours,

R. CLEARY, M. D.,
Sanitary Inspector, U. S. M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

REPORT UPON THE CAUSES OF THE CONTINUANCE OF YELLOW FEVER IN RIO DE JANEIRO.

By E. CLEARY, M. D., *Sanitary Inspector, M. H. S.*

RIO DE JANEIRO, *January 27, 1896.*

SIR: In reply to your letter of December 12, 1895, I have to submit the following report upon the causes of the continuance of yellow fever in Rio de Janeiro:

This is a much disputed question here, and innumerable opinions have been emitted by professional observers, many of them very contradictory.

I can only give you my own, after many years of residence and observation, and which, I am led to believe, nearly coincides with that of some of the best considered authorities.

SITE AND DRAINAGE.

First, as to the situation of this intertropical town. It lies on the western margin of an immense bay with only one small outlet, and no large river emptying into it, and on lowlands, originally swamps, and in several places, in the very center of the town, on the sites of former lagoons. It is nearly on a dead flat, with numerous large hills or small mountains interspersed in every direction. In the principal part of the town there are about twenty of these abrupt hills, all more or less densely populated, and reached by inclined planes for railways, an elevator, and zigzag roads. The drainage of the principal and level part of the town is inefficiently performed, the piping, due either to porosity or bad joints, allowing the ooze to escape, so that every time an excavation is made in the streets, foul, unhealthy exhalations escape, much to the detriment of the public health. For this reason the law prohibits excavations to be made during the hot months; but the law is constantly evaded.

From the above description of the lay of the town you will naturally perceive that the fall is very slight, too slight for the automatic escape of the fluid detritus, hence it can only be gotten rid of by flushing out the drains; but as the water supply is hardly sufficient for the absolutely necessary personal uses of 600,000 people, the drains remain at times for many weeks in a foul state, and when they are washed out the foul matter blackens the waters of the bay for many acres in extent. Only last month, on a visit of inspection, as I passed between Cobres Island and the Marine Arsenal, on the mainland, the water was dark brown for nearly a half mile in extent and reached beyond the island. They were flushing the drain that empties itself near this part of the bay.

INSUFFICIENT WATER SUPPLY.

The want of water is severely felt even for domestic purposes, though there is water enough in the highlands surrounding the town to supply London itself. There is no one general system of water supply, but the main town receives its quota from the tanks in Rua Sao Jannario, from another by the aqueduct of Carioca; the Laranguivas district from another source, and the Botafogo district from still another.

SUBSOIL AND MANURE.

Besides all this, it is well to remember of what is composed the foundation of the flat part of the town. In old colonial times there were no proper water-closets, but each house had its covered barrel, which was emptied at night into the waters of the bay along the shore, and in too many cases into the alleys and back streets. All other garbage, as a rule, was thrown into the streets, until the stench became absolutely unbearable, when a little earth and lime were used to cover up the nuisance, and so they went on for years, forming a subsoil whose nature is more easily imagined than described.

And just during the hot season the manuring of the thousands of gardens takes place and (always) decomposed fecal matter mixed with rotting straw is piled on the sidewalks, even for days in many cases, which attract myriads of flies, who aid in scattering the pestilential germs from the advancing putrefaction under a tropical and vertical sun; and even when the manure is scattered over the earth the stench continues for days.

DISPOSAL OF GARBAGE.

Another source of pestilence is the method adopted to get rid of the garbage, which is hauled away from all parts of the town (by law at night, but actually at

any time). Last week, at 10. a. m., I met a train of garbage carts in the aristocratic district of Botafogo, foully smelling and dropping parts of their loads as they jolted over the roughly paved streets. The carts are very heavy, hauled by two mules each, and with covers which are almost always propped open by the heated-up load of foulness, including mattresses of pestilential patients who have died or recovered, and thus they go through the principal streets, scattering parts of their loads in all directions.

HABITATIONS OF THE POOR.

Another source of pestilence is the existence of the "corticos," or "estalagens," which are agglomerations of huts for the poorest classes, in the centers of the unusually large blocks of the town, reached through large archways, which can be seen even in the best and most aristocratic streets. Some of these dens are more than one story high, and all are crowded with men, women, and children, of all races and colors, pigged together worse than animals; and they live and die in filth and vice. Vice, I say, and one proof of it is that of the 13,367 births during the year 1895, 3,227, or more than 24 per cent, were illegitimate. It is estimated that largely over 100,000 human beings live, or rather fight for existence, in these foul hives. The women mostly wash clothes to gain a scanty livelihood, and in the long, narrow lanes of unclean space between the huts they extend the badly washed clothing of the sick and the well, to dry and exhale their emanations under the tropic sun, whilst crowds of naked and half naked children, as dirty as the very lanes, are busy amusing themselves.

THE FOCI OF YELLOW FEVER.

Since the introduction of yellow fever in 1849, it has never been really eradicated, but exists in a sporadic form, even in the coldest months. Of course the "estalagens" described above are the cause of many contagious diseases, and in them the spread of infection is great and rapid. But the principal foci may be found in the low-lying beach district extending from the "Praia de Santa Luzia," around by the custom-house, the arsenals, and the saude, to the "morro de saude;" and in the streets which run down to the water front, especially "Seto de Setembro," "Hospicio," "Assemblea," "General Caneava," "Alfandega," and "Sao Pedro," while the cross streets, though being well attacked, have always fewer cases. The district to the north and west of the railway station, low lying, swampy, thinly habited lands, are equally as bad foci, and Rua de Riachicelo and Misericordia never escape.

In the last epidemic "Morro do Castello" (Castle Hill) and "Morro de Santa Theresa" were also badly attacked, though they are high and well drained. As the dwellers on these hills are almost all people engaged in business in the dense part of the town, I believe that the cases were taken there.

In fact, the whole crowded district included between a line drawn from the "Gloria" to the "Praia Formosa" and the littoral may be considered as one grand focus of yellow fever, and this composes all the business part of the town, the upper stories of the houses in which are well populated.

I believe that most of the cases occurring in other districts, such as "Bota Fogo" and "Cattete," and beyond and to the west of Ru Machado Coelto, are carried there from the general focus, and of course by extension to others causes numerous victims. The district of "Lavangeiros," which is the valley of a small stream some 2 miles long which empties itself by way of Cattete into the bay at the foot of Rua de Flamengo, appears to be an independent focus, as whenever an epidemic appears the disease is sure to be rife in this district, as it is to-day. The little stream is uncovered for most of the way and is a receptacle for filth from

the bordering houses high up the stream, which is washed down in solution and deposited on its margins, whence it finds its way into the neighboring houses in the form of disease.

And until a sufficient water supply, a better drainage, a safer removal of the garbage, and a more efficient sanitary police is established the pest will continue.

DISINFECTION.

The sanitary authorities are able and competent men, well up to date in the science and provided with everything necessary, but they are too few to be efficient. The disinfection of infected houses is made, as a rule, by hired workmen of little or no education and less judgment, and without the supervision and presence of a professional man, as I have seen myself in the street of my residence.

Now, the class from which these workmen are taken are incredulous as to the necessity and efficiency of sanitary measures, and, of course, not being obliged by the presence of an authority, they do their work as rapidly and as carelessly as possible, and often allow infected articles to be removed by the owners before closing the infected rooms and houses.

RESULTS OF SANITARY EFFORTS.

The results of the efforts to withhold the pest are nothing to boast of, as during every hot season the pest breaks out, more or less intensely, as the weather is more or less hot and dry, and, of course, many cases emanate from imperfectly disinfected houses.

Nor are the people here unconscious of this state of affairs, for almost daily the public newspapers call attention in strong language to the want of hygienic protection, to the filth and bad smells of the town, and especially to the cruel martyrdom of an insufficient water supply.

The daily O Paiz deserves especial mention for its endeavors for reform.

SUMMARY OF NECESSARY MEASURES.

To sum up, what is needed to finish or diminish the pest is—

1. A full and sufficient supply of water, well filtered, which it is not now.
2. A general reform of the drainage system.
3. A larger corps of professional sanitary authorities, with competent powers and means, and better employees.
4. A thorough cleansing and reform of many houses in the focal districts and paving the streets.
5. A safer system of garbage removal.
6. More efficient street cleaning and irrigation.
7. A disinfection station in the bay for infected ships.

The following table will give the deaths from zymotic diseases during the year 1895, as well as for 1894 and 1893.

Though there were 818 deaths from yellow fever, the disease was not considered epidemic.

Other diseases.—I would call attention to the large number of deaths from malaria, which is constant here and due, I take it, to the swampy surroundings of the town, which is built on originally swampy ground. Tuberculosis, also, has its numerous victims, more than malaria, always in about the same proportions, and though certain efforts are made to restrain yellow fever, nothing is done against malaria and tuberculosis, which are endemic in the town, and their united victims in the long run are much more numerous than those from the alarming epidemic of yellow fever. Even in epidemic years, these diseases hold the predominance, as will be seen from the table.

Table of deaths from zymotic diseases in Rio de Janiero, Brazil, in the years 1895, 1894, and 1893.

Month.	Accesso pernicioso.	Yellow fever.	Variola.	Measles.	Scarlatina.	Diphtheria.	Cholera.	Enteric fever.	Beriberi.	Whooping cough.	Tuberculosis.	Malaria.	Influenza.	Other diseases.	Total from all causes.
1895.															
January	45	26	16	1	....	3	5	6	5	....	177	120	....	738	1,142
February	61	41	26	....	....	1	28	6	9	3	171	142	....	730	1,218
March	71	86	19	1	....	1	82	4	21	1	206	183	....	750	1,425
April	58	141	28	2	....	4	50	11	16	4	196	179	....	839	1,528
May	49	104	21	5	....	1	19	13	15	2	187	138	2	941	1,497
June	39	77	73	3	....	3	3	6	11	2	173	137	....	888	1,415
July	30	51	183	12	....	7	....	5	6	3	206	121	1	925	1,550
August	34	29	287	13	4	1	....	7	4	3	199	123	....	915	1,619
September	43	23	289	11	....	1	....	5	3	2	200	127	....	945	1,649
October	44	17	308	2	....	3	....	5	13	1	235	140	....	845	1,613
November	48	56	208	3	....	2	....	10	7	2	229	135	....	771	1,471
December	85	167	154	2	....	....	....	18	17	2	229	138	....	855	1,667
Total 1895	607	818	1,612	55	4	27	187	96	127	25	2,408	1,683	3	10,146	17,798
Total 1894	....	4,715	86	6	....	31	....	144	263	18	2,127	1,889	7	9,308	19,221
Total 1893	....	742	54	54	....	16	....	70	81	....	2,121	1,211	....	9,093	13,442

Rate per 1,000 for 1895 ..... 29.65
Rate per 1,000 for 1894 ..... 32.03
Rate per 1,000 for 1893 ..... 22.77

I have the honor to remain, respectfully, yours,

R. CLEARY, M. D.,
Sanitary Inspector, Marine-Hospital Service.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

YELLOW FEVER RAVAGES AMONG NEWLY ARRIVED IMMIGRANTS IN BRAZIL—ONE OF THE CAUSES OF THE CONTINUANCE OF THE DISEASE.

Report by E. CLEARY, M. D., *Sanitary Inspector, M. H. S.*

RIO DE JANEIRO, *March 10, 1896.*

In the last few years many thousands of immigrants have been introduced into this country, especially through the ports of Rio de Janeiro and Santos. Certain persons have contracts with the Government to bring the immigrants at so much a head, the Government obligating itself to receive them at the ports, take care of them, and forward them to their final destinations. Some few years ago many arrived at this port, and though appropriations were not wanting, there was no place to receive them provided by the authorities, so that they were compelled to lay out in one of the city "reservations," and shelter themselves from a tropical sun as best they could, men, women, and children, while many wandered through the streets asking alms; many were stricken down with yellow fever and died victims to official negligence; and all this at the hottest time of the year and during an epidemic of the yearly scourge.

The O Paiz newspaper, always foremost in denouncing public errors, attacked the whole system, so that an island was purchased in the bay to serve as a receptacle for immigrants and arrangements made (apparently) for their comfort till they could be forwarded to their destinations. This island was fitted up with

wooden sheds and temporary hospitals, and large sums were expended; but now the same newspaper, as well as others, denounces the immigrant establishment on the Islha de Flores (Island of Flowers) as a disgrace and a dishonor to the Brazilian name and a focus of pestilential disease, when unacclimated persons, sick and well, are exposed to infection, crowded promiscuously in ill-ventilated sheds, no pure water to drink and none for washing purposes, and the drinking water stale, brackish, and full of impurities, as well as scant in quantity; the food insufficient and miserably prepared; and, not to go into all the particulars, it is asserted that the treatment of these wretches can not be appreciated except by eye-witnesses, as the filth, stench, and foul abominations exceed all imagination.

* * * * * * *

An editorial in the newspaper mentioned concludes as follows: "We appeal to the President of the Republic. It is better to prohibit immigration to Brazil entirely than to maintain an establishment such as this."

Of course some improvement will be made in the establishment after this denunciation, but will it be lasting? Experience here teaches grave doubts. The simple expedient of refusing to receive immigrants during the hotter months seems not to have occurred to anyone. If this state of things is not at once and radically broken up, we can not blame any European nation for following the example of Germany, and prohibiting the exodus of its immigrant classes to Brazil, where they are so foully treated.

Daily telegrams tell of fever-stricken localities in the interior, and it is very likely that the immigrants are the carriers of the disease. At present there are about 1,500 wretches in the shambles of the Islha de Flores.

What has been written above is much on the favorable side of truth; and can anyone be mistaken in believing that the hundreds, nay, thousands, of immigrants introduced into this port and Santos during the hot months are a cause of the spread of yellow and other fevers? When we consider that they arrive after a hard voyage in the holds of vessels, without facilities or means for practicing due cleanliness, and then are crowded into ill-ventilated and foul dens, with improper and unaccustomed food, foul water in insufficient quantities, wretchedly clad, filthy in person and in their surroundings, and in this condition scattered through the highways of trade to interior ports, I can but consider that yellow fever has a strong ally in such a system. I do not believe this evil will be permanently remedied, nor do I see what we can do to produce a reform.

I have communicated the above facts, as the newspapers have revealed the scandal, and as you have asked for the causes of yellow fever here. I believe this immigrant question to be a very serious one indeed, for, as I said above, no one seems to remember the necessity of prohibiting the importation of thousands of unacclimated, dirty human beings during the yearly invasion of yellow fever.

* * * * * * *

THE MENACE OF HABANA.

In my last annual report I set forth at length historical, descriptive, sanitary, and statistical data showing the perennial peril to which this country is subjected by reason of the continued prevalence of yellow fever in Habana, due to remediable causes. In the preparation of the table which is published in the last report, showing the years in which yellow fever has visited the United States, the seaport cities visited, and the source of the infection in each year, the percentage of infections traceable directly to Habana proved to be so large

that I considered it my duty to present to you the following special report, with a view to its being considered by the Department of State:

PROTEST CONCERNING THE SANITARY CONDITION OF HABANA.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL,
MARINE-HOSPITAL SERVICE,
Washington, D. C., December 4, 1895.

SIR: I have the honor to submit for your consideration the following statements relating to the Island of Cuba and its chief port, Habana, and the jeopardizing relation which the latter in particular constantly bears to the United States by reason of insanitary but remediable conditions, causing it to be a focus of the infection of yellow fever, the most subtle and dangerous of all the epidemic diseases, and one which annually threatens life and commercial prosperity in a large portion of the United States.

I transmit herewith a table which I have caused to be prepared for the annual report of the Marine-Hospital Service for 1895, showing the years in which yellow fever has visited the cities of the United States, the cities visited, and the source of the infection. It will be seen from the table that during the present century, from 1800 to 1894, there have been but seven years in which yellow fever has not visited the United States. The source of the infection is known in only forty-one of the eighty-seven years; in twelve of these forty-one years the source of infection is given as simply the West Indies, which may or may not mean the Island of Cuba; but in twenty-three of the years the source is given definitely as Habana. Taking a more limited period, namely, between 1862 and 1894, our shores have been infected with yellow fever twenty-six different years. The source of the infection is known for nineteen, and of these nineteen yearly visitations sixteen have been traced definitely to Habana. The records further show that in some years a number of places in the United States have been infected independently of one another from Habana, as, for example, in 1862 Key West, Fla., and Wilmington, N. C.; in 1871 Cedar Keys, Tampa, and New Orleans, and in 1873 New Orleans and Pensacola. The last epidemic of yellow fever in this country, namely, in Brunswick in 1893, was brought on vessels from Habana, and the last great epidemic, namely, in 1878, is traceable to the same source. The epidemic of 1878 invaded 132 towns of United States and caused a mortality of 15,934 persons, and the pecuniary loss to this country has been stated at the lowest estimate as $100,000,000 in gold. The disease is not indigenous to our soil, but is always imported.

So great is the danger of its introduction from Cuba and Habana that it has become a trite saying among sanitary officers that the only absolute safety lies in nonintercourse.

This subject is by no means a new one. Attention has frequently been called in the reports of the Marine-Hospital Service to Habana as a constant menace to the health of the United States, and the subject was one of exhaustive inquiry by the United States Yellow Fever Commission, whose report may be found in the annual report of the National Board of Health for 1880. I quote from this report as follows:

"Cuba, as its prosperity and commerce increased, has become the greatest nursery and camping ground of one of man's most ruthless destroyers. Itself most seriously afflicted, it annually disseminates to other lands, as from a central hell, disease and death. (Page 78.)

"Cuba makes no such efforts to limit the spread of yellow fever as have apparently proved successful in Martinique and others of the West Indies. * * * Our present knowledge justifies the hope, if the periods when this tendency to die

out was very manifest were utilized in efforts for protection, even Habana might be freed from the poison of yellow fever and require a fresh importation for the renewal of the disease. (Page 104.)

"So far is Cuba from making any efforts to control yellow fever that much is done to favor its dissemination. (Page 105.)

"Until their accomplishment [sanitary measures] Habana will continue to be a source of constant danger to every vessel within its harbor, and to every Southern port to which these vessels may sail during the warm season. * * * Since the United States commission found in Cuba only well-known causes for its unsanitary condition, it was concluded with perfect confidence that the means to render this condition satisfactory should consist of those well-tried remedies above indicated which, wherever else applied, have always succeeded." (Page 107.)

I beg leave further to invite your attention to Senate Report No. 1263, Fifty-second Congress, second session, February 4, 1893, being a report from the Committee on Immigration under resolutions of the Senate of July 16 and December 14, 1892, and a special subcommittee of members of the Senate and of the House of Representatives, to examine into the condition of immigration from Cuba and West India Islands and the danger of the importation of epidemic and contagious diseases into the United States through immigrants from these islands. I quote from the report of this committee as follows:

"The evidence shows that the most fatal form of yellow fever is always present in Habana, and in the summer and autumn it is liable to be imported into the United States by both immigrants and merchandise passing through the State of Florida, unless the most thorough and preventive measures shall be constantly used. The sanitary condition of Habana is a perpetual menace to the people of the United States, and invites the entry into the island of contagious and infectious diseases of the most virulent and fatal character."

The city of Habana is unprovided with proper drainage or sewerage. The harbor of Habana is a cesspool which for years has received the drainage of the city, and is virtually a cul-de-sac, with no means of its being scoured by the tides or fresh-water streams. The wharves on the Habana side of the harbor are notorious as foci of infection. An examination of the records of the quarantine stations on the South Atlantic and Gulf coasts for the year 1894 shows that there were 11 cases of yellow fever taken from six vessels arriving at the Dry Tortugas Quarantine Station. All of these vessels came from the wharves in Habana. In the year previous, 1893, at Ship Island, there were five vessels which arrived at the quarantine station, having had eight cases of yellow fever on board, and all of these yellow-fever vessels lay at the wharves in Habana, with the exception of one which lay very near a vessel which had been at Tallapiedra Wharf, and was infected with yellow fever. Two of these wharves, namely, the Tallapiedra and the San Jose, are particularly dangerous. Under this latter empties the sewer from the Military Hospital, where the yellow-fever patients of the army are treated. It has been said that no vessel has ever been tied to this wharf with a nonimmune crew on board without yellow fever appearing among them. So well known is it as a danger point that it is called "Dead Man's Hole" by ships' captains, and so great is the danger of being obliged to tie up to it that captains of American vessels have been known to pay for the privilege of discharging cargoes in the open bay on lighters, the payment being made by deduction from freight charges, amounting frequently to $200 or $300. Captains of American vessels have frequently asserted that the United States Government should not allow vessels to go to the wharf. The personal danger to the American seaman is increased by reason of the fact that the law compels him to remain on his vessel even though tied to Tallapiedra Wharf in "Dead Man's Hole."

A description of the sanitary imperfections of Habana may be found in the

annual reports of the Marine-Hospital Service, and in the report of the United States Yellow Fever Commission, previously referred to. I have made an inquiry as to whether any improvements in the conditions have been made in recent years, and the reports received show there have not been.

Sanitary Inspector Burgess reports that, while a new water supply has been provided for Habana, there has been no sewerage to correspond. He states that the few sewers are badly made of pervious material, so uneven in their course and so leaky that the city would be better off without them. It is already being reported that many houses, as also the city generally, are damper than before the new supply of water, and naturally this must obtain and increase until some appropriate drainage system is constructed.

The furnishing a new supply of water to a city before providing an extra amount of drainage is sometimes called by sanitarians "the-cart-before-the-horse" procedure. The danger is actually increased by the increased supply of water. The dread caused by this condition of affairs in Cuba, and particularly in Habana, is illustrated by a concise review of the quarantine regulations deemed necessary by local and State as well as by the national quarantine authorities. Between May and November every vessel from Habana, and from most of the other Cuban ports, arriving at any port in the United States between Norfolk, Va., and Brownsville, Tex., whether yellow fever has prevailed on board or not, is required to discharge ballast at quarantine, to have its hold washed and filled with fumes of sulphur, all the dunnage of the crew and baggage of passengers placed in steam disinfecting chambers, and after completion of disinfection the vessel is then held from three to five days before being allowed to enter port.

Some exception is made to the above with regard to iron steam vessels bringing passengers, but other specific and stringent requirements are added. Moreover, the regulations forbid absolutely persons not immune to yellow-fever to come to Florida from Cuba during this period. By an immune person is meant one who has had yellow fever, or who has resided in a yellow-fever locality a period of ten years. This rule, therefore, excludes children under ten years of age, and, notwithstanding that efforts have been made to abrogate this regulation, no health officer dares venture to recommend its abrogation. To carry out this regulation the United States is obliged to maintain two inspectors in Habana in order to give the proper certificates to passengers leaving that port for the United States. All the above entails, in addition to responsibility, large expense.

It is a matter of common remark that the Spanish Government applies little or none of the large revenues of the Island of Cuba to sanitary improvements.

I wish as a sanitary officer, having in view the safety of the United States from visitations of yellow fever, to protest against these conditions, so strikingly in contrast with the sanitary enlightenment of the age, and so threatening to the commerce and lives of the people of other countries, and particularly our own.

I have respectfully to request that the matter be brought to the attention of the Department of State.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

The SECRETARY OF THE TREASURY.

LETTER OF TRANSMITTAL TO THE SECRETARY OF STATE.

TREASURY DEPARTMENT,
Washington, December 11, 1895.

SIR: I have the honor to inclose herewith, for your consideration, a letter from the Surgeon-General of the Marine-Hospital Service inviting attention to the

constant presence of yellow fever in Habana, due, as he states, to causes which are remediable, and inclosing a table showing the years in which yellow fever has invaded the seaboard cities of the United States and the large proportion of the years in which the infection is traceable to Cuba and Habana.

I have to request in this connection that you consider the advisability of bringing this matter to the early attention of the Spanish Government.

Respectfully, yours,

S. WIKE, *Acting Secretary.*

The SECRETARY OF STATE.

REPLY OF THE SECRETARY OF STATE.

DEPARTMENT OF STATE,
Washington, February 7, 1896.

SIR: The letter of Mr. Acting Secretary Wike of the 11th of December last, with which was communicated a letter from the Surgeon-General of the Marine-Hospital Service inviting attention to the constant presence of yellow fever in Habana, due, as he states, to causes which are remediable, has had my careful consideration.

Owing to the existing state of affairs in the Island of Cuba and the unlikelihood of bringing about the prompt and radical remediable measures to which Surgeon-General Wyman's report adverts in a time of political disturbance and financial embarrassment, I am led to present the subject to the Spanish Government in as considerate a tone as the facts of the case permit, and not as presenting a grievance but rather as pointing out a condition disastrous to the interests of both countries alike, and no less important to Spain than to the United States.

I inclose for your information copy of the note which I have addressed to the Spanish minister on the subject, and I shall communicate the correspondence in the matter to the United States minister at Madrid for his information, with the suggestion that he endeavor to impress the home Government with the gravity of the situation and the necessity of such timely consideration of the matter as will lead to its eventual remedy.

I have the honor to be, sir, your obedient servant,

RICHARD OLNEY.

The SECRETARY OF THE TREASURY.

[Inclosure.]

THE SECRETARY OF STATE TO THE SPANISH MINISTER AT WASHINGTON.

DEPARTMENT OF STATE,
Washington, February 7, 1896.

SIR: The Secretary of the Treasury has brought under my notice an elaborate report of the Supervising Surgeon-General of the Marine-Hospital Service, concerning the continuous danger to the health of the seaports on the Atlantic Coast, and particularly those of the Southern States, and in the Gulf of Mexico, by reason of the endemic existence of yellow fever in the city and harbor of Habana.

Dr. Wyman, whose responsible position as the officer charged with the conduct of quarantine and health precautions so far as the same shall fall under the purview of the Federal Government especially qualifies him for intelligent observation

of the conditions of infection existing in neighboring foreign ports with which this country maintains extended commerce, has fortified his report on this subject with a table showing the years in which yellow fever has invaded the seaboard cities of the United States, the cities so visited, and the source of the infection, from which it will be seen that during a recent period of over thirty years, in which time more accurate and specific observations have been recorded, that in the early years of the century a very large proportion of the epidemics which have desolated the coast States of this Union have had their origin in infection directly traceable to Habana, while of those epidemics theretofore generally described as originating in the West Indies since 1668 the appended remarks show that Habana was likewise, in many cases, the source of the disease.

The sanitary condition thus described has necessarily been a source of anxiety and well-grounded alarm to the authorities of the United States and of the several seaboard States, calling for sanitary precautions and measures of effective quarantine which bear onerously upon the intercourse of the United States and the chief commercial port of the Island of Cuba, through which the bulk of our Antillean commerce passes. From time to time, also, the development and spread of actual epidemics, besides ravaging populous districts and entailing rigorous domestic quarantine, have paralyzed commerce and caused widespread hardships, not only as respects the Cuban trade, but as respects the trade of the United States themselves with other countries.

The correspondence of this Department with your legation for many years past shows that these restrictions upon the Cuban traffic in the ports of the United States have not infrequently been the occasion of remonstrance on the part of the Spanish representatives here, while, on the other hand, the sanitary condition of Habana has furnished obvious justification for the course pursued by the Federal and State health officers.

I am not aware of the actual situation of the Island of Cuba, and I can not assume that the present time is auspicious for inviting consideration of the sanitary condition of the harbor and city of Habana, with a view to removing the danger which perennially lurks there and imperils the health of neighboring communities. I feel, however, that it is my duty to lay this report before you and invite the most earnest consideration thereof by your Government. Another summer is not far distant, and with the advent of warmer weather renewal of the annual precautions against the introduction of yellow fever will be necessary, with all their concomitant restrictions and burdens upon a mutually beneficial commerce. Sooner or later the problem of attacking the pestilential conditions which exist and have existed for more than a century at Habana will demand the attention not only of Spain, but of other endangered countries, with a view to devising an effective remedy for the state of things disclosed in Surgeon-General Wyman's report, and the gravity of the situation invites timely attention and action.

Accept, sir, the renewed assurances of my highest consideration,

RICHARD OLNEY.

Señor Don ENRIQUE DUPUY DE LÔME.

RESOLUTIONS PASSED BY THE AMERICAN PUBLIC HEALTH ASSOCIATION CONCERNING YELLOW-FEVER PORTS.

The American Public Health Association has a membership composed of sanitarians of the United States, Canada, and Mexico. At the annual meeting of the association, held at Buffalo in September last, the following resolutions were adopted. They are of special

significance in view of the foregoing statements concerning the sanitary condition of Habana and Rio de Janeiro:

Whereas yellow fever is believed to be the most subtle and dangerous of all epidemic diseases; and

Whereas it is ordinarily conveyed into one country from an infected seaport of another; and

Whereas the continued and persistent presence of this disease in any seaport is believed to be unnecessary, and may be prevented by proper engineering and other sanitary measures: Therefore,

Resolved, First, that it is the duty of every government possessing seaports thus infected to institute such engineering and other sanitary measures as will remove this menace to the seaports of other nations; and

Resolved, Second, that it is the duty of all governments continuously threatened with invasion of yellow fever from a seaport in which the disease is allowed to persist, to make representations to the government in possession of the offending seaport as will induce it to adopt the sanitary measures necessary to remove this obstruction to commercial intercourse and menace to human life.

Resolved, That a copy of these resolutions be transmitted to the executives of the several governments represented in this association.

NO IMPROVEMENT IN THE SANITARY CONDITION OF HABANA.

Sanitary Inspector Burgess, in his letters of September 15 and October 17, 1896, reports as follows:

HABANA, *September 15, 1896.*

Notwithstanding all the suggestions made by Cesáreo F. de Losada, inspector de sanidad militar for this island, as well as other sanitarius, to improve the sanitary condition of this city and port nothing of importance has been done in that direction, and Habana continues in the same well-known filthy and deplorably insanitary state that it has been in for over a half century. It continues to be the same hotbed for breeding preventable and infectious diseases, such as yellow fever.

Her plentiful water supply has no corresponding sewerage, and diseases which flourish in heat, moisture, and filth are probably augmenting.

Her abattoirs and such imperfect drains as exist still empty their blood, liquid excrement, and filth under the wharves of the harbor, thus keeping up their infected condition during every month of the year.

Years of experience and observation have served to demonstrate that those wharves and their vicinage are far more dangerous to shipping in respect to infection by yellow fever than any other localities in the harbor. So serious is this danger that it would seem that some way should be found to prevent vessels going there.

As many of the vessels which go to the most dangerous of those wharves are old lumber ships from ports in the United States (in the Gulf of Mexico and in the South), they are full of peril for those localities on their return to those places from here.

OCTOBER 17, 1896.

I am informed that the Government here has appropriated and is already using for hospital purposes the extensive "Almacenes," or sugar storehouses of Regla, which structures, it will be remembered, are situated contiguous to the wharf on the opposite side of the harbor from this city. This measure, of course, will infect those buildings, and possibly such sugar as may or will be stored in them.

YELLOW FEVER IN CUBA FALSELY REPORTED AS "PERNICIOUS FEVER."

OFFICE OF THE SANITARY INSPECTOR,
MARINE-HOSPITAL SERVICE,
Habana, Cuba, October 20, 1896.

SIR: Referring to your communication with initials "F. I.," requesting to be informed as to the nature of the "pernicious fever" reported by me and other sanitary inspectors in Cuba, and especially whether it bears any relation to either typho-malarial or yellow fever, I have the honor to report that the intelligent physicians on this island, who, it is necessary to say, constitute a very small minority of the whole number, regard pernicious fever here as a very fatal form of malarial fever with great prostration, and when that class of physicians are acting under no restraint of any kind and diagnosticate and certify that the sickness or death of any person was caused by "pernicious fever," they mean a fever of malarial origin. I say "when they are acting under no restraint of any kind," and by that I mean that influences—commercial, social, or otherwise—sometimes compel them to call yellow fever "pernicious fever," as when a town or community decide that if yellow fever should be believed to exist in their locailty it would injure them in a business and social way. Their diagnoses or certificates of death from yellow fever are not accepted by the authorities, and the unfortunate physician feels himself obliged to call the disease something else, and the term "pernicious fever" is the one generally adopted. On more than one occasion I have known orders to be given by the authorities to physicians here in Habana that yellow fever must not exist on paper or in certificates after such a date or before. Then yellow fever cases are called "pernicious fever" or something else.

The majority of physicians who are usually practicing on this island are not well educated and are not skillful in diagnosis, or are foreign and of short residence here, particularly those from Spain, and are not familiar with the fevers and diseases of this climate, especially yellow fever and the various forms of malarial fever. Such physicians, when called to cases of great gravity and rapidity and are unable to make a diagnosis, invariably cloak their ignorance or uncertainty as to the cause of death, etc., under the convenient term of "pernicious fever," and no one cares to go back of that.

For the above and many other reasons "pure and undefiled" pernicious fever of malarial origin has to be responsible for sickness and death caused by a number of other diseases on this island, such as yellow fever, typho-malarial fever, typhoid fever, etc. Frankly, I do not believe that one-half of the deaths that are reported to be caused by pernicious fever here are cases of pernicious fever of a malarial nature at all; therefore I have been obliged to use the term "so-called pernicious fever" in my mortuary report.

Very respectfully, your obedient servant,

D. M. BURGESS,
Sanitary Inspector, M. H. S.

SURGEON GENERAL MARINE-HOSPITAL SERVICE.

INVESTIGATION OF THE CAUSE OF YELLOW FEVER.

The facts detailed above and in the last annual report concerning the presence of yellow fever in Habana and Rio de Janeiro, and the resolution passed by the American Public Health Association at its meeting in Buffalo regarding yellow fever infected ports, together with

the well-known history of the disease, its frequent visitations to this country, causing loss of life and commercial distress and an annual trepidation throughout our Southern seaboard, all together furnish a potent argument for the adoption of measures looking to the discovery of the true nature of this disease and its scientific prevention.

The discovery of the bacillus of cholera has robbed that disease of much of its terror. While still a scourge to be dreaded, its true character is so thoroughly known that its invasion may be met with confidence, the sanitary officers feeling absolute assurance that with energy and means it may be checked. Not so with yellow fever. The germ of this disease, if there be a germ, has never been discovered, though many attempts have been made. While it is urged in this report that yellow fever can and should be made to disappear from ports that are constantly infected, by pressure brought to bear upon the government in possession of an offending seaport by the governments which are threatened therefrom, this effort should be supplemented by an earnest attempt to ascertain its precise cause. This can only be done by regular, systematic investigation and laboratory work conducted by a number of observers, and under such provision of law and appropriation as will enable the work to be prosecuted without limitation as to time, even though it might require three or more years to achieve success. It is believed that it would be entirely appropriate for Congress to allot from the epidemic fund, from year to year, an amount sufficient to conduct this investigation.

Contributed Article upon the Prevalence of Yellow Fever among Cubans.

By Dr. Manuel S. Castellanos,
Sanitary Inspector, Marine-Hospital Service at Habana.

The immunity of Cubans to yellow fever has been in dispute since the meeting of the American Commission for the study of yellow fever, which met at Habana, November, 1879.

The commission was composed of Drs. G. M. Sternberg, Stanford E. Chaillé, T. S. Hardee, and John Guitéras, with whom were associated United States Sanitary Inspector Dr. Burgess, and certain Cuban delegates appointed by the Governor-General of the Island.

Chaillé asserted that the immunity enjoyed by adult Cubans depends on their having had yellow fever, in a more or less mild form, in childhood; fevers of childhood which are classified as malarial, bilious, gastric, etc., or fevers of dentition, being really fevers of acclimation.

Later, in 1887, during an epidemic of yellow fever at Key West, Dr. Guitéras observed that, although yellow fever attacked children less frequently than adults mortality among children increased as the epidemic of yellow fever increased.

The conclusion from these statements is that children born in Cuba are in a condition to contract yellow fever and possess no natural immunity against it. The majority of Cuban physicians protested against this conclusion, but a minority, including Drs. Finlay, Coronado, and others deserving of the highest confidence, concurred with Dr. Guitéras in regard to the nonimmunity of Cuban children.

The report of the American commission is the basis of the United States quarantine regulations in regard to the landing of passengers who may be in a condition to convey infection. One clause of said regulations is to the following effect:

"ARTICLE IX

"Passenger traffic may be allowed during the quarantine season from any port infected with yellow fever to any port of the United States south of the southern boundary of Maryland, under the following conditions:

* * * * * * *

"(c) All passengers and crew must be immune to yellow fever and so certified by the United States medical officer."[1]

This special law is a barrier against the immigration of families, and operates to the prejudice of Cubans engaged in the manufacture of tobacco who may prefer passing through the State of Florida to taking the long sea trip to New York. Cubans are accustomed to regard themselves as immune. They consider the precautionary measures above named as exaggerated and desire to procure a modification of the regulation which restricts the immigration of children. It is true that these measures are in force only during the quarantine season, which lasts six months and a half, or from May 1 to November 15, but this season covers the period during which Cubans go for the summer to the United States and during which tobacco manufacture in Cuba generally decreases. An expression of opinion in regard to the nonimmunity of native Cubans has been requested of the Royal Academy of Medical, Physical, and Natural Sciences, and the present paper is submitted to the academy as a means of opening the discussion of the subject.

The writer divides his examination of the question into four parts:

1. Should Cubans be considered immune to yellow fever?
2. Should a Cuban born and always resident in a yellow fever locality be considered immune?
3. What length of time must be allowed a child born outside the yellow fever focus to become acclimated or in other words immune?
4. Should the so-called "borros" fever be considered a form of yellow fever, or as one of the many forms of paludal fever?

1. SHOULD CUBANS BE CONSIDERED IMMUNE TO YELLOW FEVER?

Dr. W. Griesinger, professor of the Berlin medical faculty, says in his work on Infectious Diseases, page 157:

"Yellow fever is a disease which in the West Indies attacks, as a general thing, only foreigners. Europeans recently arrived contract it the more readily for having been only a short time in the country, especially if they are natives of a colder climate (Norwegians, Russians, Germans, Dutch, etc.). One single sporadic case among such foreigners will start a destructive epidemic in the foreign population of Cuba. Individuals born in localities in which yellow fever prevails, and frequently persons who have emigrated to such localities and have lived in them for a length of time, are completely protected from the disease. There is an acclimation in respect to yellow fever which is not recognized in connection with any other cause of morbidity. In Europe and in North America there exists no disease of foreigners. Epidemics attack the native and nonnative population impartially."

Facts show that immunity acquired by birth and acclimation is lost by residence for one winter in a colder climate. The longer the residence outside of the tropics and the colder the climate resided in the more marked is the loss of acclimation.

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[1] The evidence of immunity which may be accepted by the sanitary inspector is: First. Proof of continued residence in an endemic focus of yellow fever for ten years. Second. Proof of previous attack of yellow fever.

Persons returning to their own country under such circumstances are as predisposed to contract yellow fever as are persons arriving in the country for the first time.

Dr. Finlay in his careful study entitled Memoria Solere la Fiebre Amarilla says, on page 20:

"The immunity observed among Cubans of the white race born and brought up in Habana can not be considered as hereditary, inasmuch as it does not extend to members of the same family born in countries in which yellow fever does not exist. Of the children born here I am of the opinion that many suffer during the first years of childhood from fevers of acclimation or simple albuminuric fevers not diagnosed as such. In the suburbs of the city a form of fever is observed among children in which the vomit of borras fever (black vomit) and albuminuria are habitual symptoms. It appears probable, therefore, that the immunity of Cubans of the white race is generally to be attributed to mild attacks of yellow fever suffered during childhood. This opinion has been sustained for some years by Dr. Stanford Chaillé, of New Orleans, and Dr. Guitéras, of Philadelphia. There are reasons," continues Dr. Finlay, "for believing that this immunity is sometimes acquired by benign attacks of yellow fever suffered in utero in consequence of infection transmitted by immune mothers during the period of pregnancy."

I have begun by quoting diametrically opposite opinions as a proof of the want of unanimity among medical authorities. The opinions of European physicians writing on diseases of these latitudes, of which they know nothing by personal observation, do not deserve entire confidence. Yellow fever is a morbid entity, occurring in many forms and accompanied by many symptoms which occur in other diseases. Much experience is required for the accurate differentiation of yellow fever from many other affections which are infectious in their nature. There are many cases of typhus, of bilious fever, of pernicious fever, and severe icterus fevers which may readily be confounded with the endemic disease. Dr. Delfin thinks that yellow fever may be considered a modification of typhoid fever when it attacks foreigners. It is true that one symptom exists in the endemic disease which does not invariably accompany other affections. This is the presence of albuminuria in the urine. It must also be confessed that we sometimes diagnose yellow fever by the history of the individual, his descent, nativity, and other determining causes. We often at a clinic treat as icterus gravis what in a foreigner we should diagnose as yellow fever.

One of our best clinical lecturers, Dr. Felix Gèralt, instructs his classes that the native Cuban is to be considered immune. Dr. Dumont, who has had much experience in various parts of the island, expresses in his writings the same opinion.

It often happens that ideas which have been regarded as incontrovertible truths are demonstrated by science to be false. In the present case distinguished medical professors, skilled in the diagnosis of yellow fever, assert that Cubans can not be considered immune against yellow fever, they themselves having treated cases presenting all the symptoms of this disease, not excepting the presence of albumen in the urine, and in which the necropsy has revealed all the lesions observed after death from black vomit. These cases have almost always been in the persons of Cubans, resident in the country during the greater part of the year and in localities in which yellow fever is not prevalent, but who have repaired to the capital or to other places in which yellow fever is endemic.

It must be admitted that the chief focus of yellow fever is on the coast; that here it is habitually present, and that in proportion as we recede from the coast we find the disease occurring more rarely. Some physicians from the interior assert that there are localities in the island of Cuba in which a case of yellow fever has never been known. If such localities exist, it is not surprising that persons born and brought up in them should be as liable as a foreigner to contract the disease when

exposed to it in a locality in which it is endemic. There can be no doubt that such a person is, in effect, a foreigner; that is to say, a person nonacclimated to yellow fever in consequence of never having come in contact with it. Many Cubans have been known to die of yellow fever in Habana, but they have invariably been found to have lost their immunity by long residence abroad or to have come from the interior of the island, where yellow fever is very rarely, if ever, present.

2. SHOULD A CUBAN BORN AND ALWAYS RESIDENT IN A LOCALITY IN WHICH YELLOW FEVER EXISTS BE CONSIDERED IMMUNE?

This question can not be answered categorically. There are some distinguished medical authorities in Habana who assert that they have verified cases of true yellow fever in the persons of Cuban children of Cuban parents who have never been out of the city. Other authorities no less distinguished assert the contrary. It is difficult to decide between opinions which differ so widely until the microorganism of this disease is determined.

There is no scientific explanation of the occurrence of yellow fever in Cubans whose lives have been passed in a yellow-fever focus.

No general rule can be formulated to cover exceptional cases, and the history of an individual as given by his family can not be implicity accepted. On the other hand, physicians have a tendency to trace a connection between diseases and to find traits of similarity, which leads them insensibly to consider diseases which are different by nature as the same disease under different forms. There are some affections which were considered similar before the analysis of the urine was practiced, but which are now known to differ essentially. Miscroscopic investigation not only shows the pathogenesis of many diseases, but enables us to distinguish one disease from another.

The case of a Cuban attacked by yellow fever must be considered as so exceptional as not to disprove the general rule that a Cuban, no matter what his age, should be considered immune while he remains in the yellow-fever focus, provided he has never during his life been absent from it.

3. WHAT LENGTH OF TIME MUST BE ALLOWED A CHILD BORN OUTSIDE THE YELLOW-FEVER FOCUS TO BECOME ACCLIMATED, OR, IN OTHER WORDS, TO BECOME IMMUNE?

Dr. Finlay fixes the time at three or four years. The American physicians fix it at ten years.

Without entering into the discussion as to whether children are born immune in consequence of having suffered an antenatal attack of yellow fever, it seems to be proven that a child coming from a place in which yellow fever does not exist, to one in which it is endemic is in the same condition as a foreigner with regard to his receptivity to the disease.

To fix the time required to acquire immunity by residence is extremely difficult. Some persons have been acclimated by two or three years residence, and cases have been known of persons being attacked by yellow fever after many years' residence.

Dr. Cabanera Saavedra states that he has treated many natives of the Canary Islands for yellow fever contracted after twenty years' residence in Cuba. Dr. Delgado reports having treated a case in which the person attacked had lived for nineteen years in Cuba. He states, however, that the patient had passed the greater part of this time in localities where yellow fever was very rare or else did not exist.

Some authorities deny that residence may confer immunity, and assert that

immunity is conferred only by an attack of yellow fever. Others are satisfied with asserting that long residence increases the chances in favor of immunity.

Experience has fixed five years as the period of immunity conferred by vaccination for smallpox. Experience has also fixed ten years for immunity against yellow fever. No scientific reason can be given for this number. It is necessary to fix some period of duration, and the ten years fixed by American health authorities appears sufficiently near the actual facts observed.

The absence of yellow fever from any locality does not prove that the said locality may not be a focus of the disease, only that there is no individual present capable of contracting the disease.

This explains the fact that some cities situated within the endemic zone of yellow fever furnish not one case of yellow fever until certain persons capable of contracting the disease present themselves, when it immediately becomes epidemic. It is therefore a mistake to suppose that persons susceptible to yellow fever may safely settle in such places because the foci have disappeared. The disease may remain latent in a house and create a focus when the material for its development presents itself.

We may therefore conclude that immunity is relative; that it may be acquired by residence; that it is impossible to fix the period required to confer immunity; that it is safe to fix ten years as the period, provided that during this time the person or child has not been absent from the endemic focus.

4.—SHOULD THE SO-CALLED BORRAS FEVER BE CONSIDERED A FORM OF YELLOW FEVER, OR AS ONE OF THE MANY FORMS OF PALUDAL FEVER?

The pathogenesis of a disease can not be scientifically explained without microscopic examination, especially if there exists any doubt as to its nature. A microscopic study of the blood has not been made in this disease, consequently this morbid entity can not be classified. There are reasons for considering it a form of paludal fever, of malarial typhus, of icterus gravis, of inflammatory bilious fever, of the typical fever of warm climates, etc.

The medical authorities who consider borras fever the form in which yellow fever attacks Cubans assert that its appearance is always preceded by the arrival of some person who is suffering from yellow fever and that yellow fever so imported originates borras fever. This is the opinion of Dr. Cantero, of Trinidad; of Dr. Fort, of San Diego de las Bañas; of Drs. Coronado, Cabañeas, and many others who practice in localities in which the higher forms of paludism exist. Dr. Cantero's recent observations are to the effect that his cases were all in the persons of creoles, children of Cuban parents, who had never left the locality. He says:

"The theory that borras fever is a form of yellow fever is supported by the following evidence:

"1. The sudden attack and the symptoms of the first period, which are always the same, more or less pronounced.

"2. The vomito, which is shown by analysis to be identical with that of yellow fever.

"3. Analysis of the urine, which has demonstrated to contain albumin in greater or less quantity.

"4. The characteristic uræmia which was present in two fatal cases of borras fever."

On the other hand, Dr. Perna, who is a member of the Royal Academy of Sciences and a resident of Cienfuegos, and who has had much experience in the treatment of borras fever, expresses the opinion that the disease has nothing in common with yellow fever, and that it is simply a form of paludal fever. He states that comparison of the progress of yellow fever and borras fever shows that

the two diseases do not increase and decline along parallel lines, that is to say, when yellow fever assumes an epidemic form the number of cases of borras fever does not increase. In support of his statement he quotes the following statistics:

Year.	Deaths from yellow fever.	Deaths from borras fever.
1890	76	1
1891	30	.....
1892	10	1
1893	137	7
1894	50	6

"The progress of borras fever and its therapeutics alike disprove its identity with yellow fever. It sometimes happens that children attacked with borras fever will be seized with black vomit within twenty-four hours, others at the expiration of six, eleven, twelve, or more days, conditions not proper to icterus typhus. The albuminuria, which is so marked and constant a characteristic of yellow fever that it is present even in mild cases, is often entirely absent in severe cases of borras fever which terminate in death. Quinine, which is frequently detrimental in cases of icterus typhus, is the most efficacious remedy known in borras fever. The cases of the latter disease which I have succeeded in curing were treated with quinine and Fowler's solution."

I have here quoted the opinions of three competent physicians living and practicing in localities in which borras fever occurs, and it will be seen that their deductions differ widely.

It is worthy of note that in Habana, where more cases of yellow fever occur than elsewhere throughout the island, cases of borras fever are of rare occurrence when the local conditions are normal. Very few physicians in Habana can recall such cases as occurring in their practice. In the country where yellow fever is rare borras fever is frequent.

It should be observed that in all localities subject to malarial influences borras fever is present. In this connection a communication from Dr. Coronado, a distinguished authority in the study of paludism, is of interest and importance:

"Borras fever, in my opinion, is not a form of yellow fever, but identically the same morbid entity. It has been given another name merely from the fact that it attacks creoles. On my arrival in this highly malarial locality, in 1881, I was informed by Drs. Vila, Montané, and others that borras fever had been present in epidemic form during the previous summer in the little town of San Diego de Nuñez. I carefully examined the local features of the epidemic, and I am able to assert that the topographical conditions of the epidemic focus, the water supply of the town and the range of low hills which protect the town from exhalations from the lagoons that lie along the seacoast, together with its distance from these lagoons, preclude the idea of a malarial origin of the epidemic. On the other hand, the active communication between the town and Habana, where yellow fever was violently epidemic that summer, justified a suspicion of importation of the disease from Habana.

"During my experience of fourteen years of practice in the varied forms of paludal fever I have never observed a true case of borras fever among native children who had not been absent from the locality.

"I have never heard of hæmatological examination being made in cases of true black borras fever. The old theory that a native Cuban could not contract yellow fever is, in my opinion, responsible for the term 'borras fever.' It is the expression of a diagnostic uncertainty. I am positive that the parasite of Laveran, or the black pigment produced by it, is always present in processes of paludic origin.

My conviction, based on experience, is so firm in this respect that I absolutely deny paludal infection in cases where repeated and complete examination of the blood does not show the specific parasites or their derivatives.

"With regard to immunity, I am entirely in agreement with Dr. John Guitéras. The child born in a focus of infection is naturally in the condition of the recently arrived foreigner. He is, in fact, a very young new arrival. The action of the yellow-fever virus on his organism may operate in two distinct processes, both of which may fail to confer immunity upon him. If the young organism resists the absorption of the poison under favorable conditions of vital resistance, the outward manifestations of disease may either be entirely absent or so attenuated as to escape the most careful observer. On the other hand, the virus may cause one of those attacks of fever, more or less grave, which are common among Cuban children."

The weakness of Dr. Coronado's assertion that borras fever is not paludal lies in the fact that he has never seen or read of the results of examination of the blood in borras fever, and can not, therefore, affirm or deny the presence or absence of Laveran's parasites and their derivatives.

Dr. San Martin, who has had long experience in practice in Vuelta Abajo, states that he has treated many cases of borras fever, and that he can not assert that borras fever is purely paludal even when the corpuscles of Laveran are present in the blood, and that he is of opinion that the disease presents characteristics of both yellow fever and paludal fever. He also states that he treated a typical case of yellow fever in Habana in the person of a boy of 14, born in Habana and resident in the city during his entire life, except for six months, which he passed at Guanajay. The child was born of European parents.

The conclusions reached by the author in this examination of yellow fever among Cubans may thus be stated categorically:

1. Should the Cuban be considered immune to yellow fever?

No; unless he has passed through an attack of the said disease or is acclimated by long residence in an endemic focus.

2. Should a Cuban born and always resident in a yellow-fever locality be considered immune?

This question can not be answered with an absolute affirmative, but the opinion of the writer is that a Cuban born and resident under such conditions should, in the majority of cases, be considered immune so long as he remains in contact with the focus.

3. What length of time must be allowed a child born outside of the yellow-fever focus to become acclimated, or, in other words, to become immune?

It is not possible to fix the period, but the opinion of the writer is that ten consecutive years may be fixed.

4. Should the so-called borras fever be considered a form of yellow fever or as one of the many forms of paludal fever?

Until microscopic investigation shall decide this point the classification of this morbid entity must be in doubt.

SMALLPOX.

SMALLPOX IN THE UNITED STATES.

Since the close of my last report and up to and including October 1, 1896, a period of eleven months, smallpox has appeared in the United States, as reported to this Bureau, in 22 States, covering 74 county and municipal districts. The point of greatest local activity of the disease was in the State of Louisiana. It showed itself in almost epidemic form in the chief city, New Orleans, where there were reported during the above-named period 952 cases, with 256 deaths. The disease reached its climax of severity, numerically considered, in the month of March, when there were reported 334 cases, with 83 deaths. This epidemic was in progress during the period covered by my last report, and is a continuation of it. The cessation of it has been reached. It appeared also in Shreveport, in the same State, the first case appearing in February and the last in June, including a total of 58 cases and 11 deaths.

In Arkansas the epidemic noted in my last report continued through to the spring months (February, March, and April), showing a total of 133 cases, with 19 deaths.

In Ohio, at Martins Ferry, during the month of December, 1895, there were reported 74 cases, with 3 deaths.

In Tennessee 4 counties, including the city of Memphis, recorded 228 cases, of a mild type (only 6 deaths reported), a continuation of the epidemic of the previous twelve months. It had practically ceased by midsummer.

In Missouri 70 cases, with 12 deaths, were reported at two small points in the State.

The epidemic in Wisconsin, reported in my last annual report, was stamped out, and the same can be stated of that in Illinois (Chicago).

The observation made in my previous report as to the topographical distribution of this disease may be repeated here, viz, that it follows the great waterways of the middle West, the tributaries of the Mississippi. With the exception of 2 cases in Connecticut, New England was free from it, and only 13 cases are recorded in the great States of New York and Pennsylvania.

Smallpox in the United States as reported to the Supervising Surgeon-General United States Marine-Hospital Service, November 1, 1895, to November 1, 1896.

Place.	Date.	Cases.	Deaths.	Remarks.
Alabama:				
Mobile County	Mar. 11–Mar. 13	2		
	Mar. 28–May 6	4		
	June 5–July 5	2		
Arizona:				
Hirshaw	Feb. 17	10		
Nogales	Dec. 1–Dec. 9	4		
	Jan. 6–Feb. 3	3		
Arkansas:				
Mississippi County	Oct. 12–Dec. 12	75	13	
Crittenden County	Jan. 19	24	5	
Faulkner County	Jan. 4–Feb. 8	27	4	
	Sept. 18	9		
Monroe County	To Feb. 8	43		
Jacksonport	Mar. 17	4		
Lee County	To Feb. 8	12	3	
St. Francis County	To Feb. 8	16	6	
Pulaski County	To Feb. 8	4		
Widener	Jan. 4	1		
Surrounded Hill	Jan. 4	1		
Fort Smith	Mar. 28–Apr. 4	1	1	
Conway County	Sept. 18	1		
Van Buren County	Sept. 18			Smallpox reported.
Connecticut:				
Middletown	Feb. 11	1		
New Haven	Feb. 8	1		
Florida:				
Key West	June 25–Aug. 3	42	8	
Pensacola	Mar. 18–May 4	10	2	
	May 2–May 9	2		
	May 20	1		
	July 18	6	2	
Illinois:				
Cairo	Jan. 14–Feb. 15	15	2	
Duquoin, Perry County	Feb. 24	8		
Indiana:				
Indianapolis	May 29	1		
Seymour	Jan. 29	1		
Kansas:				
Leavenworth	Mar. 28–Apr. 4	2		
Kentucky:				
Louisville	Mar. 9–Apr. 4	2		
Paducah	Mar. 24–Mar. 31	1		
	Apr. 9	1		
	Apr. 24–Apr. 31	4	2	
Louisiana:				
New Orleans	Nov. 2–Dec. 9	9	2	
	Nov. 9–Dec. 14	55	10	
	Dec. 21–Dec. 28	10	2	
	Dec. 28–Jan. 25	26	7	
	Jan. 25–Feb. 22	36	13	
	Feb. 22–Feb. 29	53	2	
	Feb. 29–Mar. 31	334	83	
	Mar. 28–May 2	286	104	
	Apr. 30–May 7	29	7	
	May 9–July 18	83	24	
	July 25–Aug. 22	7	2	
	Sept. 19–Sept. 26	1		
Shreveport	Feb. 26–Mar. 20	16	1	
	Mar. 21–Mar. 28	1		
	Mar. 28–Apr. 4	16	2	
	May 16–May 30	2		
	June 6–June 13	6		
Maryland:				
Baltimore	Mar. 7–Mar. 14	1		
Michigan:				
Detroit	Nov. 23–Dec. 14	4	1	
	Dec. 14–Dec. 21			Do.
	Dec. 21–Dec. 28	3	1	
	Dec. 28–Feb. 15	8	2	
	Feb. 22–Feb. 29	3	3	
	Mar. 1–Mar. 21	2	1	
Bay City	Mar. 7–May 2			Do.
Imlay Township	Feb. 7–Mar. 21			Do.
Ionia Township	Feb. 7–May 16			Do.
Greenbush Township	Feb. 15–Feb. 22			Do.
Rochester	Dec. 14–Dec. 21			Do.
Saginaw	Feb. 1–Mar. 21			Do.
Marine City	Mar. 7–Apr. 18			Do.
Riga Township	Feb. 1–Feb. 29			Do.
Three Rivers	Nov. 23			Do.
Park Township	Nov. 23			Do.

Smallpox in the United States as reported to the Supervising Surgeon-General United States Marine-Hospital Service, etc.—Continued.

Place.	Date.	Cases.	Deaths.	Remarks.
Missouri:				
Birds Point	Jan. 14			Smallpox reported.
Charleston	Nov. 28			Do.
St. Louis	Jan. 21	1		
	Mar. 7–Mar. 14	1		
Lone Jack	Mar. 11	2		
New Madrid County	Mar. 11	37	8	
Nevada	Mar. 11	1		
Pleasanthill	Mar. 11	33	4	
New Jersey				
Newark	Jan. 1–Jan. 31		1	
New York:				
Brooklyn	Jan. 1–Jan. 31	2	1	
New York	May 1–May 31	1	1	
North Hempstead	May 1–May 31	1		
Rye	Feb. 1–Feb. 29	1	1	
Ohio:				
Dayton	Feb. 27–Mar. 12		4	
	Mar. 19–Mar. 26	4		
	Apr. 16–Apr. 30	2		
	May 28–June 4	1	1	
	June 18–June 25	1	1	
	July 2–July 9		1	
Martins Ferry	Dec. 1–Dec. 30	74	3	
Bridgeport and vicinity	Dec. 14	18		
East Liverpool	Dec. 14	1		
Pennsylvania:				
Knoxville	Dec. 17	1		
Finleyville	Feb. 11	1		
Gilberton	Feb. 13	1		
Philadelphia	Nov. 16–Nov. 23	3	2	
Priceville	Feb. 20–Apr. 15	1		
Maltby	Feb. 17–Apr. 15	3		
Tennessee:				
Ashport	Dec. 2	1		
Crittenden County	Nov. 13	1		
Fayette County	Jan. 1–Jan. 31	1		
	Feb. 1–Feb. 29	3	1	
Obion County	Jan. 1–Jan. 31	2		
	Feb. 1–Feb. 29	3		
Memphis	Dec. 1–Dec. 14	35		
	Dec. 15–Dec. 31	17		
	Jan. 1–Jan. 31	21		
	Feb. 1–Feb. 29	19		
	Mar. 1–Mar. 31	19		
	Mar. 28–Apr. 11	7		
	Apr. 1–Apr. 30	6		
	May 1–May 30	10		
Shelby County*	Nov. 15–Dec. 15	15		
	Dec 15–Dec. 31	9		
	Jan. 1–Jan. 31	35		
	Feb. 1–Feb. 29	58	5	
	Apr. 1–Apr. 30	11	3	
	May 1–May 31	8	2	
	June 1–June 30	3		
	July 1–July 31	5	2	
Alamo	Dec. 2–Dec. 31	7		
Tipton County	Feb. 1–Feb. 29	27		
	Apr. 1–Apr. 30	3		
	June 1–June 30	14	2	
	July 1–July 31	8		
	Aug. 1–Aug. 31	1		
Texas:				
Center	Mar. 13	1		
Orange	Mar. 18	1		
El Paso	Mar. 4	1		
Galveston	Apr. 10–Apr. 28	2		
Houston	Feb. 1–Feb. 8	1		
Sherman	Apr. 2	1		
Smith County	Apr. 2	10	1	
Stevensville	Mar. 10	1		
Washington:				
Seattle	Apr. 25–May 2	1		
	Aug. 1–31	4	1	
Wisconsin:				
Mukwonago	Feb. 6	1		
Waukesha	Feb. 6–Mar. 10	4		
Wausau	Dec. 28	1		
West Virginia:				
Wheeling	Dec. 16	2		

* Not including Memphis.

The Marine-Hospital Bureau was called upon in various ways to assist in the suppression of the disease, particularly in Arkansas, where, in Crittenden County, a camp was established and other measures taken to prevent extension of the pest to neighboring States, and in Key West, where the State health officer was aided in his efforts by the detail of an experienced officer and establishment and maintenance of a detention camp and hospital. Aid was also rendered by instituting a general vaccination of the crews of river steamers at New Orleans, Mobile, and Apalachicola. The following reports describe in detail the measures taken:

Interstate Quarantine Measures in Arkansas.

Report by P. A. Surg. A. C. Smith.

Office of Medical Officer in Command,
Marine-Hospital Service,
Gulf Quarantine Station, May 1, 1896.

Sir: I have the honor to submit herewith a report of the operations of the interstate quarantine to prevent the spread of smallpox from Arkansas to Tennessee during the time that I was in charge of the same, in January and February of the present year.

Following is the official correspondence leading up to the establishment of quarantine measures:

Tennessee State Board of Health,
Nashville, January 9, 1896.

Sir: I have the honor to transmit to you the following preamble and resolution unanimously adopted at the meeting of the Tennessee State board of health January 7, 1896:

"Whereas there has existed for some weeks past a number of foci of smallpox among the negro settlements located near the Mississippi River, in the State of Arkansas; and

"Whereas for weeks the lives and health of the people living in those counties of Tennessee which form the opposite bank of said river have been placed in constant jeopardy by the practice of surreptitiously passing to and fro of the inhabitants of these infected centers, a number of instances already have thus recently occurred in which smallpox was brought into our State by these people, and which practice, under ordinary means, is practically impossible to prevent; Therefore be it

"*Resolved*, That the Surgeon-General of the United States Marine-Hospital Service be, and he is hereby, requested to take, without delay, such steps as will give the western boundaries of Tennessee that protection from this pest which, under recent Federal law, is provided for the States, and which, under the circumstances, our people are justly entitled to."

With high respect, your obedient servant,

J. Berrien Lindsley,
Secretary and Executive Officer.

Supervising Surgeon-General Marine-Hospital Service.

[Telegram.]

Washington, D. C., *January 14, 1896.*

See Abstract Sanitary Reports, 1895, and Public Health Reports, 1896, concerning smallpox in Arkansas. Tennessee board complaims smallpox brought from

Arkansas, across river. On being relieved by Assistant Surgeon Wickes, proceed immediately to make thorough inspection of Mississippi and Crittenden Counties, Ark. Vaccine virus mailed to Memphis to-day. Leave orders to be forwarded. Take with you necessary obtainable vaccine. See Treasury Interstate Regulations for protection spread of smallpox. Wire report to Bureau as frequently as necessary and make recommendation as to measures to prevent smallpox reaching Tennessee from Arkansas. Take such immediate measures as may be necessary. If additional help required, wire Bureau.

WYMAN, *Surgeon-General.*

Passed Assistant Surgeon SMITH.
Marine Hospital, Memphis, Tenn.

A later communication from the Bureau directed me to include in my inspection Pemiscot County, Mo., if it appeared necessary.

HISTORY OF THE OUTBREAK.

To learn the basis of this complaint and appeal on the part of the Tennessee State board of health it is necessary to examine events occurring some months before. During the year 1895, until the close of summer, Memphis and Shelby County, Tenn., had had to deal with occasional cases of smallpox arising within their confines. Early in the fall the infection appeared to be stamped out and for several weeks no new case of the disease arose. Then a few cases were discovered which came from neighboring places outside the State. A planter in Crittenden County, Ark., living not far from the Mississippi River and from Memphis, discovered two patients with the disease harbored by one of his negro tenants. He claimed they were from Tennessee, and on the plea of sending them where they came from he had them carried in a wagon to the river and transported in a skiff to the levee in Memphis and there left to wander about until they were discovered. A few days later he sent the man and woman who had harbored them by the same route, and they were afterwards found in Memphis sick with smallpox. About the same time two other patients in the first stage of the disease came, of their own volition or otherwise, from the interior of Crittenden County to Memphis and stayed there a few days among friends before they were discovered. These six cases I afterwards traced out. Others were reported to have come into Tennessee from the southern part of Crittenden County and from Mississippi and Lee counties, Ark., and also from places in the State of Mississippi.

During the last of December a vagrant negro woman was found suffering with an eruptive disease, supposed to be smallpox, in a little settlement in Arkansas just across the river from Memphis. She was turned out of two houses where she sought refuge with her own race, and finally a local constable built a camp fire for her in the woods and she died there.

In the first week of January the health officers of Memphis and Shelby County, Tenn., called a conference of their neighbors in Crittenden County, Ark., and De Soto County, Miss., for the purpose of discussing measures to prevent the spread of smallpox from one county to another. The Mississippi people did not respond, but several physicians and civil officers were present from Crittenden County. The conference resulted in nothing, and shortly afterwards the Tennessee State board of health passed the resolution before given.

INVESTIGATIONS.

Upon the receipt of my orders of January 14 I determined that the chief source of danger was in Crittenden County. Mississippi County had already taken hold of the matter with good success, and I could learn of no immediate danger to Tennessee from that quarter. January 16 I visited Crawfordsville and Vincent,

Ark., and saw two of the local physicians and the county judge—the chief administrative officer of the county under the Arkansas laws. They knew of the existence of smallpox a few miles away, but could not give definite information. No physician had visited the cases, and I was told that none would act as health officer unless guaranteed a yearly salary. Practically nothing had been done to stop the spread of the disease or to ascertain the real condition of affairs. A few had been vaccinated at the county's expense, but not among those in most danger of exposure. No one in Vincent or vicinity would take me to the locality of the smallpox that day. I went on to Marion and spent the night, and succeeded in getting a team and driver there to visit the infected region early the next morning.

The district where smallpox was found is called Roseboro Island. It contains a number of plantations, comprising several thousand acres, and gets its name as an island from being surrounded by water and even partly overflowed in years of a freshet, when the Mississippi River spreads out over the bottom lands of Missouri and Arkansas. It is surrounded by bayous and swamps, and is hard to reach in the rainy winter season except to those who are used to that country. The land is chiefly owned by nonresidents, and the dwellers are almost altogether negroes, usually tenants and "croppers." The cabins are generally of the poorest kind, with chimneys made of sticks and mud, and lie widely scattered or in groups.

Smallpox got its start on one of the plantations in cotton-picking time in the fall of 1895, just how I could not learn. Two young negroes living in one of the cabins had it nearly at the same time. Two others, living in the same cabin, a man and a woman, left and went to Memphis just as the disease began in themselves. From this cabin the disease spread less rapidly than one would think. The owner of the plantation bought vaccine points and had vaccinating done among his hands and saved them from the spread of the disease, but not their neighbors. A negro family living about a mile away got it by visiting the sick. From them another family took it, and it spread to seven households altogether before it was completely checked.

At the time of my inspection, January 18, the two first taken with the disease had recovered. In the next household, comprising in fact two cabins, there had been 7 cases, 2 having died and 5 being convalescent or recovered. Five others in the family escaped the disease through being protected by vaccination. These people were found living in a kind of quarantine, imposed either voluntarily or on account of the sentiment of their neighbors. In the next infected house discovered a more dangerous state of things existed. A negro preacher, his wife, and daughter had had the disease and two foster children were sick with very mild cases. They had refused to acknowledge that they had smallpox, calling it "black measles," and had come and gone as they pleased and had received some visitors. Their next neighbor, a white woman, with a mulatto child, had an extremely mild case with only a few papules showing. Living with her were her little girl and a young woman, a neighbor, who had been helping her during her sickness. I vaccinated them, but without success in preventing the disease. The young woman's vaccination took, but on the tenth day after vaccinating smallpox appeared, ran a severe course to the stage of postulation, and then ended somewhat abruptly. The little girl was vaccinated four times at intervals, but finally took smallpox, which ran a similar course to the case just described. In another infected house discovered the entire family of nine had been sick with the disease and three had died. A tenth member of the family, a grown boy, had run away at the beginning of the trouble and was not heard from again. They were in practical quarantine imposed by the sentiment of their neighbors.

ACTION TAKEN.

On the first day of actual inspection I succeeded in locating all the cases on Roseboro Island, and did a considerable number of vaccinations as I went, fortunately finding a good many of those who had been directly exposed. Quarantine

was put in force for the time being by simply warning the people and their neighbors of the restrictions to be observed. At the county judge's request, I reported the exact condition of things to him that night, and I left Vincent with the understanding that guards would be employed and quarantine restrictions enforced. It was impossible for me to get a lodging place in the county at that time, and I made Memphis headquarters. January 20 the island was visited again, more vaccinations were done, and a further search was made for the disease, but no more cases were found.

January 21 I inspected some portions of Crittenden County immediately across the river from Memphis, and discovered no smallpox there. I next visited Roseboro Island again. No guards had been provided, and I concluded that the county authorities did not intend to do anything. One new case of smallpox was discovered January 25. I then released two available men from one of the infected houses, and employed one as nurse to care for the new patient and the other as a guard. A local physician, Dr. W. H. Borum, was employed to assist in the work of vaccinating and inspecting.

FURTHER INVESTIGATION AND ACTION.

January 22 I visited Seyppel, Ark., which is situated on the river bank in the southeast part of Crittenden County. It had been reported that smallpox prevailed there, and I found on inspection that there had been 32 cases, with 10 deaths, all being in negro plantation hands and their families. Only two convalescent cases remained which required quarantine, and there were no recent cases. The infected area comprised three large plantations. The principal planter living there, Mr. Otto Seyppel, had taken the matter in hand himself, with the aid of a local physician, and by vaccinating and imposing restrictions upon infected families had stopped the spread of the disease. On account of the two persons still held in quarantine no disinfecting was done at this visit. At a later date I released these two and disinfected four houses in which the disease had occurred. Two other houses occupied by families who had had the disease could not be vacated even temporarily at the time, and the work of disinfecting them was left in Mr. Seyppel's charge. One of these was very dilapidated, and the county judge was informed by official letter that it ought to be burned.

The chief source of danger seemed still to be Roseboro Island. On January 29 a new case was discovered and on February 1 another. These two and one before mentioned were all in persons that I had vaccinated, but were the only cases that occurred thus. There were many other instances of the great value of vaccination in preventing the disease. Although so far quarantine had been maintained successfully by confining the sick to their own houses, it involved much labor and expense in visiting so many scattered houses and providing for the wants of all the inmates, some of whom were perfectly well, and if new cases should continue to arise the system would become impracticable. Moreover, some of the families discovered an access of appetite and a dearth of food when they found that the Government was looking after them.

QUARANTINE CAMP ESTABLISHED.

A quarantine camp was accordingly established, with tent hospitals, a site being chosen by one of the infected houses. Two hospital tents, 18 by 24 feet each, were erected, one for men and one for women. Flooring of rough lumber was laid and the tents were heated with stoves and provided with cots. Beside these, a small tent for the guard and another for executive purposes and storage were erected a little distance away. The cooking was done in a wing of the cabin. All the cases were removed to this camp February 6. They comprised six patients, three of whom were convalescent. One of the convalescents was employed as cook. Beside these, there were in the camp the male nurse, the guard, the mother of the sick child, who had herself recovered, and the father of another patient,

the occupant of the cabin beside which the tents were erected. All remaining persons who had been quarantined at their homes were released as fast as the necessary disinfecting could be done.

GOOD RESULTS FROM ESTABLISHMENT OF CAMP.

No new cases of smallpox occurred on Roseboro Island after the quarantine camp was estalished. Dr. Borum's employment was terminated February 21. By February 25 all the sick had recovered but one man. To provide for him, one of the tents was moved to a safe distance from any house, and the guard was placed with him to keep him company. All the others were discharged from quarantine. Following this I turned the work over to Asst. Surg. H. W. Wickes.

DISINFECTION.

All the infected houses on Roseboro Island, seven in number, were disinfected. One of them was very dilapidated, and I informed both the owner and the county judge that it ought to be burned. I do not know whether or not my recommendation was carried out in this or in the other similar case. One embarrassing thing in the disinfecting was the feather beds. The negroes are much attached to them, and I could not buy enough feathers anywhere to replace them if destroyed. I finally allowed the feathers to be boiled in water with lye soap, which was successfully carried out. Another feature was the dogs—from two to eight in each house. They were well ducked in bichloride solution, and the cats also. In some cases new clothing was necessary and was furnished, after the disinfection of the persons and their effects.

MISSISSIPPI COUNTY.

The foregoing comprises the execution of my commission with reference to Crittenden County. I followed up several other rumors, but without finding smallpox. I visited Mississippi County February 8. There had been no reports of danger from that county for some weeks, and I thought it only necessary to learn the measures which were taken there to prevent the spread of smallpox. The matter had been intelligently handled by a local board of health, formed for the occasion, and the last case had been disposed of some time before. The epidemic originated among white people, but the source of the infection could not be clearly traced. At a later date there was a new outbreak, traced to a young negro girl who brought the disease from Cairo, Ill. Dr. Thomas G. Brewer, temporary health officer of the county, informed me that 12 cases developed in this outbreak, all of which were treated in a pesthouse. There were 10 recoveries and 2 deaths out of the 12 cases.

Although there is no special provision in Arkansas for county health matters, the county judge has the power to incur some extraordinary expenditures in emergencies. A difficulty in the way is the fact that county warrants do not sell at par. This was met in Mississippi County by several citizens of means agreeing to buy at par the warrants issued on account of the smallpox epidemic.

With regard to Pemiscot County, Mo., which adjoins Mississippi County, Ark., on the north, I could learn of no complaint from either Missouri or Arkansas at the time of my inspection. I received a letter from Dr. I. A. Tipton, the county health officer, in reply to an inquiry of mine, in which he said that there had been no new case of smallpox there since November 18, 1895. It appeared to be unnecessary to visit the place.

The amount of the expenditure incurred by me in this work to the close of February was $716.18.

Very respectfully, yours,

A. C. SMITH,
Passed Assistant Surgeon, Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

CAMP CLOSED.

MAY 15, 1896.

SIR: I have the honor to state that in obedience to Bureau telegram of March 5, 1896, received at Memphis, Tenn., I left Memphis on the morning of the 6th for the interstate quarantine camp in Crittenden County, Ark.

Upon my arrival at the camp I found the guard, who was acting as cook, and one convalescent case of smallpox, the other cases having been previously discharged. I considered it safer to continue the camp for several days longer, as the patient was not in condition to be discharged. I again visited the camp on the 9th instant and found the case so much improved that I considered it safe to discharge him and close the camp.

The patient was given a bichloride bath (1:1000) and a new suit of clothes to replace the infected suit, which was burned.

The two large tents used for the smallpox cases, with the cots, bedclothes, and everything else that could carry infection, were burned. The cooking utensils, stoves, and stovepipes were well washed in a strong carbolic solution and removed from the camp.

The guard was then made to give himself a bichloride bath and given a new suit of clothes. All of the clothing worn around the infected tents was destroyed.

The tents used by the medical officers and guards, with the cooking utensils, stoves, and other noninfected property, were stored temporarily in an old gin mill on the place until further instructions from the Bureau. In accordance with Bureau telegram of the 10th instant, I visited the site of the camp on the 12th to have the noninfected property packed and shipped to the United States Marine Hospital at Memphis, Tenn.

Very respectfully, yours,

H. W. WICKES,
Assistant Surgeon, Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

REPORT UPON THE SMALLPOX EPIDEMIC IN KEY WEST.

By P. A. Surg. J. H. WHITE.

KEY WEST, FLA., *September 1, 1896.*

SIR: In obedience to your telegraphic order of July 10, I left New York the same evening and, reaching Key West by first available steamer (July 14), proceeded at once to conference with the State health officer of Florida, Dr. Joseph Y. Porter, as to the status of reported outbreak of smallpox and the character of assistance desired by the State board from this Service.

There were at that date (July 14) 21 existing cases and 7 deaths, making a total of 28 cases, and it was the wish of the State health officer that the Service should furnish financial aid for the camp of detention and the hospital, which latter he then had under construction; assist in the diagnosis of suspicious cases; and disinfection of houses and chattels, after removal of persons to camp. As far as possible he wished to conduct the work under the auspices of his own board, and this was done until July 25, when, at the request of Dr. Porter, I assumed, for the Marine-Hospital Service, full control of the camp, which had been already designated as Camp Patterson.

An ineffectual attempt to remove the sick and suspects to camp was made on Saturday, July 18. The populace threatened violence if an attempt was made to take any person to the camp, and some of the parties to be removed declared their intention to fight to the death before they would go. Another and successful

attempt was made on the 25th, as stated, and having moved one family, the objectors ceased and all were duly placed in the hospital on that and the day following. There was still, however, a refusal to occupy the tents because of absence of flies for same, and until flies were received from Waynesville, Ga., they remained unoccupied save for two nights and greater part of three days, when one tent was used for the detention of two Cubans (supposed to be insurgent officers) who had no yellow-fever immunity certificates from the United States inspectors in Cuba, and were turned over to me by Dr. Porter for observation. The occupancy of the tent by these men (evidently gentlemen) had much to do with removing the prejudice against the tents of the Cuban and Bahaman people with whom we had to deal. Shortly thereafter I was able peaceably to encamp in the tents all those who were as yet only suspects. Of these only one developed smallpox at a date remote enough from admission to justify the belief that he incurred his risk while in the hospital, the remainder of new cases evidently incurring infection prior to their removal from the city.

I append a summary of the patients and suspects who were admitted to the camp, not including those who died of the disease in the city prior to my arrival.

The encampment was laid out as follows:

On the south beach of the island, some 3 miles from the center of the city, a hospital was built by the State board, 186 feet long by 30 feet wide, and provided with 4 commodious wards, 4 rooms for attendants, and a kitchen. This was loaned with its equipment to the Service.

East of this some 1,000 yards or more Dr. Porter had placed the 25 tents provided by the Service.

Midway between I placed 4 tents, which I used as disinfection and storage quarters.

The hospital was provided with gutters and barrels for water, but until August 27 no rain fell, and I was compelled to haul water, at a cost of 50 cents per barrel, from the city.

The water itself, worth in Key West 62 cents per barrel, was given from the city and the Masonic Temple cisterns.

On account of the scarcity of water I was unable to get as good therapeutic results as I could have desired and usually do get in variola, from very frequent tepid baths to remove all suppurative material as fast as formed.

All laundry and house-cleaning work was done with sea water, but this, being unusually salt, could not well be used to bathe those who were very sore.

DEATHS IN CAMP.

It will be noted that three deaths occurred in camp, but only one was from variola, an extremely bad case of confluent in a very old man, who was a hard drinker, as I understood. Of the other two who died, one was from tubercular meningitis in a rachitic negro child, and the other from what appeared to be cirrhosis of liver. No autopsy was held in either case.

DISINFECTION.

Beginning July 29, Dr. Porter and I disinfected all of the infected houses most thoroughly, using for that purpose a solution of 1:250 $HgCl_2$, and with this solution, thrown by a powerful pump, wetted walls, floors, and ceilings, including attics and all other spaces.

All bedding and clothing was hauled to the camp and there disinfected with $HgCl_2$, 1:1,000 for the coarser and dirtier fabrics and with formol for those of more delicate structure, this latter having been suggested by the Bureau to me while on my way to Key West.

Each trunk and package (50 disinfected) was opened and formol sprinkled on

the contents, layer after layer. Then closing the box or trunk, a package was made of four to six trunks in a tent fly and this left undisturbed for twenty-four to forty-eight hours—generally the latter.

Upon discharge of any person he or she was first examined by me in person; second, subjected to a soap-and-water scrubbing; third, to a dip in a 1:1,000 $HgCl_2$ solution, and, finally, given clean clothing, often new, and dismissed with orders to report to the State health officer before renewing residence in the city.

HOUSE-TO-HOUSE INSPECTION AND VACCINATION.

A house-to-house inspection was completed by the order of Dr. Porter on or about August 24, and showed (1) that no more cases existed in the city, (2) that in round numbers 13,000 persons had good vaccinations, and that only 3,500 remained who were not vaccinated.

This extensive vaccination can be said to be the direct result of the quarantine placed upon ingress and egress of all unvaccinated persons.

I have to thank the captains of the revenue cutters *Winona* and *McLane* for the ready spirit of cooperation shown by them, both having conferred with me and expressed a willingness and a desire to render any aid possible.

MEDICAL OBSERVATIONS.

As worthy of remark I would note two facts in connection with this epidemic:

First. That the incubative period in the negro in the Tropics would seem in many cases to be three weeks or more instead of two. In one case a girl was exposed day after day, and in absolute contact with other cases, and only developed the disease after twenty-nine days, though it is only proper to say that I saw no development of the disease with long incubation positively proved by isolation, and the point I wish to call attention to is that either the incubation is longer or the susceptibility far smaller than in the white man.

Second. That there were several (five) well-marked cases of pemphigus encountered and one of herpes iris, three of the former and the latter among negroes, and the difficulty of diagnosis in the beginning of these cases is not to be despised.

To the eye alone diagnosis in the negro is impossible, and it is only after pricking the vesicles that the absolute disappearance of any elevation above the surrounding skin marks the difference. In the white the absence of any areolar redness in beginning pemphigus is a sufficient point of difference. This last, of course, does not show in the dark races.

While it is probably outside the scope of this report, I will nevertheless comment upon the superstitious fear of light and air which pervades the populace in dealing with variola, and I wish to state most emphatically, hoping it may save the lives of some poor wretches, that I have in a fairly considerable experience with smallpox reduced the mortality average from 75 to 95 per cent below its existing level in the hands of the people by the free admission of both of these agents and plenty of soap and water, e. g., at Harris Neck, Georgia, 1891–92, I found 73 cases, 1 of whom was dying, and 13 had already died. There occurred 13 new cases, and several were confluent. Not one died; and my sole therapeutic agents were fresh air, water, soap, and inunctions of vaseline.

The last case was dismissed on Saturday, August 29, and a complete disinfection of the hospital and its contents immediately done. One employee was left watchman until Monday night, August 31, and the incident considered closed.

From beginning to finish the relations existing between the Service and the State board of health were most cordial, and at no time was there anything but most hearty cooperation. Thanks are due to Dr. J. Y. Porter from me for both official and personal courtesy without stint.

Summary of cases, suspects, and deaths.

Deaths prior to July 14	7
Existing cases July 14	21
New cases July 14 to August 13	14
Deaths July 14 to August 29:	
From smallpox	1
From meningitis	1
From cirrhosis liver	1
Cases admitted to hospital July 25	30
Suspects July 25 to August 29	25
Cases developed in camp among the suspects July 25 to August 29	5

Respectfully, yours,

J. H. WHITE,
Passed Assistant Surgeon, Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

REPORT ON VACCINATION OF RIVER BOATMEN AT NEW ORLEANS, LA.

NEW ORLEANS, LA., *May 13, 1896.*

SIR: I have the honor to report that the inspection and vaccination of crews of Mississippi River steamboats, authorized by your letter of March 17, has been completed, and the services of the two sanitary inspectors temporarily employed to perform the duty discontinued, one on the 6th and the other on the 11th. This inspection became necessary on account of the rapid spread of smallpox in the city during the month of March, mainly due to the influx of cases from the surrounding parishes. The levee and cross-tie camps near the different steamboat landings on the Mississippi and its tributaries also became infected, thus making it practicable to convey persons sick with the disease from one port to another by river steamers, and, as cases were found occasionally among the deck passengers some alarm was felt among health officials, notably those at Shreveport, who refused to allow boats from New Orleans to land at that port until satisfied that all hands on board had been vaccinated. With a view to securing vaccinated crews for all outgoing steamers, a circular letter was addressed to the representatives of steamboat lines recommending that an order be issued prohibiting the employment of roustabouts unless they produced certificates showing that they were immune to the disease. Accordingly, by direction of the Steamboat Captains and Owners' Exchange, instructions were issued as recommended.

This action simplified the work, and, with the aid given by the harbor police on the levee in keeping the men in order, the inspectors experienced no difficulty in performing their duties.

Number of steamboats inspected, 26; number of times inspected, 133; number of vaccinations, 1,410; number of certificates issued, including those given to persons protected by previous vaccinations (estimated), 3,000.

According to the Public Health Reports of the Service of May 8, 1896, smallpox exists in 12 States, and it has prevailed more or less extensively here for over a year past, but with the river steamboats manned with vaccinated crews, warm weather, and the prospect of the board of health securing adequate financial aid from the new city council, it is believed that smallpox will soon be under control, and the general sanitary condition of the city greatly improved. Inclosed find copy of correspondence.

Very respectfully,

HENRY W. SAWTELLE,
Surgeon, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

[Inclosures.]

NEW ORLEANS, LA., *March 21, 1896.*

To Masters, Agents, and Owners,
Mississippi River Steamboats, New Orleans, La.

GENTLEMEN: In view of the continued prevalence of smallpox in this city and the surrounding country and the danger of carrying the germs of the disease from one port to another on river steamboats, by direction of the Surgeon-General of the Service it is proposed to vaccinate the officers and crews of outgoing steamers who are not protected by a recent successful vaccination or by a previous attack of the disease. A certificate of vaccination will be given to each man vaccinated, and to avoid the possibility of quarantine restrictions at various ports on the rivers it is recommended that no person be employed on a river boat unless he produces a certificate of vaccination. Vaccinations will be made at the marine-hospital office, custom-house, between 9 a. m. and 4 p. m. and on board the steamers, if practicable, before sailing.

With your cooperation, as suggested, it is believed that the work of vaccination as outlined will prove to be a valuable aid to the local health authorities in their efforts to suppress a loathsome disease.

HENRY W. SAWTELLE,
Surgeon, U. S. M. H. S.

NEW ORLEANS, LA., *March 26, 1896.*

Surgeon in Charge U. S. Marine Hospital, New Orleans, La.

SIR: At a meeting of this exchange yesterday a copy of your recent circular letter relative to the vaccination of the crews of the various steamboats represented, was read and discussed, and it was unanimously agreed that such service should be accepted and the mates of all boats be instructed to ship up no men on deck who do not hold certificates of vaccination, and a disposition was manifested to lend a hearty cooperation in every way possible with your office and the local authorities for the suppression of the smallpox and the preservation of the general health. Your prompt and willing action was referred to and appreciated, and the ready response of your gentlemanly assistants had like appreciation, and, doubtless, your office will have many calls for such service.

Again thanking you, I am, very truly, yours,

CHAS. P. TRUSLOW,
President Steamboat Captains and Owners' Exchange.

REPORT ON VACCINATION OF RIVER BOATMEN AT MOBILE, ALA.

MOBILE, ALA., *May 12, 1896.*

SIR: I have the honor to submit the following report of the vaccination of crews of river boats plying from this port: The crews of these boats are shipped each week for one trip, before the United States shipping commissioner. This work is done in the morning about 9 o'clock, and the crew scatters, not to return till near the hour of sailing, 6 p. m. Owing to considerable opposition on the part of the captains and the crews the vaccination was necessarily performed just before the men were signed, notice having been given that no unvaccinated person, unless rendered immune by a previous attack of smallpox, would be allowed to ship. The crew is usually reshipped, with few exceptions, and after one complete vaccination 2 or 3 extras were all that required attention.

The inclosed tabulated reported shows the number vaccinated on each boat on the day of sailing, together with totals. The number (59) falls far short of my

estimate, because the individual opposition was not taken into account. It has been my intention to offer vaccination to all patients applying for relief at the out-patient office, and in three months 2 have accepted; and had it not been for the refusal of the shipping commissioner to ship nonimmunes not a single roustabout at this port could have been vaccinated.

Captains of harbor boats have been advised to have their crews vaccinated, but not one has availed himself of the opportunity.

The indications are that the danger of an epidemic in this city is now passed, and the health officer concurs in the opinion that it is safe to discontinue the vaccination of crews of river boats.

Very respectfully submitted,

E. K. SPRAGUE,
Assistant Surgeon, U. S. M. H. S.

Vaccinations on river boats, port of Mobile, Ala., April and May, 1896.

Name of vessel.	Apr. 14.	Apr. 18.	Apr. 21.	Apr. 25.	Apr. 28.	Apr. 29.	May 2.	Total.
Nettie Quill	----	----	10	----	----	2	----	12
Hattie B. Moore	3	----	12	----	1	----	----	16
Linsie Moore	----	----	----	10	----	----	2	12
D. L. Tally	----	14	----	3	----	----	2	19
Total	3	14	22	13	1	2	4	59

REPORT ON ORIGIN AND COST OF SMALLPOX IN CERTAIN TOWNS AND CITIES IN MISSISSIPPI, ALABAMA, AND LOUISIANA.

By Surg. R. D. MURRAY.

MOBILE, ALA., *September 10, 1896.*

SIR: I have the honor to submit a compilation of some facts and incidents in regard to the late prevalence of smallpox and the cost of outbreaks in small towns, gathered by correspondence with local health officers and others, which I think will be interesting to public-health conservers. My personal experience with the disease began in 1869 and comprises the control of three smallpox hospitals and care of cases in several places and on vessels, and the points which arose were how to protect the well and save the ill, but the matter of cost has never been seriously considered. If, incidentally, something is gained from this paper in favor of proper, prompt, and thorough action, I will be gratified.

In my letter of August 10, on Mobile, I indicated the plan I would like to follow as to each locality, but all necessary hints and warnings may be found in the hasty résumés. I submitted a list of queries to several physicians, the substance of which and the replies appear under the name of the town.

BILOXI, HARRISON COUNTY, MISS.

Population, 5,000. The first case occurred July 5, 1895, when three infected persons were imported from New Orleans. Five suspects were held until it was safe to release them. Deaths, none. The last case developed on August 7, 1895. Restrictive measures were kept up for fifty days and consisted of "strict quarantine against infected points and compulsory vaccination; disinfecting and thoroughly cleansing the house where the cases were isolated." Number of public vaccinations, 400; no estimate of private work. Total cost to city of Biloxi, $443.42 ($147.80 per case). This experience in 1895 led in March, 1896 (when the disease was being distributed in all directions from New Orleans), to the employment of "two special officers, whose duty it was to board each incoming train and not allow anyone to stop off who was not provided with a bill of health from New Orleans. The rule was principally enforced against strange colored people and

suspicious whites. The total cost to the town was $100." The inspections were continued for about sixty days, and there was no smallpox in Biloxi. I have failed to find that there was a case in the county.

PEARLINGTON, HANCOCK COUNTY, MISS.

Population, 2,000. Two cases arrived on a schooner from New Orleans on March 12, 1896. Nine persons were in the party, all of whom suffered with the disease. All colored; no deaths. Last case developed April 23. Fifty-three suspects were held. Restrictive measures consisted of vaccination, isolation, quarantine, and disinfection. Disinfectants used: Fire, bichloride of mercury, and sulphur. Number of public vaccinations, 200. Total cost to Hancock County, $800.35. or $88.93 per case. There were no other cases in the county.

HARRISTON, JEFFERSON COUNTY, MISS.

Population, 400. The first case occurred March 24, 1896, in a colored laborer on the railroad, who came from New Orleans. Eight cases were acquired from this one, making 9 in all; all colored. There were 2 deaths. The last case developed May 25. Twenty suspects were held. Restrictive measures were kept up about three months, and consisted of "isolation and strict quarantine with guards. One house and contents burned." Public vaccinations: "At Harriston, 100; at Fayette, 100; in whole county, about 400." Total public cost: "The county paid for account of vaccination $77. The total expenses of these smallpox cases at Harriston, including physicians' services, nurses, guards, supplies for persons kept under quarantine, and the burning of 1 house and its contents were $1,265.85. These bills were presented to the county for payment and payment was refused." Total cost, $1,342.85, or $149.21 per case. By estimating the vaccinations at $1 each (and they are worth that to the county), the average cost may be scaled down to less than $100 per case. Perhaps if the board of supervisors could appreciate "what might have been," and that all the money spent will remain in the county, they would relent and find a reason for settling the bills.

HATTIESBURG, PERRY COUNTY, MISS.

Population, 1,000 (?). The first case is reported as having occurred March 4, 1896, and as having come from New Orleans. Ten cases in all were imported and 2 persons acquired the disease, making 12; all colored. Two deaths. The last case developed on March 23. Restrictive measures lasted forty days, and consisted of "vaccination and quarantine." Number of public vaccinations, 500. The cost to the State was $629.29, and to the county $472.85, a total of $1,102.14, or $91.85 per case. The reporter, in reply to my query as to "What other places are afflicted," writes, "All over the State."

ELLISVILLE, JONES COUNTY, MISS.

Population, 2,000. The first case was reported March 20, 1896, in a colored woman who had lately arrived from Hattiesburg. Fourteen cases resulted from this, making 15 in all. One of the cases was white—the physician in charge of the cases, who recovered after a serious illness. There were no deaths. The last case occurred May 1. The restrictive measures consisted of isolation, detention, and arrest and detention for eighteen days of all persons who had been in contact with cases or could not give a clean bill of health or show signs of recent vaccination. Number of vaccinations in the town, 500. The total cost was $1,400, but the payment of the county's share was disputed and is in litigation. Average cost per case, $93.33.

LAUREL, JONES COUNTY, MISS.

Population, 500 (?). The first case occurred in April, 1896, in a white teamster; who attributes his attack to unloading a car of hay, assuming the hay or car to have been infected. Source of the hay not known to me. In fourteen days after the unloading the man took down. There were 9 cases in all, the majority, as usual, being colored. No deaths reported. The village put on a guard quarantine for twenty days and used the usual restrictive measures. Vaccination was generally resorted to throughout the county, but no record was kept of the number. The total public cost was $1,000. I think some of it is not yet settled. Average cost per case, $111.11.

VICKSBURG, MISS.

Population, 16,271. The first case occurred March 12, 1896, in a person who was brought by a steamboat from New Orleans. Was admitted to city hospital, where the disease developed, when he was removed to the pesthouse. The imported cases—all from New Orleans—were 1 white and 5 colored; 6 in all. The acquired cases were 4 white and 55 colored—59; a total of 65. Two were treated in the city hospital and 63 in the pesthouse. One white and 5 colored died. The last case developed June 10. The restrictive measures consisted of "quarantine, fumigation, destruction of clothing and bedding of infected patients, and compulsory vaccination," and lasted from March 12 until July 15. One hundred and twenty-five suspects were held and 10,361 vaccinations were recorded. The cost: City, $2,679.11; county, $2,214.61; State, $414.44; a total of $5,308.16, or $81.66 per case.

[There were cases in other Mississippi towns, but I have so far not received reliable information.]

MOBILE, MOBILE COUNTY, ALA.

Population: City, 31,076; county, 20,511. The first case occurred March 10, 1896, in a man who had lately come from New Orleans. Of the 8 cases (all colored) 6 evidently came from New Orleans, the last from Pensacola, and the seventh developed in the city—the source yet unknown. Two deaths. The restrictive measures were kept up from March 10 until August 9, 1896, and consisted of "train inspectors, State line camp, vaccination, prompt action in every case, and use of pesthouse." One suspect was held and 5,178 vaccinations were recorded—4,296 in city and 882 in county, besides 206 by the Marine-Hospital Service on river boatmen, and 200 or so in the county on occurrence of the last case; a grand total of 5,584, not estimating the number performed by private physicians. Two physicians were employed as train inspectors and four as public vaccinators, who performed duty in addition to that done by the two able health officers and the efficient clerk of the board of health. The total cost was $2,275.36, distributed as follows: City—Pesthouse share, $323.25; train inspections, $525.73; vaccinations, $610; total, $1,458.98. County—Pesthouse share, $130.65; vaccinations, $160; train inspections, $525.73; total, $816.38. Average cost per case, $284.42.

[Vide my report on Mobile in Public Health Report of August 28, 1896.]

WALLACE, ESCAMBIA COUNTY, ALA.

Population, 250. The first case developed in a colored man (B. B.) on April 3, 1896, in a week after he arrived from New Orleans. From this case 29 others arose, making 30 in all, all colored. One death of a woman (L. S.), wife of H. S., whose sister (E. G.) escaped, taking H. S.'s child, to Pensacola, where they developed the disease, respectively, on April 29 and May 2, and in turn infected S. S., the woman's brother, who sickened at Pensacola on May 12. The last case occurred

June 14. The restrictive measures consisted of quarantine, vaccination, and disinfection, and were continued from April 13 till June 26. Recorded vaccinations, 12. Total cost to the county, $532.87, or $17.76 per case.

STEVENSON, JACKSON COUNTY, ALA.

Population, 600. The first case occurred April 10, 1896, in a colored man who lives in Stevenson and worked on the Memphis and Charleston Railroad, spending half his time at Tuscumbia, the other end of a division, where he was exposed to the disease. This case made one center, with 6 cases and 1 death, all in the man's family. Another center was started in a colored woman's boarding house about April 25 by a railroad hand, who sickened and died in Tuscumbia about April 15. There were 13 cases, in the persons of colored people, including the first one, who were residents of the village, with 4 deaths. The last case occurred July 1. The restrictive measures consisted of "vaccination, isolation, destruction of bedding and clothing by fire, and disinfection of houses where first cases appeared. We have vaccinated every negro in Stevenson." Recorded vaccinations, 100. Public cost: County, $200; city, $543; a total of $743, or $57.15 per case.

TUSCUMBIA, COLBERT COUNTY, ALA.

Population, 2,800. The first case was brought from Memphis by a colored brakeman on the Memphis and Charleston Railroad, whose home was in Memphis, and developed March 21, 1896. Twenty-five other cases arose from this one; all colored. There were 6 deaths. The last case occurred June 26. The restrictive measures consisted of "vaccination, isolation, quarantine of suspects; patients were at once removed to pesthouse; thorough disinfection." These were continued nearly four months. Two thousand vaccinations. Cost to county, $1,400, or $53.85 per case.

MONTGOMERY, MONTGOMERY COUNTY, ALA.

Population, 21,883. The outbreak occurred at Stones Tank, near Montgomery, on the Stone-McQueen plantation. The first case occurred in "a negro tramp from New Orleans," from which two others arose. All colored; no deaths. The restrictions consisted in confining 7 people in the house where the first case occurred, and quarantining all the people (about 200) on the plantation for thirty days. Surveillance was continued for forty-five days. The date of last case was April 12. The vaccinations numbered 509. The total public cost was $500 (not given for county and State); $166.67 per case, but not high when the goodly number of vaccinations is considered.

BOSSIER PARISH, LA.

Population not given. The first case occurred April 1, 1896, at Willow Chute plantation, in a colored man, and the source of infection is given as Shreveport Charity Hospital. Three cabins on the plantation were infected by the first case, and 20 cases are reported. One other case occurred at Macks Bayou, which was sent to the Shreveport pesthouse at a cost to the parish of $125. All colored; number of deaths not given. The last case developed May 20. The restrictive measures were "isolation, quarantine, and general vaccination." Three thousand five hundred and eighty vaccinations in persons of both sexes and color. Aggregate cost to Bossier Parish for the 21 cases and incident expenses was $1,062.52, or $50.93 per case.

KEACHIE, DE SOTO PARISH, LA.

Population: Town, 500; parish, 20,000. The first case occurred on March 4 in a young white man, who became infected while traveling on a Red River steamboat. Two other white persons contracted the disease from passengers on the railroad from New Orleans to Shreveport. Three cases; all white; all residents of the

parish. Date of last case, March 25. The restrictive measures consisted of "vaccination, disinfection, and quarantine." Number of vaccinations, 5,019. Cost to parish, $859.32, or $286.44 per case. Three hundred and fifty-seven dollars and thirty-seven cents was paid for vaccine points and $501.95 was paid to 17 physicians for vaccinations and medical services. No record given of personal expenses of patients, and no estimate of loss to tradesmen and the local college. The latter was closed up by the panic.

SHREVEPORT, CADDO PARISH, LA.

Population: White, 7,296; colored, 8,050; total, 15,346. The first case developed in Charity Hospital on February 26, 1896, in a colored man who had lately arrived from New Orleans on the steamer *Hallette*. The second developed in the same institution on March 7, in a similar party. There were 4 imported cases—3 (colored) from New Orleans, and 1 (white) from Baton Rouge (the latter went to the pesthouse for treatment). Two (colored) were sent to the pesthouse from Caddo Parish and 1 (colored) from Bossier Parish, the treatment being paid for. On March 12 there were 10 patients in the pesthouse. March 18 there had been 1 death, and there remained 12 cases in pesthouse and 2 white cases isolated in their homes in the city. There were 51 local cases—5 white, all treated in their homes; 46 colored, all treated in the pesthouse. Thus there were 58 recorded cases. Eleven deaths occurred. It appears that the Charity Hospital became a local center of infection, as 5 of the decedents were inmates when attacked, and had the following complications: 2, phthisis; 1, gastritis; 1, nephritis, and 1, epilepsy. One patient died with postpartum hemorrhage after recovery from the smallpox. Thus but 5 of the 11 are solely attributable to the smallpox. The last case occurred July 16. It is reasonable to believe that some cases were concealed in the city as a consequence of permitting some patients to be treated at their homes. In pests, absolute fairness is the best policy.

The restrictive measures consisted of vaccination of all who were exposed and all who showed no evidence of previous vaccination, isolation, fumigation and disinfection of each infected house, and inspection of passengers on all incoming trains and steamers (the crews of steamers were prohibited from leaving their vessels). A corps of 6 physicians made house-to-house vaccinations in the colored quarter. Suspects were held sixteen to eighteen days from time of exposure and given a bichloride bath and new clothing on release. Duration, from February 26 to August 10.

The cost to Caddo Parish (separate from Shreveport) was $625.45, viz: Charge for 2 cases in Shreveport pesthouse, $200; public vaccinators, $125.50; lymph points, $100.50; replaced clothing, bedding, etc., $178; sundries, $21.45. Cost per case, $312.72. I have no account of the number of vaccinations in the parish outside of Shreveport.

The cost to Shreveport from February 26 till July 1 was $7,840.78. I have not received the cost of maintaining the pesthouse with three patients from July 1 to August 10. Public vaccinations by 6 physicians, 2,500; 25 other physicians claim to have performed 2,658; a total of 5,158. Deduct from total cost $325 paid by Caddo and Bossier parishes, and the net cost is $7,515.78. Average cost of the 55 patients, $136.65.

I would be glad to give more detailed information and to have written more fully, but I have given all the main points that will be needed by interested persons and have been as brief as possible.

I am very grateful to the gentlemen who have given me the data which is herein submitted.

Respectfully,

R. D. MURRAY,
Surgeon, Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

PLAGUE.

The following reports upon plague in China have been received:

Report on the Bubonic Plague in Hongkong.

[Transmitted by the Surgeon-General United States Navy.]

Hongkong, China, *March 2, 1896.*

Sir: I have the honor to inform you respectfully that the plague has assumed epidemic proportions in this place since I have been here; that isolation of suspected individuals has ceased to be practiced; and that all bills of health of the port state its prevalence, giving details of the precautions taken in cases where important mail steamers are concerned. It is also very prevalent in Canton and high up West River.

At his request I cabled this fact to the marine-hospital inspector at Yokohama on the 24th instant, the day after these measures went into effect here.

I would respectfully direct your attention to the fact that the virus of this disease seems fully as ineradicable as that of glanders from surroundings favorable to it, which I consider that a few of our large cities most probably extend. Hence, I think that the most careful measures for its exclusion should be insured by repeated inspections of all steamers reaching our country from southern China. I am informed that its prevalence at Amoy in the past year has been concealed for commercial reasons, but I do not know this to be an absolute fact.

I have seen nearly all of the cases admitted since the 3d ultimo, and have made partial examinations of many bodies dead of it, every facility being shown me by the acting colonel surgeon, Dr. J. M. Atkinson, and his assistant, Dr. J. A. Lawson, whose practical knowledge of this scourge is unexcelled. It is very fatal. With the exception of about a dozen mild cases that came about a month ago, at least 95 per cent of observed cases have died, and that usually within the first four days of illness. * * *

Very respectfully, W. F. Arnold, M. D.,
Passed Assistant Surgeon, United States Navy.

The Secretary of the Navy.

Report on Bubonic Plague.

Yokohama, *March 24, 1896.*

Sir: I have the honor to forward the following information with regard to the plague at Hongkong, which, of course, you may have directly from that port, but which, as it is from sources of undoubted reliability and is confirmed by private communications, I think it well to send you, for the reasons which I have before given.

The reports received by the Japanese foreign office state that from January 5, the date of the outbreak, to March 16 there have been 234 cases, with a mortality

of 204, and at the same time call attention to the malignancy of the disease, a remark scarcely requisite in view of the reported death rate.

At a meeting of the central board of health, held at Tokyo on the 19th instant, it was decided that the most rigid inspection shall be carried out in the case of all vessels coming from Hongkong, and that in case any infection is found or suspected, strict quarantine shall be enforced for not less than seven days, with disinfection of ship, crew, passengers, and cargo.

No cases of cholera have occurred in this Empire since the date of my last report, March 15.

I am, sir, very respectfully, STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

SPREAD OF THE PLAGUE IN CHINA.

The following unofficial information relative to the spread of plague in China—of date of April 27, 1896—has been received:

* * * The disease itself (the plague) is scattered everywhere in this town (Hongkong) and in the adjoining districts, and it is not sparing Europeans to the extent claimed. It seems to attack people in the most unlikely places, and some late cases by steamer into this port indicate that Amoy certainly, and Saigon probably, is infected. I wrote more than a month ago * * * that Amoy was under grave suspicion, and that cases had been and would continue to be suppressed so as to avoid injury to trade. * * * The French mail steamers no longer carry Chinese passengers, and the Canadian Pacific people are refusing shipment of certain filthier kinds of freight (e. g., lily bulbs). Mistakes here ought to be on the safe side. * * * Almost nothing can be done, in the humble opinion of the undersigned, to prevent its spread in an infected place, if that place be a filthy one; for, after rat burrows are infected, as Yersin has pointed out, there is small chance of disinfecting them; and personal risk is a differential of personal hygiene when this stuff is knocking about. I have proved, and shall clinch the fact, that the germ may infect through unbroken muco-cutaneous surfaces, just as glanders is known to do; and the majority of people do not know enough to escape infection by such an agent. * * * Here they seem to pull together badly for some reason; but I am far from thinking that any other set of people would accomplish much in these premises. Canton does nothing, and fares as well as Hongkong.

It is not declining at all, and there is, and will be, no reliable account of the number of cases that occur. About 60 cases a week come under the cognizance of the authorities. The Hongkong hotel servants developed their own epidemic. * * * Those affected all got away to Canton, but later a child of a half-caste accountant there died of it.

OUTBREAK OF THE PLAGUE IN FOOCHOW.

FOOCHOW, CHINA, *May 11, 1896.*

SIR: I regret to have to report to you that the bubonic plague, which ravaged Foochow so last year, has again appeared. The manner of its breaking out was very similar to that of last year, the epidemic commencing at the west and east gates of the city, respectively, and thence rapidly spreading. The cases that have occurred near the west gate have been mostly just outside the walls of the city proper, while those in the neighborhood of the east gate have generally been found a short distance inside the walls. A few cases have been noted in other parts of the city and its suburbs.

As is invariably the result wherever it appears, the plague is causing the death of large numbers of rats. In human beings the progress of the disease is marked

by the swelling of the lymphatic glands and by other well-known characteristics, making its identity unmistakable. Yet, in spite of all this, there are merchants here who deny that there is any bubonic plague in Foochow. Even the port physician declines to admit the facts. It was exactly the same last year. Thousands had died of the plague before the tea merchants or the port physician would acknowledge the real situation. However, there is an epidemic here; it makes no difference whether it be called bubonic plague or be designated by some other term more pleasing. It is contagious and deadly just the same; several members of the same family often dying from it within a few hours.

Since the plague is as yet confined to parts of the city some 4 miles distant from the section in which shipping is generally carried on, there does not appear to be any present need of interfering with exports to the United States. Moreover, the chief export from Foochow to the United States is tea, and this ought to be especially free from contamination, it being brought from the upland country districts in boats traversing the Min River, and conveyed directly to foreign hongs or warehouses, where it is stored to await shipment.

If either the plague or the cholera, or both, become general, the mortality will be much greater than what it was last year, owing to the fearful sanitary conditions brought about by the rains, which have prevailed here so long. It is raining now; it has been raining nearly all the while since the 1st of January.

You will be kept duly informed of the progress made by the plague.

I have the honor to be, sir, your obedient servant,

J. COURTNEY HIXSON,
United States Consul.

Hon. ASSISTANT SECRETARY OF STATE.

NATIONAL QUARANTINE ADMINISTRATION (FOREIGN).

SANITARY INSPECTORS.

During the fiscal year two sanitary inspectors of the Marine-Hospital Service were in constant service at the port of Habana, and an additional inspector was temporarily employed to report upon the condition of other Cuban ports. One sanitary inspector was maintained throughout the year at Santiago de Cuba, one at Panama, one at Rio de Janeiro, and one at Yokohama, Japan. A sanitary inspector was also maintained at Honolulu, Hawaiian Islands, a portion of the year.

SANITARY INPECTION AT THE PORT OF HABANA.

Following is the report of Sanitary Inspector D. M. Burgess for the fiscal year ended June 30, 1896, at the port of Habana:

OFFICE OF MEDICAL OFFICER IN COMMAND,
MARINE-HOSPITAL SERVICE,
Habana, Island of Cuba, September 15, 1896.

SIR: I have the honor of forwarding to you the following report of the transactions at this quarantine station during the fiscal year commencing July 1, 1895, and ending June 30, 1896.

The following table will show the number and class of vessels inspected from this office during that time, their nationality, and the number of their crews and passengers:

Vessels inspected.

Nationality.	Number of steamers.	Ship.	Bark.	Barkentine.	Brig.	Brigantine.	Schooners.	Total.	Number of crews.	Number of passengers.
American	269	1	4	6	1	1	66	348	17,925	11,344
British	107	.....	1	1	3	.....	16	128	2,678	6
Spanish	59	1	32	5	1	3	1	102	4,105	807
Danish	3	.....	.....	.....	.....	.....	.....	3	83	.....
Norwegian	4	.....	1	.....	.....	.....	.....	5	83	.....
German	3	.....	.....	.....	.....	.....	.....	3	227	173
Belgian	1	.....	.....	.....	.....	.....	.....	1	25	.....
Austrian	1	.....	.....	.....	.....	.....	.....	1	22	.....
Total	447	2	38	12	5	4	83	591	25,148	12,330

According to the above table, 591 vessels of all kinds and different nationalities cleared for different ports in the United States during that year, carrying 25,148 officers and crews and 12,330 passengers.

Four hundred and forty-seven of those vessels were steamers, 2 were ships, 38 were barks, 12 were barkentines, 5 were brigs, 4 were brigantines, and 83 were schooners of all classes.

The steamers were all of iron and the sailing vessels of wood, some of the latter being very old. For the 591 vessels of all kinds over 1,000 inspections were

required in all parts of the harbor, and 1,773 bills of health were made, viz, the corresponding necessary duplicate bill of health issued by the consul, and a copy to be kept in the office.

HEALTH AND ACCLIMATION CERTIFICATES.

During that part of the quarantine season included between the 1st of July, 1895, and the 15th of November of said year, and from May 1 to June 30, 1896, (all included within the fiscal year), 4,476 health and acclimation certificates were issued, including those of protection from smallpox. The number per month and year, as well as the port of destination of those passengers, will be found in the following table:

	To Florida.	To New York.		To New Orleans.	Total.
		American line.	Spanish line.		
July, 1895	270	359	105	85	819
August, 1895	357	477	57	25	916
September, 1895	232	171	67	55	525
October, 1895	257	251	31	28	567
November 1 till November 15	110	79	6	6	201
May, 1896	249	434	47	14	744
June, 1896	210	380	100	14	704
Total	1,685	2,151	413	227	4,476

Nearly 4,000 of those certificates were of immunity from yellow fever, and I would repeat what I have said in a former report, that I know of no work connected with any quarantine service in any part of the world more trying, harassing, and difficult than that which pertains to procuring satisfactory evidence of the immunity of people from that disease.

Those certificates have been unquestionably of great service to the traveling public, for without them passengers could not have gone through Florida during the quarantine season at all, and at other ports they would have been more or less detained.

EVIDENCES OF IMMUNITY.

The Quarantine Laws and Regulations of the United States require as evidence of immunity, which may be accepted by the sanitary inspector, the following:

First. Proof of continued residence in an endemic focus of yellow fever for ten years.

Second. Proof of previous attack of yellow fever.

Among the methods which are used in this office to obtain satisfactory evidence of such immunity are, in case the passenger claims to have had yellow fever, he is required to produce the certificate of the physician who attended him, stating on what date and where; if he had the disease in a hospital, public or private, to furnish a certificate to that effect from the administrator or the attending physician of that institution. When doubts arise, as they may and often do, in regard to the signature of the physician, his integrity, or the identity of the person, etc., the passenger is requested to bring the physician to the office that in confrontation he may testify as to the validity of his signature, the identity of the person who claims that he was treated by him for yellow fever on or about such date, etc.

In cases where persons have not had yellow fever, or, claiming to have had it, can furnish no proof of the fact, but assert that they have lived more than ten years in an endemic focus of that disease, a written statement to the latter claim must be furnished and signed by some well-known banking or commercial house of truthful integrity, or, preferably, by the family physician, if he is known to be a person of good repute. In the few cases where a commercial house or physician is not known personally, the written certificate must be corroborated by much

collateral evidence before it can be accepted, as that of two or more banking or commercial houses or well-known physicians. The sworn statement of a person interested in getting a certificate is not regarded as sufficient unless he is personally known to be truthful and reliable and more or less is known of his life. Sometimes two witnesses of known truth and veracity are regarded as sufficient evidence, they both signing a statement together.

In the case of volunteer soldiers a certificate from their commanding officer as to the length of time they have served and where is of material assistance. Of course all sorts of mixed and uncertain cases and questions present themselves, persons desiring certificates giving all kinds of proof, and no proof but their bare word, and being ready to discuss their claims, etc., with more or less passion for any length of time; and here comes in the most annoying, trying, and harassing part of the whole business.

Satisfactory evidence must be had or the immune certificate must not be given. To prevent fraud and imposition, the Surgeon-General of the Marine-Hospital Service ordered some time ago that a personal description of each individual be incorporated with or added to the usual certificate. Such description now gives the height, weight, color of eyes and hair, style of whiskers, figure, etc., of the person. This is a very wise measure and will without doubt tend to prevent any changing of certificates and other irregularities, especially where there is any risk of confrontation.

As a proof of the confidence which may be reposed in those certificates, I desire to say that no instance of a person falling sick with yellow fever subsequent to his having procured a certificate of immunity from this office has been known. One thousand six hundred and eighty-five passengers with certificates of immunity to yellow fever went to Florida during the quarantine season, 2,564 to New York with immune certificates and certificates of protection from smallpox, and 227 to New Orleans.

INSPECTION OF OTHER CUBAN PORTS.

During the months of July, August, September, and October of that part of the fiscal year pertaining to 1895 competent physicians under orders from the Marine-Hospital Service were sent periodically from this office, as has been reported, to inspect all ports on the north side of Cuba from Caibarien in the east to the western end of the island, and on the south side from Tunas de Laza westerly to the last port in the western end of the province of Pinar del Rio.

Those tours of inspection were very fruitful in discovering yellow fever in localities where it was not known to exist. * * *

This bad sanitary condition of Habana and portions of the harbor keeps the sanitary inspector continually on the qui vive. He is constantly making his inspection rounds of the city, the wharves, and port, as also the suburbs Regla and Casa Blanca on the opposite side of the harbor, and their wharves.

Add to these numerous inspection rounds the thousand visits on board of vessels for inspection for purposes of consular bills of health, and it will be seen that not a little has been done in watchful interest for the United States.

Nor is this all. The hospitals and all places where sick are collected have been frequently visited by the sanitary inspector, that he should be always informed as to the extent and type of any prevailing sickness or of the existence of any infectious disease.

There being no board of health, health association, or sanitary organization of any kind here which obtains mortuary reports in time for any useful sanitary purpose connected with bills of health or giving information to the Bureau of Marine-Hospital Service as to the mortality here from infectious and other diseases, the sanitary inspector, as for years past, has been obliged, at quite a little personal expense in the way of transportation, etc., to visit the cemeteries a number of

times every week to see and take note of the death certificates there to be found. There is no other known way by which such statistics of anything like a reliable character can be procured.

This short report should not be closed without mention being made of the constant vigilance which has been exercised by the sanitary inspector during the past year to investigate the source from which all ballast comes, as well as cargo, and the localities and exposures of vessels in this harbor while here.

Very respectfully, your obedient servant,

D. M. BURGESS,
United States Sanitary Inspector, Marine-Hospital Service.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

SPECIAL PRECAUTIONS WITH REGARD TO BAGGAGE FROM HABANA DURING THE WINTER MONTHS.

On account of the exodus of Cubans from Habana to Florida during the winter months of 1895 and 1896, due to the prevailing insurrection, special precautions were necessary to prevent the fomites of yellow fever being introduced into the United States in the form of clothing and baggage of the refugees. The following correspondence shows the care that was exercised with regard to this danger:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., November 22, 1895.

SIR: I inclose herewith for your information copy of a letter from the State board of health of Florida, of the 10th instant, relative to the necessity for the inspection of all passenger baggage leaving Habana during the coming winter, and requesting that such as may be deemed dangerous, coming from infected localities in Habana or other Cuban ports, be so designated.

Attention is also invited to the remarks concerning the baggage of second-class passengers—Cuban tobacco operatives—as being peculiarly dangerous.

You are directed, therefore, to inspect the baggage of passengers leaving Habana during the winter, and it is suggested that paragraph 10, Article V, page 16, of the Quarantine Laws and Regulations of the United States be modified as regards the labeling as follows: The luggage which is considered not dangerous to be labeled with the red label, the words "Inspected, passed," in large type, being printed thereon; all baggage which it is considered requires disinfection to be labeled with the yellow label bearing the words "To be disinfected," in large type; and you are hereby authorized to have such number of these labels printed as may be necessary. Arrangements for attaching these labels by lead seals may be procured from this office on requisition. In the meantime the labels should be pasted on.

You will notify the United States consul-general of the contents of this letter.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

Sanitary Inspector D. M. BURGESS, M. H. S.,
Habana, Cuba.

HABANA, ISLAND OF CUBA, *March 4, 1896.*

SIR: Referring to your telegram of February 28, saying that it was "reported that passengers are made to pay for labeling baggage, and to investigate and stop it," etc., I have the honor to report that I have investigated as far I am able and

can not ascertain that any person has been made to pay a cent for labeling baggage. However, I can understand how such a report may have been originated, by one or more of the following circumstances: At Key West I understand that 75 cents is charged for fumigating a trunk and 50 cents for a valise and each smaller piece. At the Mullet Key quarantine station 50 cents, I believe, is charged for fumigating a trunk and 30 cents for valises, etc. While the fee for fumigating baggage at Key West is collected on shore at that place, the fees for fumigating at Mullet Key, I am informed, are collected aboard of the steamer in advance by the purser or his assistant or somebody, while the vessel is going from Key West to Mullet Key station.

Sometimes the express companies or other persons here carry baggage aboard, charging for transporting it and getting it checked, and I presume for such attentions as seeing it labeled. So I say that circumstances like the above can easily cause among these people (some of whom are very ignorant and stupid) a report that the labeling costs something.

I send you inclosed samples of the two kinds of labels that are being pasted on the baggage here, according to your instructions, one or the other of which is intended to be put on all baggage going to Florida. I insist that all baggage upon which is pasted the red label "Inspected, passed" be opened and examined unless sufficient is known about it beforehand. The baggage upon which the yellow label "To be disinfected" is placed is usually that of cigar makers, laborers, and poorer Cubans generally, as also the same class of other nationalities. As that baggage is from its very appearance, ownership, and known usual source condemned to disinfection any way, opened or not, there has seemed to be no good reason for opening all of it, for if opened it would be labeled "To be disinfected" and closed; no more and no less would be done anyhow.

* * * * * * *

Very respectfully,

D. M. BURGESS,
Sanitary Inspector, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, D. C., March 13, 1896.

SIR: Referring to your letter of March 4, relating to baggage bound for Key West and Mullet Key, respectively, your attention is called to the fact that while at the Mullet Key (Tampa Bay) quarantine there is a good steam disinfecting chamber, there is no steam disinfector at the Key West quarantine. Therefore extra precaution should be taken with regard to baggage to be taken off at Key West. The Bureau is in doubt as to the efficacy of the disinfection at that station.

Referring to your statement that the baggage upon which the yellow label "To be disinfected" is placed is usually that of cigar makers, laborers, and poorer Cubans, etc., and that all must be disinfected at the port of arrival, and that therefore you considered it unnecessary to open this baggage, I have to say that any baggage of this character which is known to be infected or known to be especially dangerous, and which is intended to be taken off at Key West, should not be permitted to go at all.

Respectfully, yours.

WALTER WYMAN,
Surgeon-General M. H. S.

Dr. D. M. BURGESS,
Sanitary Inspector, Habana, Cuba.

INSPECTION BY AN OFFICER FROM THE BUREAU, OF THE SANITARY INSPECTION SERVICE AT HABANA.

KEY WEST, FLA., *March 12, 1896.*

SIR: I have the honor to submit a report of my observations of the operations of the Service at Habana, Cuba.

I arrived at the latter port at 6 a. m. March 7, and after meeting Sanitary Inspector Burgess at his office returned to the steamer *Olivette* in time to see the first baggage brought aboard, which is usually about 10 a. m., and it continues to arrive in small boats until the vessel sails, about 1 o'clock. All heavy baggage is delivered through the open port, where it is examined and labeled by Assistant Sanitary Inspector Castellanos. All pieces of which there is no account or which is suspicious or belonging to the ordinary class of Cubans now leaving Habana is labeled yellow, marked "to be disinfected," without other examination. All baggage belonging to tourists, well-known merchants, or persons of the better classes of whom the sanitary inspector has knowledge is labeled red, marked "inspected, passed." In case of doubt the trunk is opened, the contents examined, and then labeled accordingly. The method is on the whole satisfactory, especially as the baggage is disinfected ultimately at Key West or Tampa. The hand baggage is later located and labeled in the cabin. This last procedure causes considerable delay and confusion, and I have suggested to Dr. Burgess to require all baggage, valises, bags, etc., as well as trunks, to be delivered through the port for examination and to allow none to be carried up the gangway. The exodus of Cubans is beginning to fall off already, due, it is thought, partly to want of money and partly to difficulty in obtaining passports. Intending passengers are previous to shipment examined by Dr. Burgess at his office with reference to immunity from smallpox and yellow fever. The facilities for the handling of passengers and baggage aboard ship are not good, owing to the small size of the vessels engaged in this business, the contracted space is too small for more assistants to work with efficiency, and I do not recommend any increase at this time. A good deal was said relative to furnishing passage to children under 5 years of age, and reference was made to the hardship involved to large families detained where a member was within the prescribed age, as well as to the damage to the business of the Plant Steamship Company in losing their passengers. I expect to have an interview with the State health officer of Florida on this matter and it will form the subject of another communication to you. The sanitary condition of Habana is, as usual, bad. There is, it is true, very little yellow fever at this time, but authorities with whom I conversed were unanimous in opinion that the conditions now existent all pointed to an early epidemic. Among these conditions may be mentioned the early advent of hot weather, the constant arrival of large bodies of unacclimated troops, and the return from the field of others exhausted by hardship, dysentery, and wounds received in action. The old military hospital is about to be abandoned, a new one on the pavilion plan being nearly finished on the outskirts of the city away from the harbor. I inspected the various kinds of ballast furnished at Habana, some of it porous and very bad, others hard rock and dipable. I recommend that the sanitary inspector be directed to adhere strictly to the regulations on this point before granting a bill of health.

I left Habana at 2 p. m. March 11, and arrived at Key West about 9. The health officer of the port boarded the vessel on arrival and inspected the passengers with the immigrant inspector before landing. The facilities are poor, because of insufficient light and want of room. There is no medical inspection, except with reference to contagious diseases, and, as the arrivals are numerous, I respectfully recommend that the medical officer of the Marine-Hospital Service on duty at Key West be directed to make these examinations, as is now done at New York,

Boston, and Philadelphia. I was informed by the health officer that the luggage would be fumigated the following morning, and accordingly, accompanied by Passed Assistant Surgeon Young, M. H. S., I inspected the plant this morning. The contents of the trunks were exposed on shelves and wire ropes in the usual way. Unclaimed baggage was set aside until called for by the owner, to be disinfected later. I do not consider that the room now used for disinfection is sufficiently large for more baggage than is now coming forward, and consider it advisable that an addition be built. I also believe that the process of fumigation should be observed by a medical officer who at least should lock the doors of the room and retain the key until the process is completed.

In conclusion, I have to state that I inspected the civil hospital, as well as San Lazaro at Habana. The former is admirably adapted for the purpose, large, clean, and well ventilated, provided with a modern disinfecting apparatus and all appliances for the care of the sick.

Respectfully, yours,

FAIRFAX IRWIN,
Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

IMPERFECT CONSULAR BILLS OF HEALTH.

The following correspondence with regard to the above-named subject is self explanatory:

TREASURY DEPARTMENT,
Washington, May 23, 1896.

SIR: I have the honor to inclose herewith for your information a copy of a letter from Dr. A. H. Doty, health officer at the port of New York. It will be seen that Dr. Doty complains of the carelessness of some of the United States consuls in making out bills of health to be presented at the port of New York. As he is dependent in a great measure upon this information as a guide for the treatment of vessels arriving at quarantine, he is desirous that it should be as accurate as possible. I have to request that the matter be brought to the attention of consuls of the United States stationed at foreign ports as soon as convenient.

Respectfully, yours,

C. S. HAMLIN, *Acting Secretary.*

THE SECRETARY OF STATE.

DEPARTMENT OF STATE,
Washington, June 2, 1896.

SIR: In reply to your letter of the 23d ultimo, transmitting a copy of a letter from the health officer at New York, calling attention to the discrepancy existing between the bills of health issued by the consul at * * * and the public health reports issued by the Treasury Department, I have the honor to inform you that a copy of the same has this day been sent to the consul with suitable instructions.

If any other consuls make inaccurate statements in bills of health, this Department would like to be furnished their names

I have the honor to be, sir, your obedient servant,

RICHARD OLNEY.

THE SECRETARY OF THE TREASURY.

TREASURY DEPARTMENT,
Washington, June 18, 1896.

SIR: I am informed by the Surgeon-General of the Marine-Hospital Service that the Norwegian ship *Favorit*, from Pernambuco, Brazil, arrived at the Gulf Quarantine Station, Ship Island, Miss., June 3, with United States consular bill of health which omitted the required information with reference to yellow fever or other contagious or infectious disease. This omission, particularly with regard to ports where yellow fever ordinarily prevails, causes great embarrassment to quarantine officers.

I would further invite attention to the fact that no sanitary report has been received by this Department since October 16, 1895, from the United States consul at Tampico, Mexico, until this date, when a telegram was received in response to one which the Surgeon-General of the Marine-Hospital Service felt obliged to send, making inquiry concerning the presence of yellow fever at that port.

In view of the above, and because of the necessity of full and accurate information concerning infectious or contagious diseases, particularly yellow fever, I have to request that all United States consuls in the West Indies, Central and South America, and Mexico be instructed to fill out all blank spaces in the consular bills of health, and when there have been no cases or deaths from the diseases enumerated in the bill, to make entry to that effect.

I have also to request that the consuls in the above-mentioned countries be directed to transmit reports weekly, as required by section 4 of the act of Congress approved February 15, 1893, on the form (1934*b*, Marine-Hospital Service) which is furnished by the Department.

Inasmuch as some consuls have written that it is impracticable to obtain weekly statistical reports, I would request that they be instructed, in this event, to transmit the form weekly with such information as they may be able to obtain, and for which space is left under the lines "Prevailing diseases and other pertinent information," and that the statistical reports be forwarded monthly when obtainable.

Respectfully, yours,

W. E. CURTIS, *Acting Secretary.*

The SECRETARY OF STATE.

CIRCULAR.

DEPARTMENT OF STATE,
Washington, June 23, 1896.

To the Consular Officers of the United States in the West Indies, Mexico, and Central and South America.

GENTLEMEN: At the request of the Secretary of the Treasury, dated the 18th instant, you are instructed, in issuing bills of health, to fill out all blank spaces, and when there have been no cases of deaths from the diseases enumerated in the bill, to make entry to that effect.

You are also directed to transmit weekly sanitary reports, as required by section 4 of the act of Congress approved February 15, 1893, using Form 1934*b*, Marine-Hospital Service, which is furnished by this Department.

In the event that it is found to be impracticable to obtain weekly statistical reports, you should nevertheless transmit the form weekly, with such information as you may be able to obtain, and for which space is left under the lines "Prevailing diseases and other pertinent information," forwarding the statistical reports monthly when obtainable.

I am, gentlemen, your obedient servant,

W. W. ROCKHILL,
Acting Secretary.

PROHIBITION OF RAGS FROM ALEXANDRIA, EGYPT, DURING CHOLERA EPIDEMIC.

TREASURY DEPARTMENT,
Washington, June 8, 1896.

SIR: I have the honor to request that the United States consul-general at Cairo, Egypt, be cabled as follows: "Direct consular agent, Alexandria, refuse invoice rags to United States until thirty days after expiration of cholera."

I beg leave to refer to Article IV, paragraph 7, page 15, of the United States Quarantine Laws and Regulations, 1894, from which it will be seen that rags are not allowed to be shipped to the United States until the port or place where they are gathered, packed, or handled has been for thirty days free from infection of cholera.

I am informed by the Surgeon-General of the Marine-Hospital Service that, notwithstanding cholera has been prevailing for several months in Alexandria, Egypt, rags destined to the United States have been invoiced by the United States consular agent, and although the vessels in which the rags are shipped are bound for Liverpool, where the rags are intended to be transshipped to the United States, and are therefore not obliged to take the United States consular bill of health at Alexandria, still the consular agent, by giving invoices and certificates of disinfection, makes negative the intent of the above-named regulation. He has, moreover, given an informal certificate entitled "Bill of health" to accompany the shipments to Liverpool.

Respectfully, yours,

C. S. HAMLIN,
Acting Secretary.

The SECRETARY OF STATE.

DEPARTMENT OF STATE,
Washington, June 10, 1896.

SIR: Referring to your letter of the 8th instant, requesting that our consul-general at Cairo be cabled to direct the consular agent at Alexandria to refuse to certify invoices covering shipments of rags to the United States until thirty days after expiration of cholera, I have the honor to inform you that the desired telegram has been sent.

A copy of your letter has also been forwarded to Consul-General Penfield for his information and guidance.

I have the honor to be, sir, your obedient servant,

RICHARD OLNEY.

The SECRETARY OF THE TREASURY.

PRECAUTIONARY MEASURES AT NAPLES WITH REGARD TO VESSELS FROM EGYPTIAN PORTS.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, D. C., May 15, 1896.

SIR: Referring to the rapid increase of the epidemic of cholera at Alexandria, Egypt, as shown by the newspaper dispatches of this and recent dates, you are informed that this Bureau regards the spread of the epidemic with some anxiety, owing to the proximity of the ports of Naples and Marseilles and the trade between these places. Should the epidemic assume dangerous proportions, and you should consider it advisable to have the services of a physician for duty in the consulate under your direction, a cable request from you to this office to that effect will be

immediately considered, and, with the approval of the Secretary of the Treasury, a medical officer ordered to report to you for duty at once.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

UNITED STATES CONSUL,
Naples, Italy.

NAPLES, *June 4, 1896.*

SIR: In reply to your dispatch of the 15th ultimo, relative to epidemic of cholera at Alexandria, Egypt, there is no doubt that the newspaper reports are exaggerated, but there is probably much cholera in Cairo and the interior. All ships arriving at this port which have touched at Port Said or Alexandria (there being one vessel every eight days) are fumigated by the Italian authorities before entering the harbor, the baggage of all passengers disinfected, and their whereabouts reported daily to the medical officers of the port for one week after landing. No military transport ships from Abyssinia stop at Port Said or Alexandria. I have notified the Fabre Steamship Company, of Marseilles, where Arab passengers from Syrian ports are transferred for New York via Naples, to take no more of them until the sanitary conditions of the East are improved.

The agents of the line here inform me that my request will be granted. Nearly all of the emigrants who embark here for America, as you well know, are from Calabria and Sicily. Their baggage is subjected to a thorough inspection by my assistants.

The general health of Naples is good. There was considerable smallpox during the winter and spring, in consequence of which I thought it best to order the vaccination of all steerage passengers before embarkation.

I will use every precaution to avoid danger. I receive daily sanitary reports from the municipio, and am in close relations with the port officials. * * * I do not apprehend an epidemic this season; there may be a few sporadic cases.

The moment I detect the slightest danger I will cable you.

Respectfully, yours,

FRANK A. DEAN, *United States Consul.*

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

UNNECESSARY DISINFECTION OF FEATHERS.

Complaint having been received at the Bureau that at certain foreign ports new feathers coming from districts where no quarantinable disease prevailed were being required to be disinfected and a certificate thereof furnished, the matter was laid before the Secretary of State, and the following circular was issued:

CIRCULAR.

DEPARTMENT OF STATE,
Washington, September 20, 1895.

To the Consular Officers of the United States.

GENTLEMEN: In a letter of the 16th instant, the Secretary of the Treasury says that there is reason to believe that some of you have misapprehended the regulations touching the disinfection of bed feathers, in requiring the disinfection of new and healthy feathers under paragraph 5, Article VII, on page 21 of the Regulations, which merely gives the method to be followed when disinfection is necessary. Paragraph 8, Article IV, on page 15, which provides that "new feathers

coming from districts where no quarantinable disease prevails do not require disinfection," seems to have been overlooked.

You are instructed to keep within the requirements. The sanitary regulations are recognized by both Departments as a severe, though necessary, restriction on commerce, and it is desired that these regulations shall be executed with as little harshness, inconvenience, and expense to shippers as is possible. Though it is not believed that many consuls have erred in the manner suggested by the Treasury Department, the action of those who have done so is greatly to be regretted, and strict compliance with the regulations is demanded of them.

I am, gentlemen, your obedient servant,

W. W. ROCKHILL,
Third Assistant Secretary.

ENFORCEMENT OF THE UNITED STATES QUARANTINE REGULATIONS AT HAVRE, FRANCE, AND YOKOHAMA AND KOBE, JAPAN.

The following reports are is illustrative of the immediate operation of the quarantine law of February 15, 1893, at foreign ports upon the appearance of epidemic disease at a given port, or at ports in close communication therewith:

CIRCULAR RELATIVE TO ENFORCEMENT OF UNITED STATES QUARANTINE REGULATIONS AT HAVRE, FRANCE.

HAVRE, *May 11, 1896.*

SIR: In view of the outburst of cholera in Egypt, which is now believed to be epidemic in Alexandria, I have issued circular of last year to the steamship companies, a copy of which I herewith inclose. The consular agent at Cherbourg has been instructed to enforce rigidly the provisions of the United States quarantine laws in the case of all steerage passengers coming from the east.

I am, sir, with high respect, your obedient servant,

C. W. CHANCELLOR,
United States Consul.

Hon. ASSISTANT SECRETARY OF STATE.

[Inclosure.]

NOTICE—*To the directors and agents of steamship companies leaving the port of Havre for the United States of America.*—In view of the usual relaxation in quarantine laws during the winter months, and the approach of the season when epidemic diseases are liable to recur, it is deemed expedient and proper to publish for the information of all concerned the following rules and regulations, which will be duly observed at this port on and after the 19th day of April, 1896:

1. Consular inspection is required of all vessels carrying steerage passengers, and also of other vessels when leaving an infected port.

2. The inspection will consist of such an examination of the vessel, cargo, passengers, crew, personal effects, and the manifests and papers as will enable the consular officer to determine if the laws and regulations have been complied with.

3. The inspection of emigrants and their effects is required to be made by daylight (as a rule between 8.30 a. m. and 4.30 p. m.), and the consular officer making the inspection shall satisfy himself before issuing the bill of health that all the conditions certified to therein are true. A clean bill of health will not be issued unless the vessel has complied with the rules and regulations prescribed, nor if any part of the cargo or baggage is presumably infected and has not been properly disinfected.

4. Steerage passengers or members of the crew coming from cholera-infected districts, or who have been exposed to the possibility of infection en route to the

port, must be detained at least five days in suitable houses or barracks before embarkation and all baggage must be disinfected as provided; the said period of five days to begin only after the bathing of the passengers, disinfection and cleansing of the baggage, and isolation from others so treated.

5. No steerage passenger or member of the crew who, in the opinion of the consular officer, has been exposed to infection of typhus fever or plague will be allowed to embark for a period of at least fourteen days after such exposure, and the exercise of other proper precautions.

6. All baggage of steerage passengers must be inspected and if necessary disinfected, under the supervision of the consular officer, and if passed it must be properly labeled before being placed on board.

In view of the fact that the inspections must be made by daylight, and that several hours, according to the number of passengers, may be required to complete the work and prepare the ship's papers, all emigrants should be brought to the port at least twenty-four hours in advance of the sailing; any emigrant or emigrants who have not, for want of time or otherwise, undergone, together with their baggage, the required inspection, will be stricken from the manifest list.

While it is the desire and intention of the consul to extend every facility and courtesy possible to the steamship companies in dispatching their vessels, he must at the same time request that his good intentions be reciprocated by presenting the emigrants and their baggage for inspection in due time, and at such reasonable hours as will not impose unnecessary hardships upon the consular officer making the inspection.

C. W. CHANCELLOR,
United States Consul.

HAVRE, *April 19, 1896.*

ENFORCEMENT OF UNITED STATES QUARANTINE REGULATIONS AT KANAGAWA (YOKOHAMA) AND CONCERNING THE SHIPMENT OF BULBS FROM INFECTED DISTRICTS.

CONSULATE-GENERAL OF THE UNITED STATES,
Kanagawa, Japan, October 29, 1895.

SIR: I have the honor to report that on the morning of the 26th instant I received from the consul of the United States at Hiogo and Osaka a communication, a copy of which I inclose, marked "Inclosure 1." I referred his communication to Dr. Stuart Eldridge, the medical inspector and adviser to this office, appointed under a cable instruction received by me from the Surgeon-General of the Marine-Hospital Service. I received from Dr. Eldridge a communication, a copy of which is inclosed, marked "Inclosure 2."

I made an investigation and found that the shipments of bulbs and plants in earth, accepted by the agent for the Occidental and Oriental Steamship Company's steamer *Coptic*, to sail the next day, had come from infected districts, and that the bulbs were packed in a sort of mud made by mixing soil and liquid manure composed of human excrement. Acting on Dr. Eldridge's suggestion, and on the provisions of paragraph 12 of Article IV of the Quarantine Regulations, which I considered even more in point, I addressed to B. C. Howard, esq., the agent of the Occidental and Oriental Steamship Company at this port, a communication, a copy of which I inclose, marked "Inclosure 3."

Those shipments of bulbs and plants which had gone aboard the *Coptic* were removed and others refused, the total, I believe, amounting to several tons, and the vessel cleared on the 27th instant.

I was importuned by the agent and by numerous shippers to permit these shipments to go forward, and one or two of the local newspapers indulged in some hasty and ill-considered criticism of my action, all critics agreeing in the statement

that it was severe, and most of them in the statement that it was ridiculous and foolish; but I felt that it was my duty to adhere to it, since, while the cholera epidemic has lessened at Hiogo and Osaka and in the Empire at large, it has increased in Tokyo and in this ken, and, so far as I could learn from the shippers themselves, these shipments of bulbs and plants all came from Tokyo or the southern infected districts. Later I received an intimation that it was intended that the shipments which had been excluded from the *Coptic* should be sent forward by one of the foreign lines to a Canadian port, and from there invoiced and shipped into the United States. I felt that, while extreme and severe measures for the protection of the health of our people and the enforcement of our quarantine laws had made it necessary to withdraw this traffic from the American line, it was my duty, so far as I could do so, to see that the traffic was not taken up and our law evaded by a foreign company. I therefore addressed communications to our consular officers in Victoria and Vancouver, British Columbia, a copy of which I have marked "Inclosure 5."

For the better understanding of our quarantine requirements as to cargo and passengers, I have considered it advisable to issue circulars to the agents of steamship companies running to our Pacific ports. These circulars went out to-day, and were in form and substance similar to copies herewith inclosed marked "Inclosures 6 and 7." The quotation given in inclosure 7 was taken from the Department's instruction No. 9 to the consul in Hiogo and Osaka, under date October 2, which passed through this office yesterday.

I have the honor to be, sir, your obedient servant,

N. W. McIvor, *Consul-General.*

Hon. Assistant Secretary of State.

[Inclosure No. 1.]

Consulate of the United States of America,
Osaka and Hiogo, Japan,
Hioga, October 24, 1895.

Sir: I have the honor to state that I am in receipt of information which leads me to believe that the Occidental and Oriental Steamship Company's chartered steamer *Miike Marn*, taking on freight at this port to be reshipped at Yokohama on board the steamer *Coptic*, has accepted shipments of fruit (oranges and lily bulbs) destined for San Francisco, Cal. These fruits were packed in the interior at points where cholera prevails, and have not been in any manner treated under the requirements of paragraph 3, Article IV, of the Quarantine Regulations of April 26, 1894. Acting upon the information received, I informed the Nippon Yusen Kaisha people that I would decline to authenticate through invoices covering such fruits. I have since learned that the steamship people intend receiving the fruits as local freight, and will have invoices made out for authentication at your port.

I am sir, your obedient servant,

Jas. F. Connelly,
Consul.

N. W. McIvor, Esq.,
Consul-General of the United Sates, Kanagawa.

[Inclosure No. 2.]

Yokohama, *October 26.*

Sir: I have the honor to reply as follows to your inquiry as to my opinion of the status of growing plants and of bulbs, as regards the quarantine laws and regulations of the United States, during the existence of cholera in the place or places where such plants or bulbs originate:

1. That there is no specific prohibition of the shipment of such, or provision for their disinfection before shipment.

2. That, notwithstanding, they should be considered as among the most dangerous articles of cargo, the soil of an infected locality (and all Japanese bulbs are packed in soil for shipment) being a most favorable medium for the transportation and development of the germs of the disease.

3. That before prohibiting the shipment of bulbs and plants, their disinfection being impracticable, if it be deemed necessary or advisable to find general authority for such action in the Regulations, it can, I think, be constructively obtained under paragraph 1, Article IV, prohibiting the taking of earth, sand, or loam from infected localities, or under paragraph 2 of same article, referring to fresh vegetables.

I am, sir, very respectfully,

STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

N. W. MCIVOR,
Consul-General of the United States.

[Inclosure No. 3.]

UNITED STATES CONSULATE-GENERAL,
Kanagawa (Yokohama), Japan, October 26, 1895.

SIR: I have to state that I have received from the United States consul in Hiogo and Osaka an official communication informing me that a shipment of fruit and bulbs coming from infected districts had been made from his port on your company's chartered steamer *Miiki Marn* for transshipment on board the steamship *Coptic* for San Francisco.

If fresh fruits or vegetables (including bulbs and plants) coming from infected districts and consigned to ports of the United States are permitted to form a part of the cargo of the *Coptic* or any other ship without first having undergone a process of disinfection, provided for by the United States Treasury regulations, a clean bill of health can not be granted by this office for the vessel.

I am, sir, your obedient servant,

N. W. MCIVOR, *Consul-General.*

B. C. HOWARD, Esq.,
Agent Occidental and Oriental Steamship Company, Yokohama.

[Inclosure No. 5.]

UNITED STATES CONSULATE-GENERAL,
Kanagawa (Yokohama), Japan, October 29, 1895.

SIR: I have received official information from Washington that a strict quarantine had been declared for all of our Pacific ports against all Japanese and Hawaiian ports. I have also received an instruction from the Surgeon-General of the Marine-Hospital Service to enforce strictly all Treasury regulations as to passengers and shipments destined to our ports and as to inspection and disinfection. Acting under these instructions, I felt that it was my duty to withhold a supplemental bill of health for a steamer sailing from this port on the 27th instant until several tons of bulbs, plants, and fresh fruits had been removed from the vessel or refused admission, I having been satisfied that the bulbs and plants were packed in mud and that all shipments came from districts infected with cholera.

The objectionable cargo was removed or refused and the vessel cleared, but I have received an intimation that several shippers intend to send these shipments forward to a Canadian port, where they can be invoiced and shipped into the United States.

In case this evasion is attempted, I beg to call your attention to the instruction contained in paragraph 641 of our Consular Regulations, and to suggest that even if an effort is made to technically evade this provision by showing a purchase by a third party in your district, you would still have the right to refuse the invoice

on the ground that the goods came from an infected district and were objectionable, as importations, under our quarantine laws.

Please do not understand that I have a desire to meddle with the administration of your office. I have no desire to do so, but my wish is simply to put you in possession of information which you may consider important in giving effect to the requirements of our Government.

I am, sir, your obedient servant,

N. W. McIvor,
Consul-General.

William P. Roberts, Esq.,
United States Consul, Victoria, B. C.

(Same communication forwarded to William F. Petersen, esq., United States consular agent, Vancouver, British Columbia.)

[Inclosure No. 6.]

CIRCULAR.

Office Sanitary Inspector,
United States Marine-Hospital Service,
Yokohama, October 9, 1895.

——— ———,
Agent ——— S. S. Co.

Dear Sir: Your attention is invited to the following extracts from the Quarantine Laws and Regulations of the United States, with reference to the shipment of cargo from districts infected by cholera, which are now strictly enforced at this port, under instructions from Washington:

CARGO PROHIBITED.

Article IV, Paragraph 1. At ports infected with cholera, earth, sand, loam, soft or porous rock should not be taken as ballast. * * *

Paragraph 2. Certain food products, viz, unsalted meats, sausages, dressed poultry, dried and smoked meats, rennets, fresh butter, fresh milk (unsterilized), fresh cheese, fresh bread, fresh vegetables, coming from cholera-infected localities, or through such localities, if exposed to infection therein, should not be shipped.

Paragraph 3. Fresh fruits from districts where cholera prevails shall be shipped only under such sanitary supervision as will enable the inspector to certify that they have not been exposed to infection.

Paragraph 7. Rags, old jute, old gunny, old rope, and similar articles gathered or packed or handled in any port or place where cholera * * * prevails, * * * should not be shipped until the officer issuing the bill of health shall be satisfied that the port or place has been for thirty days free from such infection and after the disinfection of the articles.

Paragraph 12. Any article presumably infected, which can not be disinfected, should not be shipped. (Upholstered furniture, sheepskins used as wearing apparel, bones, bedding, horns, and hoofs.)

Under paragraphs 1, 2, and 12 bulbs and growing plants are prohibited from shipment when from infected districts. Cargo permitted to be shipped only after disinfection under the supervision of United States inspector, and at expense of shipper.

Art. IV. Paragraph 4. Articles of merchandise, personal effects, and bedding coming from a district known to be infected, or as to the origin of which no positive evidence can be obtained, and which the consular or medical officer has reason to believe are infected, should be subjected to disinfection prior to shipment by processes prescribed for articles according to their class.

Paragraph 8. New feathers for bedding, human and other hair unmanufactured, bristles, wool, hides, not chemically cured, coming from a district where

cholera prevails shall be refused shipment until thirty days have elapsed since last exposure, unless unpacked and disinfected as hereinafter provided. Feathers which have been used should be disinfected, and invariably by steam.

Paragraph 10. Articles such as gelatin, glue, glue stock, fish glue, fish bladders, fishskins, sausage casings, bladders, dried blood, having been in any way liable to infection in the process of preparation, gathering, or shipment should be disinfected.

Paragraph 11. Any covering shipped from or through an infected port or place, and which the consul or medical officer has reason to believe infected, should be disinfected.

STUART ELDRIDGE, M. D.,
Sanitary Inspector, U. S. M. H. S.

Approved:
N. W. MCIVOR,
Consul-General of the United States.

[Inclosure No. 7.]

CIRCULAR.

CONSULATE-GENERAL OF THE UNITED STATES,
Yokohama (Kanagawa), Japan, October 29, 1895.

——— ———,

Agent ——— S. S. Co.

SIR: Your attention is invited to the following construction of the Quarantine Laws and Regulations of the United States, given by the Secretary of the Treasury of the United States, and applying to way passengers upon ships bound from Japan to United States ports:

"If the ship is destined for the United States, all passengers embarking are subject to the quarantine regulations, whether intending to make the entire voyage or not."

The above, it will be seen, applies to passengers destined for Canadian or Hawaiian ports, at which vessels bound for the United States touch en route.

N. W. MCIVOR,
Consul-General of the United States.

CONCERNING THE DANGER FROM BULBS SHIPPED FROM INFECTED DISTRICTS.

YOKOHAMA, JAPAN, *November 24, 1895.*

SIR: I have the honor to report that under my advice the prohibition of the shipment of certain, dangerous articles of cargo, such as foods collected or packed under unknown or suspicious conditions, bulbs, and growing plants, is maintained at this port.

In view of the probable persistence of cholera infection through the present winter, and of the reappearance of the disease next year, a question arises as to the propriety of allowing the exportation of plants and bulbs, even when actual cholera has entirely disappeared, for they carry with them the very nidus of the cholera germ. Disinfection of any kind is, of course, as regards these articles, impossible.

I shall be greatly obliged if you will give me your instructions on this point.

I am, sir, very respectfully,

STUART ELDRIDGE, M. D.,
Sanitary Inspector, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

The following reply to the above letter was addressed to Dr. Stuart Eldridge, under date of January 10, 1896:

Referring to the exportation of articles from Japan to the United States packed in earth and manure, you are informed that in the opinion of this Bureau the cholera germ, if present, would probably not be capable of causing infection after the lapse of sixty days. The cholera spirillum has been known to live in moist earth for fifty days.

Enforcement of Quarantine Regulations of Kobe, Japan.

The following report, though written in part in response to complaints concerning the enforcement of the regulations, furnishes so excellent a demonstration of the value of the quarantine regulations to be observed in foreign ports on the appearance of epidemic disease which are immediately to be put into operation by the consul without special instructions, that it is deemed desirable to publish the report in full. The consul's official actions were in accordance with the law and regulations, and one of the subjects of discussion in his report, namely, the inspection at a port of call of passengers intending to disembark before reaching the United States, was made the topic for an opinion by the Solicitor of the Treasury, affirming the right to make this inspection, as may be seen by reference to the Annual Report of the Marine-Hospital Service, 1895, page 445.

Department of State,
Washington, December 9, 1895.

Sir: Referring to your letter of October 2, relative to the unfounded complaint of Mr. D. A. Chambers, representing the Pacific Mail Steamship Company, that passengers from Kobe, Japan, are subjected to unnecessary requirements as to disinfection by the consul at Osaka and Hiogo, I have the honor to inclose for your information a minute report from the consul, transmitted in his dispatch No. 39, November 9, showing the nature of the precautions taken by him in accordance with the requirements of the quarantine laws and regulations.

I have the honor to be, sir, your obedient servant,

Richard Olney.

The Secretary of the Treasury.

[Inclosure.]

Report on Cholera and the Methods Employed in Carrying Out the Quarantine Laws and Regulations of the United States Applicable thereto at the United States Consular District of Osaka and Hiogo (Kobe), Japan.

By James F. Connelly, United States consul, Hiogo (Kobe), Japan.

Upon my arrival at this place in June last I noticed that cases of cholera were frequently reported both at this place and at Osaka. After taking over the consulate I requested the governors of Hiogo Ken and Osaka Fu to furnish this consulate with daily reports as to the occurrences of quarantinable diseases. My request was complied with and Inclosures Nos. 1 and 2 will show the number of new cases and deaths reported daily from that time up to the date of this report. It will be observed that the new cases reported daily show a decrease up to the 15th day of July. Inquiry made as to whether the disease appeared to be in

epidemic form elicited the reply that it was not; that there were more or less cases every year in this consular district and throughout the Empire, but that those of this year were confined to the soldiers returning from China.

On the 17th day of July last I addressed letters to prominent foreign physicians at Hiogo (Kobe) and Osaka, both places being within my consular jurisdiction (copies of which letters are inclosures 3 and 4), and which were replied to a day or two subsequent (copies of which replies are inclosures 5 and 6).

It will be seen that all agreed that the disease had assumed an epidemic form. I thereupon submitted their replies to the governors of Hiogo Ken and Osaka Fu, respectively. Not receiving a reply from them I acted in accordance with the provisions of article 12, paragraph 335, page 19, of the Quarantine Laws and Regulations, issued in pamphlet form February 24, 1893, and April 26, 1894, copies of which had been posted in this consulate since April 15, 1893, and June 27, 1894 (copies of cablegram and covering dispatch are marked Inclosures A and B), at the same time notifying his excellency, the United States minister at Tokyo, the consul-general at Kanagawa, and the consul at Nagasaki. I also notified the governors of Hiogo Ken and Osaka Fu, respectively (copies of all which are inclosed, numbered from 8 to 12, inclusive). I also notified the governors of Hiogo Ken and Osaka Fu, respectively, verbally of my action, and received from the governor of Hiogo Ken a response, in writing, a translated copy of which is marked 7 and inclosed.

This reply was received July 19, 1895. This having been the first time this port had been declared infected since the passage of the act of February, 1893, in order to minimize the trouble and expense incident thereto to the American merchants and to the shipping interests in general at this port, I caused to be issued circulars (one of which is inclosed herewith, numbered 13), and had one of each delivered to all concerned.

The number of American vessels in the harbor at the time was three, and each was receiving a cargo of general merchandise, destined for ports in the United States.

In this connection permit me to suggest that while part of the quarantine laws and regulations which provide "that the crews of American vessels shall be kept on board during the vessel's stay in an infected port" may in the main seem a harsh measure, and while during the present emergency it was somewhat difficult to enforce (requiring daily visits to the vessels in port), yet its effect was apparent. Cholera appeared on vessels of other nations, none appearing on board American vessels during their stay in this port.

This being an intermediate port, I deemed it advisable for the local agents of the following lines, viz, the Pacific Mail Steamship Company, the Occidental and Oriental Steamship Company, the Northern Pacific Steamship Company, and Samuel Samuels's Portland (Oreg.) Line, to understand distinctly the operation of the quarantine laws and regulations, and sent for them to call at the consulate. They came and I fully explained the requirements, so far as they related to the shipment of goods and the embarkation of passengers at intermediate ports, at the same time telling them that Dr. W. R. Moor Graham, a physician residing at this port and who had acted on behalf of this consulate under my predecessor, would act as medical inspector during the prevalence of this epidemic; that his certificate of inspection would be sufficient evidence for this consulate, and his fee would be the same as in the past, viz, 16 yens, equaling about $8 in United States gold, which fee must be paid by the company requiring his services.

I further stated that the details as to time and place of inspection would be left to them and the physician, I requiring only that the place selected be as near the place of embarkation as possible and the time of inspection as near the time of departure of the vessel as practicable.

No complaint was received at this consulate until August 18, 1895, on which date I received a very considerate communication from N. W. McIvor, esq., United States consul-general at Kanagawa, inclosing a letter received from Mr. B. C. Howard, general agent of the Occidental and Oriental and the Pacific Mail Steamship companies at Yokohama, Japan, which letter is dated August 16, 1895, a copy being herewith inclosed, numbered 14.

Upon receipt of this I again sent for the local agent of the companies represented by Mr. Howard, and laid before him Mr. Howard's letter, at the same time stating that, having left the details as to time and place to his and the physician's discretion I could not understand the meaning of this complaint. He replied, "I have heard of no complaint."

After expending considerable time and trouble, independently of the agents of the companies, I succeeded in procuring a more suitable and convenient place, located immediately in front of the place of embarkation, at a monthly rental of 15 yen, equivalent to about $7.50 in United States gold.

I then sent for the medical examiner, Dr. Graham, and requested him to call upon the local agent of the Occidental and Oriental and the Pacific Mail companies and acquaint him of my action, and to request him to arrange to deliver the passage tickets at the place designated by me one hour previous to the departure of the vessels.

Shortly after this, and within a day or two, I received a letter from Dr. Graham (a copy of which is inclosed, numbered 15) in which he asserts that the agent told him he could not agree without reference to Mr. Howard, claiming that the passengers were not subjected to discomfort in going to the company's office for examition. I thereupon ordered Dr. Graham to hold the inspection thereafter at the place secured by me, which he has done.

The rental has been paid by me personally, the company having declined to stand the expense. (Copy of receipt for rental inclosed, numbered 16.)

On August 23, 1895, through the consul-general, I answered the complaint made by Mr. Howard to him, and beg leave to embody that letter in full as part of this report. It reads as follows:

[Unofficial.]

HIOGO, *August 23, 1895.*

MY DEAR SIR: Your very kind letter of the 17th instant inclosing a copy of Mr. B. C. Howard's letter of complaint came duly to hand. Replying, permit me to take up in a general way the matters complained of. Mr. H. seems to think the inspection of local passengers before going aboard vessels destined to some port in the United States is not absolutely necessary. In this regard, while I may personally commiserate alike with the interests he so ably represents and with those who, residing in an infected port, are desirous of visiting some more favored place on a vessel en route for some port of the United States, still I can find no way, as you are well aware, to overcome the difficulty, as the regulations of the United States Government on this particular point, as set forth in circular of the Department of State dated May 10, 1893, supplemented by paragraph 4, article 2, of Quarantine Regulations, Treasury Department pamphlet, dated April 28, 1894 (pages 13 and 14), seem to admit of no discretionary power. If Mr. Howard will refer to the correspondence of the Occidental and Oriental Steamship Company dated May 18, 1893, by Mr. D. S. Stubbs to the honorable the Secretary of the Treasury (subject, Construction of the law of February 24, 1893, as to the inspection of vessels at intermediate ports), he will find the points above referred to fully covered in the reply of the Secretary of the Treasury. Copies of this correspondence are on file at this consulate.

Referring to the method adopted for the inspection of passengers, etc., desiring

to leave this port (per steamer *Coptic*), Mr. Fred Plate, the representative of the Nippon Yusen Kaisha at this port, will beyond all question admit that I have done everything possible within the bounds of prescribed regulations to assist him. In fact I left the matter, so far as details were concerned, entirely in his control, and so advised Dr. Graham. The result was that they agreed that the inspection should take place at the offices of the Nippon Yusen Kaisha, where suitable rooms could be set apart for the examination of both ladies and gentlemen, and named 10 o'clock a. m. of the day of sailing as the hour. I believe the practice adopted was to first book the passengers, and then notify them that the tickets would be issued and the inspection held at the hour above named.

As all concerned were thus notified, no great hardship or inconvenience could have been experienced. As to the office of the company being held to be an uncomfortable, out-of-the-way place, permit me to say that, while it is not at the point of embarkment, it is the place chosen by the companies for booking and sale of tickets, and was at that time the only place procurable. I am pleased to be able to state in this connection that I have procured an office immediately in front of the point of embarkment, and have had the Nippon Yusen Kaisha consent to issue the tickets there one hour before the advertised time of departure. This would seem to me to further lessen the delay and inconvenience which passengers have been subjected to. I can readily understand that all trouble and inconvenience would be avoided could I agree to the suggestion that the inspection be made on board ship, but unfortunately I can not agree to this suggestion, as I am firmly of opinion it would be contrary to the language and intent of the statute of February 15, 1893, and the quarantine regulations made under the provisions of that act. I hold that under the said regulations and the rulings of the Department of State on the subject a consular officer located at an intermediate port has no right to make, or cause to be made, an inspection of any vessel entering such intermediate port unless conclusive evidence be produced showing the outbreak of quarantinable diseases on board such vessel after leaving the original port of departure. If I am correct in this ruling it must be admitted that the duty of the consular officer at an intermediate port is simply to take such precaution as will, as far as possible, prevent the introduction of quarantinable diseases on shipboard through the medium of passengers embarking at such port. This end would certainly be jeopardized if the inspection was permitted to be held on board, and no end of trouble, expense, and danger would result if during such an inspection infection was discovered. This may not be considered as likely to occur, and yet you will admit that it is within the range of possibilities at an infected port, and it seems to me to have been considered in the compilation of the regulations, with a view of lessening danger by definitely placing responsibility.

Please accept my sincere thanks for your kind letter and excuse my tardiness in replying. The time was used in enlisting every means within the control of myself and friends to so arrange the matter complained of that our friends charged with the responsibility of shipping to ports of the United States would not have the interests they represent injured. Let me further intrude upon your kindness to the extent of conveying the subject-matter of this letter to Mr. B. C. Howard.

Very truly, yours,

JAS. A. CONNELLY.

N. W. McIVOR, Esq.,
United States Consul-General, Kanagawa.

I consider the above letter fully explains my reasons for acting as I have done in this matter, and fully answers any alleged grievance Mr. Howard's letter of complaint may imply he or his companies have sustained by reason of my official acts done in the furtherance of my duty.

I respectfully quote the following extracts from the letter I received from N. W. McIvor, esq., consul-general, Kanagawa, acknowledging the receipt of my letter replying to Mr. Howard's letter of complaint:

"I am very glad to learn that you have been so successful in meeting this complaint and have secured a place more conveniently located. I do not see how you could do more than you have done, or show a greater willingness to serve the public convenience under the circumstances, and I have so informed Mr. Howard. I have called his attention to the fact that it is reasonable to suppose that you must require the examination of passengers from an intermediate port, because they are to come into contact with passengers for our ports, and that you are forced by the regulations to have this examination made before embarkation; further, that you are perfectly willing that the examination be made at any time agreed upon by the companies' agent and the physician employed, provided it is within a reasonable time before the sailing of the vessel. As you requested, I have communicated the substance of your letter to Mr. Howard, and feel certain that no reasonable man could find fault with your action as an officer in this matter."

After all these efforts on my part to lessen the inconvenience and expense incident to a proper and uniform enforcement of the quarantine laws and regulations of the United States for infected ports, it appears from dispatch No. 9 of the Department of State, dated October 2, 1895, that Mr. Howard made further complaint to his principals at San Francisco, which letter was dated August 22, 1895, a copy being inclosed under same cover.

Taking up, consecutively, Mr. Howard's alleged causes of complaint, permit me briefly to reply.

As regards "the issuing of circular," it was done by reason of the fact that the merchants packing their merchandise for shipment, masters of vessels having crews under their control, persons desiring to secure passage for ports in the United States, and local agents of ships' companies engaged in the carrying of passengers and freight were alike ignorant of the quarantine laws and regulations of the United States and their peculiar application at infected ports. Such laws and regulations being of late date and never before having been enforced at this port, I considered it absolutely necessary.

As regards "the fees paid the physician" for his services by the respective companies, amounting to 16 yen, equivalent to $8 United States gold, or thereabouts, for the inspection of each vessel and matters pertaining thereto, permit me to outline his duties.

He must go aboard the vessel, which lies at anchor a distance of from 1 to 2 miles from shore, and satisfy himself through the master and surgeon of said vessel, and by personal examination if necessary, as to whether any change has taken place in the sanitary condition of the vessel since the issuance of the bill of health at the original port of departure. He next visits the company's office and examines the bills of lading covering cargo to be taken on board the vessel at this port. He then examines such cargo as to character of merchandise and mode of packing same, excluding from shipment all such as may be prohibited by the quarantine laws and regulations. He then examines all first-class passengers intending to take passage and their personal effects, thereafter accompanying them to the place of embarkation, after which he makes his report in writing to the consulate. The consulate then issues the supplemental bill of health.

The physician's fee, together with the consulate fee for supplemental bill of health, is collected from the company for whom he rendered service, the physician giving to the consulate his personal voucher for the amount. The practice has been, and is now, for the consular officer to collect the fee for the physician on his own bill, in order that his position as a medical examiner for the consul shall, as far as possible, be removed from the influence of the companies.

I consider the professional fees of the physician for the work performed, under the circumstances, exceedingly reasonable.

As to my statement made to the local agent of the company, and quoted by Mr. Howard in his letter to his principals, "that I was acting under written instructions," the statement I did make was as follows: That I could not permit passengers embarking at this port to be examined on board the vessel, as it would be contrary to the laws and regulations of the United States; upon which subject the written instructions of the Department of State and of the Treasury were on file in this consulate, and I presumed that copies were in the possession of the companies represented by Mr. Howard, as they were the result of a discussion between his companies and the Secretary of the Treasury, dated May 18, 1893, the companies being represented by Mr. D. A. Chambers, attorney at Washington.

Let me further add that the above complaints are the only ones that have been received from any source whatever during the prevalence of the epidemic that have been brought to my attention.

This ends my report as far as answering the alleged grievances complained of by the companies represented by Mr. Howard is concerned.

MERCHANDISE.

As other important questions have arisen during the prevalence of the epidemic, permit me to present them together with the conclusions I have arrived at after carefully examining the laws and regulations appertaining thereto and available,

Large shipments of hides and rags are made yearly from this port. So far as the rags are concerned, their disinfection for shipment has not and will not be permitted to be undertaken until after this port has been officially declared free from infection. As to hides, the owners have preferred rather to wait until the port is officially declared free than to endanger them by the use of disinfectants.

During the month of October of each year large shipments of oranges and lily bulbs, young trees, and plants, packed in earth, are made. So far as the trees and plants packed in earth are concerned, no shipments have been made or permitted to be made. Shipments of oranges and lily bulbs have been allowed under paragraph 3 of Article IV, page 15, pamphlet of the Treasury Department, 1894, subject to the following conditions:

1. That the consulate must be furnished with a certificate of the fu or ken in which the grove or garden from which the fruits are taken is located, to the fact that no case of quarantinable disease, such as cholera, has appeared in said district of the fu or ken within twenty to thirty days of the picking and packing of the fruit.

2. That the packages must be examined by the medical inspector on behalf of the consul.

3. That a certificate of such inspection, in addition to a copy of that called for in section 1, must be attached to each bill of lading.

Before enforcing these rules, I submitted them to N. W. McIvor, esq., consul-general, Kanagawa, saying that if no objection would be raised by him they could be uniformly enforced. I at the same time notified the local agents of the steamship lines that all fruits to be shipped must first be inspected, calling their attention to paragraph 3, Article I, Treasury Department pamphlet, page 15, Quarantine Laws and Regulations, 1894, and requested them to send persons desiring to ship to this office.

Notwithstanding my action in this regard, I had been informed the local agent of the Occidental and Oriental and Pacific Mail Steamship companies accepted shipments of fruit from districts where cholera was prevalent, to be taken to Yokohama and there transshipped on board the steamer *Coptic*, destined for San Francisco. I informed the local agent that such a course could not be permitted and would only involve the companies and the shippers in unnecessary expense, as

it would be my duty to inform N. W. McIvor, esq., consul-general, Kanagawa, of such shipment. The agent stated that he had wired the facts to Mr. Howard, and had received instructions to accept the shipments. (Inclosed copy of my dispatch, No. 114, dated October 24, 1895, informing the consul-general of the fact of such shipment, No. 17; also a copy of dispatch 1192, N. W. McIvor, consul-general, Kanagawa, dated November 1, 1895, inclosure No. 18.)

The rules laid down have been uniformly enforced on all occasions, excepting as above specified, with little or no delay, inconvenience, or expense.

In conclusion, I respectfully submit that this consular district has unfortunately been the center of the cholera epidemic which has spread throughout the Empire of Japan during the present year. I have had officially reported in this consular district 30,812 cases, of which 21,964 proved fatal (Inclosure C). I am, however, pleased to state that no American has been attacked with this dread disease in my consular district, and I firmly believe that the precautions taken and the humane enforcement of the quarantine laws and regulations now in force, imperfect as their first application must necessarily have been, have caused an infinitesimal amount of delay, annoyance, expense, or inconvenience to all concerned.

JAS. F. CONNELLY, *United States Consul.*

UNITED STATES CONSULATE,
Hiogo, Japan, November 9, 1895.

[Inclosure No. 1.]

Cholera statistics for Hiogo Ken from the 1st day of July to the 5th day of November, 1895, inclusive.*

Date.	Number of cases.	Number of deaths.	Date.	Number of cases.	Number of deaths.	Date.	Number of cases.	Number of deaths.
July 1	18	5	Aug. 13	80	55	Sept. 25	5	26
2	20	8	14	73	47	26	7	27
3	27	23	15	73	75	27	10	10
4	37	10	16	75	57	28	1	4
5	15	22	17	95	62	29	11	7
6	35	17	18	58	30	30	4	3
7	24	17	19	70	42	Oct. 1	8	5
8	25	20	20	61	41	2	7	6
9	24	21	21	55	34	3	5	8
10	17	19	22	50	40	4	4	2
11	22	5	23	79	58	5	3	15
12	18	8	24	64	50	6	11	10
13	26	21	25	54	32	7	4	16
14	18	17	26	77	58	8	2	4
15	19	10	27	66	46	9	6	2
16	24	36	28	36	35	10	4	5
17	25	14	29	49	40	11	7	6
18	15	16	30	61	44	12	0	0
19	21	6	31	55	30	13	2	4
20	24	19	Sept. 1	25	16	14	3	1
21	18	22	2	43	30	15	3	3
22	25	12	3	26	26	16	4	2
23	16	19	4	39	26	17	0	0
24	23	13	5	34	17	18	2	0
25	22	22	6	41	35	19	4	5
26	44	34	7	29	28	20	1	1
27	22	18	8	25	16	21	2	0
28	33	16	9	20	15	22	3	0
29	39	34	10	27	15	23	2	1
30	49	21	11	19	17	24	4	3
31	33	28	12	21	23	25	2	1
Aug. 1	25	18	13	12	13	26	2	3
2	39	37	14	16	9	27	0	0
3	50	35	15	12	16	28	4	5
4	44	18	16	13	14	29	3	2
5	88	65	17	17	8	30	0	3
6	73	58	18	24	13	31	2	1
7	73	56	19	9	12	Nov. 1	0	1
8	81	56	20	13	8	2	0	0
9	61	51	21	10	11	3	4	0
10	82	49	22	10	9	4	0	0
11	67	42	23	6	32	5	1	0
12	75	69	24	8	7			

* This ken includes Kobe.

[Inclosure No. 2.]

Cholera statistics for Osaka Fu from the 1st day of July to the 5th day of November, 1895, inclusive.*

Date.	Number of cases.	Number of deaths.	Date.	Number of cases.	Number of deaths.	Date.	Number of cases.	Number of deaths.
July 1	22	19	Aug. 13	128	104	Sept. 25	21	27
2	27	17	14	115	107	26	22	19
3	51	35	15	140	92	27	23	11
4	25	8	16	124	81	28	15	12
5	27	25	17	112	107	29	29	11
6	27	16	18	105	55	30	22	23
7	47	13	19	224	87	Oct. 1	18	8
8	51	31	20	114	81	2	14	23
9	39	18	21	93	70	3	10	22
10	41	27	22	111	102	4	9	20
11	40	22	23	108	112	5	13	8
12	38	34	24	97	89	6	10	6
13	37	22	25	81	60	7	14	11
14	33	13	26	80	58	8	11	3
15	35	39	27	82	68	9	11	21
16	68	30	28	53	70	10	11	12
17	67	44	29	75	61	11	6	8
18	69	40	30	69	63	12	9	7
19	72	43	31	59	45	13	5	1
20	70	43	Sept. 1	47	51	14	3	11
21	74	48	2	80	67	15	7	9
22	60	41	3	51	30	16	2	3
23	65	43	4	77	46	17	3	3
24	91	50	5	44	32	18	7	9
25	91	57	6	47	51	19	4	2
26	84	55	7	36	66	20	4	0
27	54	52	8	48	71	21	2	6
28	81	42	9	34	57	22	1	1
29	87	42	10	37	29	23	6	3
30	73	83	11	34	31	24	2	3
31	78	62	12	35	38	25	7	1
Aug. 1	84	56	13	23	18	26	4	3
2	128	41	14	29	29	27	7	0
3	116	68	15	31	20	28	9	9
4	171	59	16	32	32	29	3	6
5	150	96	17	23	50	30	4	6
6	186	107	18	25	37	31	3	0
7	160	96	19	20	47	Nov. 1	1	2
8	154	82	20	31	31	2	1	0
9	130	97	21	28	18	3	0	0
10	163	115	22	27	17	4	1	6
11	168	55	23	24	25	5	2	3
12	153	115	24	13	19			

* This includes the city of Osaka, on the water front, about 18 miles from Hiogo (Kobe), the open port.

[Inclosure A.]

KOBE, *July 19, 1895.*

Cholera.

CONNELLY.

DEPARTMENT OF STATE, *Washington.*

[Inclosure B.]

UNITED STATES CONSULATE,
Hiogo, Japan, July 25, 1895.

SIR: I have the honor to confirm my cablegram of the 19th instant to the Department of State, which read as follows: "Cholera."

While the number of cases of cholera reported at this port has not exceeded 104 cases for each week since the disease made its appearance, the number of cases at Osaka and vicinity has largely increased. During the three weeks ended July 18 there were reported in Osaka Fu 805 cases of cholera and 730 deaths. Although there has been no official notification from the local authorities that this port has been declared infected with cholera, in view of the steady increase in the number of cases in Osaka and Hiogo, I have deemed it my duty, after consulting with the most prominent physicians here and at Osaka, to send the cablegram above referred to, and have caused the quarantine regulations of the United States to be enforced at this port.

I inclose, for your information, sanitary reports for the weeks ended June 22 and 29 and July 6, 13, and 20 for this port.

I have the honor to be, sir, your obedient servant,

JAS. F. CONNELLY, *Consul.*

Hon. EDWIN F. UHL,
Assistant Secretary of State, Washington, D. C.

[Inclosure C.]

Cholera statistics showing the number of cases and deaths in the several fus and kens embraced in the United States consular district of Osaka and Hiogo (Kobe) from the outbreak of the disease up to and including the 5th day of October, 1895.

	Cases.	Deaths.		Cases.	Deaths.
Osaka Fu	7,124	5,229	Tottori Ken	1,147	761
Hiogo Ken	3,753	2,818	Okayama Ken	2,874	1,946
Kyoto Fu	1,851	1,454	Hiroshima Ken	3,933	2,965
Nara Ken	733	538	Wakayama Ken	562	406
Miye Ken	384	200	Tokushima Ken	412	225
Aichi Ken	401	285	Kagawa Ken	2,277	1,378
Shiga Ken	258	200	Yehime Ken	1,371	936
Gifu Ken	93	51	Kōchi Ken	901	638
Fukui Ken	323	236			
Ishikawa Ken	239	148	Total	30,812	21,964
Toyama Ken	2,176	1,550			

[Inclosure No. 3.]

JULY 17, 1895.

SIR: In view of the steadily increasing number of cases of cholera in Osaka, Hiogo, and Kobe, I deem it my duty as consul of the United States for Osaka and Hiogo to request you to answer the following questions professionally in order that I may correctly report the sanitary condition of the above-named places to the Government of the United States without prejudice to any of the interests involved, viz, "Is the present outbreak of cholera at Osaka, Hiogo, and Kobe of such magnitude as to be considered epidemic?"

I have submitted the same question to Drs. Thornicroft and Miller, of Kobe.

Hoping you will forward your reply to the above question with as little delay as possible and that you will overlook the seeming want of courtesy in addressing you on so important a subject without having had the honor of a personal acquaintance, I am, sir, your obedient servant,

JAS. F. CONNELLY,
United States Consul.

Dr. WALLACE TAYLOR,
Osaka, Japan.

[Inclosure No. 4.]

JULY 17, 1895.

DEAR SIRS: In view of the steady increase in the number of cases of cholera in Osaka, Hiogo, and Kobe, and in order that I may intelligently and correctly report to the Government of the United States without prejudice to the interests involved, I will thank you to inform me if the present outbreak of cholera at the above-mentioned places is of such magnitude as to be considered epidemic.

I have also submitted this question to Dr. Wallace Taylor, of Osaka.

I am, sir, your obedient servant,

JAS. F. CONNELLY,
United States Consul.

Drs. THORNICROFT and MILLER,
Kobe, Japan.

[Inclosure No. 5.]

KOBE, *July 18, 1895.*

DEAR SIR: In answer to your inquiry of yesterday's date as to the prevalence of cholera in Osaka, Hiogo, and Kobe, we are decidedly of opinion that the numbers of new cases of cholera reported daily in these ports, and that in spite of extraordinary precautions adopted by the Japanese authorities, warrant us in regarding the disease as being in an epidemic form at present.

We are, dear sir, your obedient servants,

THOMAS C. THORNICROFT,
M. R. C. S. and L. R. C. P. E.
RALPH S. MILLER, M. D.

JAMES F. CONNELLY, Esq.,
United States Consul, Kobe, Japan.

[Inclosure No. 6.]

OSAKA, *July 18, 1895.*

DEAR SIR: Your note of inquiry of the 17th is at hand. In reply to the question "Is the present outbreak of cholera at Osaka and Kobe of such magnitude as to be considered epidemic?" I reply most emphatically, yes. The new cases per day run now from 65 to 70 in Osaka, and it is gradually on the increase, though much better kept under control this year than during former epidemics, so the progress is less rapid.

Respectfully, yours,

WALLACE TAYLOR, M. D.

J. CONNELLY, Esq.,
United States Consul, Osaka and Hiogo.

[Inclosure No. 7.]

HIOGO, *July 19, 1895.*

SIR: Referring to our conversation of yesterday, I have the honor to inform you that cholera has broken out in this city since June 12 last, and there are ten or sometimes more cases a day at present, the half of the patients, however, being found among the traveling class coming from the localities where cholera is prevailing. Cholera appears to be prevailing in this city, but there being no remarkable increase of cases, I consider it not so serious that the port be regarded as infected.

I have the honor to be, your obedient servant,

KOHEY SUH,
Chiji of Hiogo Ken.

JAS. F. CONNELLY, Esq.,
United States Consul.

[Inclosure No. 13.]

UNITED STATES CONSULATE, *Hiogo (Kobe), July 19, 1895.*

To whom it may concern:

Cholera having appeared in epidemic form at Osaka and Hiogo (Kobe), the attention of all whom it may concern is respectfully called to the following, viz:

QUARANTINE REGULATIONS OF THE UNITED STATES.

Masters of vessels about to depart from any foreign port for a port in the United States must procure from the United States consul or medical officer at such port of departure a bill of health. Preliminary to the issue of such document the vessel shall be inspected by the consular or medical officer. This inspection shall be required of all vessels about to depart from any infected port. In an infected port the crew should remain on board the vessel during her stay.

Should it become necessary in an infected port to ship new men to complete the crew, such men should be examined by the consular or medical officer and required

to prove to his satisfaction that they have not within ten days previous been exposed to any quarantinable disease.

Prior to sailing from ports infected with cholera each passenger of the cabin class should produce satisfactory evidence as to his exact place of abode during the four days immediately preceding embarkation, and if it appears that he or his baggage has been exposed to contagion, such passenger should be detained such length of time as shall be deemed necessary by the inspecting officer, and the baggage should be disinfected.

During the existence of cholera, yellow fever, smallpox, typhus fever, or plague in any port or place all rags, old jute, old gunny gathered in such port or place should not be shipped during the prevalence of such epidemic, and for thirty days after the port or place shall be officially declared free from epidemic disease.

New merchandise in general may be accepted for shipment without question; and articles of new merchandise, textile fabrics, and the like which have been packed or prepared for shipment in an infected port or place with a special view to protect the same from moisture incident to the voyage may also be accepted and exempted from disinfection.

The coverings of crude sugar, glucose, and coffee shipped from an infected port or place should be disinfected, without breaking bulk, by exposure to sulphur dioxide, 10 per cent in strength, for the period of twelve hours.

In order to prevent as far as possible delay in shipping and to keep expenses incident thereto at a minimum, shippers of goods and masters of vessels are earnestly requested to call at this consulate, where information will be cheerfully given.

Respectfully,

JAS. F. CONNELLY,
Consul of the United States.

[Inclosure No. 14.]

AGENCY OCCIDENTAL AND ORIENTAL STEAMSHIP COMPANY,
Yokohama, August 16, 1895.

MY DEAR SIR: I wish to draw your attention to an action on the part of the United States consul at Kobe which I think is not absolutely necessary, and that is the inspection of passengers coming locally from Kobe to Yokohama. While under the existing law no doubt the consul in a case of a ship bound to the United States has a perfect right to insist on inspection, the question is whether it is good policy to do so in the manner it is done, especially where the ship leaves one port of Japan bound to another port of Japan before finally leaving for the United States.

By the *Coptic* arriving last evening I have been informed that passengers for Yokohama were obliged to be at the office of our agents, the Nippon Yusen Kaisha, at 10 o'clock on the morning of sailing for inspection by Dr. Graham, under instructions from the United States consul, the ship being advertised to sail at 2 p. m. I understand the Doctor was on board the ship at the advertised hour. Such being the case, why could he not have made his inspection then, as we only take cabin passengers from Kobe, and as a rule our list is a light one?

I would point out that we do not take any steerage passengers and no Japanese, unless they have the requisite permit from the Japanese authorities allowing them to travel on a foreign steamer. Admitting that the consul at Kobe is perfectly right in having this inspection made, I would ask if you could use your good offices (unofficially, for from my personal conversation with you I understand that you can not do it in an official capacity) and ask him that as long as the inspection is insisted upon to have the passengers inspected on board the steamer, for if the inspection is carried out in the future as was done with the *Coptic* we shall probably lose all of our local trade, for passengers have told us that they are not compelled to go through this inspection when taking passage for Yokohama by the

French mail P. and O., Canadian Pacific, or, in fact, by any first-class passenger line. If our local business is affected, it will naturally have a bearing on our through business. As this is the final port of departure for the United States, we think the inspection gone through at this port is the only one that is necessary.

I am, dear sir, very truly yours,

B. C. HOWARD, *Agent.*

Hon. N. W. MCIVOR,
United States Consul-General, Yokohama.

[Inclosure No. 15.]

AUGUST 23, 1895.

MY DEAR COLONEL CONNELLY: As promised, I went down to see Mr. Plate and had a long conversation with him in regard to the subject of our discussion to-day. He says he will refer the matter to headquarters, as he himself can not act upon his own ideas, but holds out small hopes of acquiescence on the part of Mr. Howard. He still contends that the unfortunate traveler is not put to any extra inconvenience, as he must perforce go to the N. Y. K. office to book his passage, and that only one in about ten write for their tickets, the others personally applying for them. He is also of opinion, so far as the would-be passengers are concerned, that the number who will not take the necessary precautions insisted upon by the United States Government is infinitesimal; if they have made up their minds to go by a certain vessel, this ordeal will not prevent them. The principal Japanese in the office corroborated Mr. Plate's statements.

Yours, sincerely,

G. R. MOOR E. GRAHAM.

[Inclosure No. 17.]

UNITED STATES CONSULATE,
Hiogo, Japan, October 24, 1895.

SIR: I have the honor to state that I am in receipt of information which leads me to believe that the Occidental and Oriental Company's chartered steamer *Miike Maru*, taking in freight at this port to be reshipped at Yokohama on board the steamer *Coptic*, has accepted shipments of fruit (oranges and lily bulbs) destined for San Francisco, Cal. These fruits were packed in the interior, at points where cholera prevails, and have not been in any manner treated under the requirements of paragraph 3, Article IV, of the Quarantine Regulations of April 26, 1894. Acting upon the information received, I informed the Nippon Yuse Kaisha people that I would decline to authenticate through invoices covering such fruits. I have since learned that the steamship people intend receiving the fruits as local freight, and will have invoices made out for authentication at your port.

I am, sir, your obedient servant,

JAS. F. CONNERLY, *Consul.*

N. W. MCIVOR, Esq.,
Consul-General of the United States, Kanagawa, Japan.

[Inclosure No. 18.]

CONSULATE-GENERAL OF THE UNITED STATES,
Kanagawa, Yokohama, Japan, November 1, 1895.

SIR: I have to acknowledge the receipt of your dispatches Nos. 114 and 120. In the matter covered by the first number, I would thank you for the information furnished and would say that as a result of your dispatch I caused a thorough examination to be made of the *Coptic* and excluded all shipments of fresh fruit and bulbs and plants in earth coming from infected districts, amounting, I believe, to several tons. I have notified the agents of all steamship companies that such

shipments could not go forward, or, rather, that bills of health would not be issued for vessels carrying them. I again express my thanks for information as to the shipment made on the *Miike Maru*.

As to the subject-matter of your dispatch No. 120, I would say that it seems to me that the regulations announced by you to shippers of oranges and fresh fruits are eminently proper and within the provisions of the quarantine law and regulations. Permit me to suggest that the last requirement, designated as "third," be not made a requirement contrary to the wish of the shipper. Of course the chances are that the shipper will desire the certificate provided for in order to assist him in passing his bill of lading or invoice, but I think it would be better not to require that he should attach this certificate to the bill of lading. The label attached to the parcel bearing the signature and statement of the inspecting officer being all that could be actually required under the regulations, I make this suggestion to your discretion.

I am, sir, your obedient servant,

N. W. McIvor, *Consul-General.*

James F. Connelly, Esq.,
United States Consul, Osaka and Hiogo, Japan.

History of the Establishment and Growth of the Quarantine System in Japan.

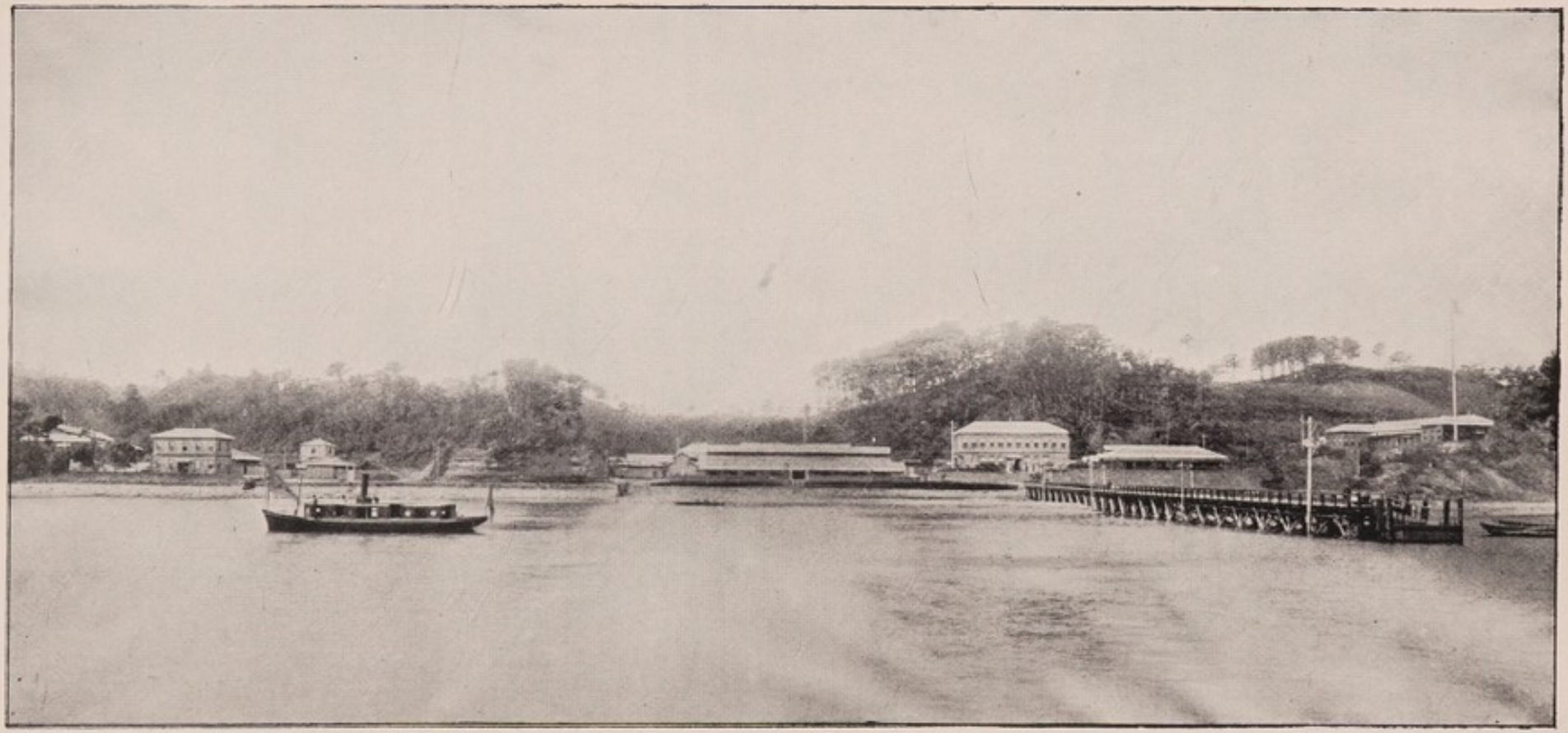
By Stewart Eldridge, M. D., Sanitary Inspector, M. H. S., Yokohama.

The establishment of a quarantine system in Japan dates from the year 1879 only. In 1877 the country was invaded by cholera for the first time since the beginning of the political and social upheaval which, in twenty-five years, has transferred the Empire from mediæval semibarbarism to a position among the civilized powers of the world.

Under the advice of the foreign physicians in its service, the Government, during 1878, also a cholera year, attempted to inaugurate precautions against the introduction and spread of epidemic disease. Strange as it may now seem, the efforts of the Japanese Government for the protection of its people were met by stringent, and for a time successful, opposition on the part of the representatives of more than one of the great European powers, and it was not until the actual outbreak of cholera in southern Japan in the summer of 1879 that the restrictions of maritime quarantine were enforced, despite these hindrances, at that time very difficult to overcome or ignore.

At this period, from the absence of railroads or other means of travel by land, the sanitary control of the shipping was, perhaps, even more important than now for the restriction of already existing disease; and, as the great epidemics of Japan have invariably been due to importation from more southern countries, especially China, where cholera, and, as we have learned but lately, plague as well, is probably endemic, it was, from this point of view, a sanitary necessity.

Scarcely had a quarantine been established at the three chief treaty ports of Nagasaki, Kobe, and Yokohama, when that at the last-named place was forcibly violated by a man-of-war belonging to one of the nations which had been, through its minister, most active in opposition to the enforcement of any precautionary measures. This high-handed outrage had, however, on the whole, a good effect, as the protests of the Tokyo government and very outspoken criticisms from the resident European and American physicians, both in civil life and those attached to the American and English naval hospitals maintained in Yokohama, appeared



JAPANESE QUARANTINE STATION NEAR YOKOHAMA.

1. General administration.
2. First class detention house.
3. Second class detention house.
4. First class bath house.
5. Second class bath house.
6. Hospital administration.
7. Hospital.
8. Quarters—hospital servants.
9. Quarters—general servants.

to bring the diplomatic advocates of the "nonrestriction of commerce" to a sense of the unfairness and irrationality of their course. This result was, perhaps, hastened by the sudden death, from cholera, of several well-known foreign residents, which gave a rude shock to the belief entertained to a greater or less extent by most Europeans living in the far East, that epidemic disease is entirely confined to the native races. I am glad to say that the representatives of the United States supported the Japanese throughout the struggle for their unquestionable rights.

The quarantine regulations enforced in 1879 were by no means burdensome or severe, and were, to a considerable extent, tentative and makeshift. As time went on, however, and it became evident that with the increasing commercial intercourse between China and Japan the invasion of disease might occur almost annually, the system of protection crystallized into a form in harmony with the knowledge and best practice of the day, with which it has ever since been kept in conformity.

It must be remembered that the sanitary authorities of Japan have, as a rule, to deal with comparatively few ships at any one time, for, practically, precautions are necessary only in the case of vessels from the south; and that there are also, as compared with the Atlantic traffic of the United States, but a small number of passengers to be cared for. Consequently, though well and, as regards the comfort of détenus, almost luxuriously equipped and courteously and effectively administered, the quarantine stations are not very extensive, and may soon require enlargement to correspond with the steady increase in travel.

From the establishment of quarantines in 1879 up to 1894 each of the three more important stations had attached to it a foreign physician, who, though not actually residing at the station, acted as adviser and consultant, and in cases of emergency or difficulty took personal charge. Since 1894 the native officials have practically been in sole control, although in Yokohama the foreign adviser is still nominally a member of the staff and would probably be called upon in any unforeseen crisis, such as was the sudden outbreak of plague at Hongkong in 1894.

As foreign commerce is chiefly and foreign passenger traffic exclusively confined to the treaty ports, it is at the three most important of these, Nagasaki, Kobe, and Yokohama, that the most complete and extensive establishments are maintained.

THE QUARANTINE AT YOKOHAMA.

The quarantine at Yokohama, which at the same time serves to protect the capital, was at first located near the large naval station of Yokosuka, upon the Bay of Tokyo (Yeddo), some 15 miles below Yokohama. From thence it was removed in 1893, owing to objections on the part of the naval authorities, to a point some 5 or 6 miles nearer to the port, and which is known as Nagahama. The present station is therefore of comparatively recent erection, and for want of sufficient appropriations is not yet completed as intended. It may, however, be taken as a fair representative of the three larger stations and, so far as essentials are concerned, of all the quarantine establishments of Japan.

The Nagahama station lies in an irregular recess in a bluff bordering the bay, is picturesquely and conveniently situated, and is easily accessible by land or sea. It is, however, open to the objection that the anchorage for ships of deep draft is at a considerable distance from the station, a difficulty fully recognized by the authorities, and which may sooner or later be overcome by dredging, as no locality having a deeper water front is available within a reasonable distance of Yokohama.

The station consists of—

1. General administration building, with officers' quarters, covering 3,396 square feet.

2. First-class detention house, covering 7,992 square feet.

3. Second-class detention house, covering 2,880 square feet.
4. First-class bath and disinfection house, covering 5,112 square feet.
5. Second-class bath and disinfection house, covering 7,236 square feet.
6. Hospital administration building, covering 2,412 square feet.
7. Hospital, covering 5,292 square feet.
8. Quarters for hospital servants and nurses.
9. Quarters for general servants and laborers.
10. House containing engine, disinfecting plant, and dynamo, covering 2,288 square feet.
11. Storehouses, laundry, and minor offices.
12. Crematory.

The buildings numbered from 1 to 9 are visible in the accompanying panoramic view of the station.

PIER, BATH HOUSES, AND DISINFECTING APPLIANCES.

The pier, bath houses, and disinfecting apparatus are connected by a tramway, and the whole establishment lighted by electricity from a plant on the premises. The water supply, derived from a large neighboring spring, is distributed by steam pumps, and the baths are heated by steam.

FACILITIES FOR DETENTION OF PASSENGERS.

The first-class detention house is equipped, in all respects, as a comfortable hotel. That for the crews and steerage passengers, though well adapted for its purpose, is smaller than it should be, but additional accommodation will be furnished before long. Meanwhile, in emergencies, not likely to occur except in summer, it can be supplemented by tents or temporary structures, which are easily and quickly erected in Japan. Separate accommodations are supplied for the sexes in both bath houses and hospital, and female attendants are provided for women and children.

HOSPITAL.

The hospital is comfortably equipped and its staff supplied with all that is necessary for the diagnosis and treatment of the diseases dealt with, including a compact bacteriological laboratory. The crematory, at a considerable distance from the other buildings, is of modern design and effective in operation.

The disinfecting plant is, in all essentials, what is now universally employed, supplying either steam or dry heat.

No charges whatever are made, except in cases of prolonged detention, for which officers and first-class passengers pay $3 and the crew and steerage passengers $1 (silver) per diem each. In case of inability to pay, the Government assumes the expenses of the détenus.

QUARANTINE REGULATIONS.

The quarantine regulations were, primarily, designed to deal only with cholera, this, until the appearance of plague in China in 1894, being the only disease in the introduction of which there was much danger. Smallpox is guarded against by the strict enforcement of vaccination and revaccination, and by isolation of the sick, and only in case of persistent and severe infection of a vessel by this disease would she be subjected to anything beyond disinfection, by special order. When plague broke out in Hongkong and Canton, the operation of the regulations for cholera was extended to include that disease.

The regulations now in force are as follows, their execution being intrusted to the sanitary division of the general police force of the Empire:

IMPERIAL DECREE NO. 31 OF FIFTEENTH YEAR OF MEIJI (1882).

It is hereby decreed that vessels arriving from localities infected with cholera shall be inspected according to the following regulations:

Regulations for the inspection of vessels arriving from localities infected with cholera.

1. All vessels arriving from localities infected with cholera shall be subject to medical inspection, and no vessel so arriving shall proceed to her destination or communicate with the shore or other vessels, or land her crew, passengers, or cargo, until a written permission to do so, signed by one of the inspecting officers, shall have been so granted as hereinafter provided.

2. When there are no cholera patients or bodies of persons who may have died of the said disease on board such vessels, the inspecting officers shall forthwith grant permission to such vessels to proceed to their destination and communicate with the shore or other vessels, and to land their crew, passengers, and cargo. Should the health officers find it necessary, the vessels, the passengers, the crew, and cargoes may be subjected to the process of thorough disinfection, staying the vessels at the place to be designated for a period not exceeding nine days.

3. Vessels so arriving and having on board cholera patients or the bodies of persons who may have died of the said disease shall be required to anchor at a place designated by the inspecting officers at a safe distance from the land and other vessels. Should the health officers find it necessary, the vessels, the passengers, and the crew may be stopped at the place to be designated for a period not exceeding nine days.

The patients shall be sent to the quarantine hospital or to their residences or other places which the inspecting officers may deem suitable. The dead bodies (if any) of persons who may have died of the said disease shall (at the option of persons interested, if any) be either burned at a place prepared by the local authorities for that purpose or buried after undergoing thorough disinfection at such place as the local authorities may designate.

After final disposition of such patients and dead bodies (if any) shall have been made, the inspecting officers shall thoroughly disinfect the crew and passengers and shall thereupon grant permission for them to land. The inspecting officers shall thoroughly disinfect said vessels and such portion of their cargoes as may be considered to be of an infectious character and thereupon grant permission for them to proceed to their destination or communicate with the shore or other vessels and to land cargo.

4. Any person or persons who shall contravene or infringe the provisions of the foregoing regulations or shall in any manner interfere with the execution of said provisions shall be punished according to the criminal code.

5. The localities where these regulations shall be put in force and the length of time for which they shall be continued in force will be determined from time to time by the minister of the interior.

By command of His Imperial Majesty the Emperor:

SANJO SANETOMI,
Prime Minister.
YAMADA AKIYOSHI,
Minister of the Interior.

IMPERIAL ORDINANCE NO. 56 OF TWENTY-SEVENTH YEAR OF MEIJI (1894).

In view of guarding against the infectious disease "pest" now prevailing in China and Hongkong, medical inspection of vessels may, in case it is deemed necessary, be enforced by applying the "regulations for inspection of vessels arriving from localities infected with cholera," promulgated by decree No. 31 of the fifteenth year of Meiji.

The places where and the period during which medical inspection of vessels is enforced shall be determined by the minister for home affairs, with the advice of the central sanitary council.

The present ordinance shall be put in force from the date of promulgation.

[NOTE.—Imperial decree No. 31 has been from time to time somewhat amended, the changes being included in the foregoing.]

QUARANTINE PROCEDURES.

In the enforcement of these regulations the practice is, briefly, as follows: On passing the quarantine guard ship, anchored on the main channel followed by all vessels in making the port, ships are boarded by an inspector, who either gives a permit to proceed or sends them to the quarantine anchorage, as the case may be. In the latter event any sick are immediately removed to hospital, and the crew and passengers landed with their personal effects. All are then given a bath, the officers and first-class passengers having individual dressing and bath rooms, with hot and cold water and showers. The clothing of each person on removal is placed in a bag of coarse net, a check is given for the same, and it is then submitted to disinfection by heat. Clean, disinfected dressing gowns, suitable to the season, are supplied to each person on leaving the bath, and in comfortable sitting rooms the passengers and crew await the return of their clothing, which is not long delayed. Meanwhile the baggage and such portions of the cargo as require treatment are disinfected by approved methods, and the ship purified as well.

The limit of detention, in case of the presence of cholera, is five days from the occurrence of the last case, though the tendency is to do away with any detention in handling this disease and to depend upon thorough disinfection alone.

For plague the limit of detention is nine days.

The maritime quarantine system of Japan has repeatedly and unquestionably proved of the highest value in preventing the introduction of disease from abroad and in limiting its extension when once imported. It is, in time of epidemic, supplemented and assisted by a stringent sanitary control of the lines of land travel.

NATIONAL QUARANTINE ADMINISTRATION (DOMESTIC).

ADMINISTRATIVE DETAILS.

FINES IMPOSED.

During the fiscal year 34 fines were imposed upon vessels entering the ports of the United States without the bill of health required by the act of February 15, 1893.

AMENDMENTS TO QUARANTINE REGULATIONS AND QUARANTINE CIRCULARS.

NOTIFICATION TO STATE HEALTH AUTHORITIES OF THE DEPARTURE OF IMMIGRANTS ARRIVED ON VESSELS UPON WHICH CONTAGIOUS DISEASE HAS APPEARED.

[Circular.]

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
Washington, D. C., May 1, 1896.

To Quarantine Officers of the United States, Commissioners of Immigration, State and local health authorities, and others concerned:

After arrival at a quarantine station of a vessel upon which there appears, or has appeared during the last voyage, a case of cholera, smallpox, typhus fever, or plague, and after quarantine measures provided by regulations of the Treasury Department have been enforced and the vessel given free pratique, it is hereby ordered that notification of the above-mentioned facts be transmitted by the quarantine officer to the Commissioner of Immigration at the port of arrival, whose duty it shall then be to transmit, by mail or telegraph, to the State health authorities of the several States to which immigrants from said vessel are destined, the date of departure, route, number of immigrants, and the point of destination in the respective States of the immigrants from said vessel, together with the statement that said immigrants are from a vessel which has been subject to quarantine by reason of infectious disease, naming the disease.

This information is furnished to State health officers for the purpose of enabling them to maintain such surveillance over the arriving immigrants as they may deem necessary.

J. G. CARLISLE, *Secretary.*

ADDITION TO SUPPLEMENTAL BILL OF HEALTH.

[Circular.]

TREASURY DEPARTMENT,
OFFICE OF THE SECRETARY,
Washington, D. C., May 2, 1896.

To Officers of the Treasury Department, Consular Officers, and others concerned:

Referring to Department circular dated April 26, 1894, United States Quarantine Laws and Regulations, the following amendment is hereby made to the supplemental bill of health to be furnished vessels calling at intermediate ports:

Article I, paragraph 4, amended to read, following the table of diseases: "Number and sanitary condition of passengers landed at this port."

J. G. CARLISLE, *Secretary.*

CIRCULAR LETTER TO QUARANTINE OFFICERS, STATE AND LOCAL.

[Confidential.]

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., June 3, 1896.

DEAR DOCTOR: As it is sometimes necessary to convey telegraphic information regarding yellow fever, and at the same time avoid publicity or unnecessary alarm, this Bureau has adopted the code word "lupus" as meaning yellow fever. To indicate that yellow fever is rumored or suspected, the word "lupulin" is hereby adopted.

The code word for cholera is "minim."

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

CIRCULAR LETTER TO QUARANTINE OFFICERS RELATING TO RELAPSING FEVER.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., August 27, 1896.

SIR: You are informed that hereafter the disease "relapsing fever" will be considered as one of the quarantinable diseases in addition to plague and other diseases enumerated in Article II, paragraph 1, page 25, of the Quarantine Laws and Regulations of the United States.

You are requested to acknowledge the receipt of this letter.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

BLANK FORM TO BE USED IN INSPECTION OF UNITED STATES QUARANTINE STATIONS.

At the beginning of the present quarantine season the following blank form was issued. This, together with the blank form provided for the inspection of State and local quarantine stations, completes the inspection forms for all quarantines of the United States:

INSTRUCTIONS TO MEDICAL OFFICERS OF THE MARINE-HOSPITAL SERVICE DETAILED TO MAKE INSPECTION OF UNITED STATES QUARANTINE STATIONS.

1. Your visit to the station should be unannounced.

2. Upon arrival at the station, you will first call upon the commanding officer, and arrange with him for an inspection of the station, which should be made as soon after arrival as practicable.

3. You will make proper entries to each question of this inspection blank and forward to this office upon completion of your duty.

WALTER WYMAN,
Supervising Surgeon-General, U. S. Marine-Hospital Service.

Name of quarantine station.

When was the station last inspected?

Name of inspecting officer.

I. PERSONNEL.

Name of officer in command.
Date of assignment to duty.
Name and rank of assistants, including acting assistant surgeons; also give number of members in each family.
Name of steward and number of members in family.
Name and duties of each attendant.

II. GENERAL DESCRIPTION OF STATION.

Number of buildings.
Limit of anchorage for noninfected vessels.
Limit of anchorage for infected vessels.
Facilities for inspection of vessels.
Apparatus for disinfection of vessels and of baggage.
Facilities for removal and treatment of sick.
Facilities for removal and detention of suspects.
Mail and telegraph facilities.
Give number of wharves.
What is the length of the wharf frontage?
Are the wharves in good condition?
Are the mooring facilities ample?
What is the depth of water at mean low tide along the front of the wharf?
What is the source of the water supply?
Is it sufficient?
Is it potable?
Hard or soft?
If hard, does it injuriously affect the boilers in use at the station?
How is it distributed and stored, if storage is necessary?

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant:
What is the general condition of all machinery?
Does it appear well taken care of or neglected?
Is there a steam hoisting engine for ballast?
Are there ballast tubs and a ballast car for the distribution of ballast?
How is ballast disposed of?
Is it disinfected prior to being discharged, and what facilities exist for supplying ballast to vessels needing it?
What are the dimensions of the steam disinfecting chamber?
Is it rectangular or cylindrical?
How many cars are provided?
Are infected articles put in at one end and brought out at the other after disinfection, or is one end of the chamber used for loading and unloading?
Is the chamber provided with thermometers for indicating the temperature during the process of disinfection?
Is the chamber equipped with any apparatus for the production of a partial vacuum? What is the nature of the appliance? Is it efficient in operation?
What vacuum is produced and how long does it take to obtain it?
Is a sulphur furnace provided?
Give a diagram of the method of gas distribution, showing the number of gas outlets.
How many feet of sulphur hose are provided?
What is its condition?

What is the condition of the fan and engine?
What is the method of storing bichloride solution?
What is the capacity of the tank or tanks?
Are they of wood or iron?
What is the elevation of the tanks above the wharf flooring?
Is the solution distributed by gravity or is there a pump for the purpose?
How many feet of hose are provided for the distribution of the bichloride solution, and what is its size and condition?
How many steam boilers are provided?
What is their condition, and do they supply sufficient steam for all purposes?

IV. BOATS.

Is the station provided with a steam tug or other steam vessel?
If so, is she of wood or iron?
Give dimensions.
If of wood, is the vessel sheathed with metal?
Are the engines and boiler in good condition?
Give engineer's statement as to necessary repairs and renovation.
Is the station provided with a steam or naphtha launch?
Give dimensions.
What is its condition?
Give report of medical officer as to efficiency of the launch.
How many small boats are provided and what is the condition of them and their equipment?
Are more boats necessary or desirable?

V. HOSPITAL.

Give location of building used as hospital.
Give general description of the building:
(*a*) Dimensions.
(*b*) Number of beds in each ward.
(*c*) How many beds can be added for emergencies?
(*d*) Cubic air space allowed each patient.
(*e*) Heating, lighting, and ventilating.
Has the hospital sufficient furniture?
(*a*) What kind of bedsteads and what kind of mattresses and bedding?
(*b*) Condition of bedding occupied by patients.
(*c*) Are the beds clean and free from vermin?
What is the condition of wards as to general cleanliness?
Is the nursing sufficient, and is the nurse immune?
Does the character of the diet furnished conform to that prescribed in the diet table for marine hospitals?
Is a proper record of the patients under treatment kept?

VI. OUTBUILDINGS AND GROUNDS.

Describe general condition of outbuildings.
Are the grounds well policed?
Describe officers' quarters and condition of furniture.
Describe steward's and attendants' quarters and condition of furniture.
Describe dining room, condition of table furniture and tableware.
Describe kitchen and furniture.
Describe dispensary.
Describe laundry.

Describe approaches to the station.
Describe condition of fences and grounds.
Describe drainage and condition of water-closets.
Describe disposal of slops.
State whether any animals not authorized by the Department are kept on reservation?

VII. EQUIPMENT.

State approximately age and condition of each horse, and how long in service at this station.
Give number and character of vehicles.
Are they properly cared for?
Are harnesses in good condition?
Is there a blacksmith's forge provided?
Are there farming implements; and if so, are they in good condition?
Is there a fire apparatus provided; and if so, is there a fire drill organized?

VIII. DISCIPLINE.

Are officers and employees supplied with uniforms in compliance with the revised uniform regulations dated ———, 1896?
Are uniforms properly worn?
Give method of granting leaves to officers and employees.
Describe when and how inspection, muster, and fire drills are conducted.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year by months:
(*a*) From foreign ports:
(*b*) From foreign ports in yellow-fever latitudes via domestic ports:
(*c*) From domestic ports:
From what countries chiefly do the vessels come?
Are they in cargo, ballast, or empty?
State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping arriving at the station.
Give annual amount expended at station for last three years. (See annual reports.)
Give the immediate needs of the station as stated by the commanding officer.
Mention any facts which, in your opinion, should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

REMARKS AND RECOMMENDATIONS.

I certify that the foregoing is a careful and correct statement of the condition of the Service at the ——— Quarantine Station, inspected by me this ——— day of ———, 189—.

———— ————,
Surgeon, U. S. M. H. S., Inspector.

WEEKLY REPORTS FROM STATE AND LOCAL QUARANTINE STATIONS.

During the year a blank form was issued for receiving reports from such State and local quarantine stations as would voluntarily

make the same, and a general response has been made to the following circular letter:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., April 27, 1896.

SIR: It is believed that a weekly report from every quarantine station in the United States would be of great value to all quarantine officers, since by reference thereto when published in the weekly public health reports of this Bureau much necessary information would be available concerning the sanitary history of vessels. The Bureau has determined, therefore, to request the cooperation of State and municipal quarantine officers to this end.

I inclose herewith a sample of a blank form, which should be filled out at the close of each week (Saturday), and transmitted to the Marine-Hospital Bureau for publication. Please inform me whether you will agree to furnish these reports. Upon receipt of a favorable reply sufficient number of blanks will be forwarded you.

I have to request, also, that if you do not regularly receive the public health reports you will so inform the Bureau, and your name will be placed upon the mailing list.

An early reply is requested.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

QUARANTINE OFFICER.

The Bureau now publishes weekly a summary of the reports, not only from the national quarantine stations as heretofore, but also from State and local quarantines. But one refusal has been received, namely, from the State board of health of Louisiana.

CORRESPONDENCE CONCERNING THE BOARDING OF VESSELS BY UNAUTHORIZED PERSONS BEFORE THE QUARANTINE INSPECTION.

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
Gulf Quarantine, August 6, 1896.

SIR: I respectfully ask to be informed what resource I have to prevent communication with a vessel coming into port before it has reached the quarantine anchorage; such, for example, as a pilot communicating with an infected vessel and leaving it before it reaches quarantine, or a trading boat soliciting business from it. I do not find anything applying to this matter in the law or the regulations, notwithstanding it is a matter of some concern at this station.

Very respectfully, yours,

A. C. SMITH,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, D. C., August 14, 1896.

SIR: In reply to your letter of the 6th instant, relative to vessels coming into quarantine, and to unlawful communication therewith, and requesting information as to what action should be taken, you are informed that each case, with all

the information that can be obtained, should be referred to the United States district attorney for his action, a duplicate of the papers being also referred to this Bureau. Your attention is directed, with reference to this subject, to section 9 of the act of August 2, 1882 (Navigation Laws, 1895, p. 121), and section 4606, Revised Statutes (Navigation Laws, 1895, p. 141). A copy of the Navigation Laws of the United States, referred to, will be sent you in a few days.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

MEDICAL OFFICER IN COMMAND,
Gulf Quarantine Station (via Biloxi, Miss.).

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
Port Townsend Quarantine, July 22, 1896.

SIR: I have the honor to respectfully inquire what is the meaning of the word "agent" in paragraph 4, Article I, page 25, of the Quarantine Regulations. There seems to be a great difference of opinion in this town in regard to the meaning of this word, and the ship brokers take advantage of every excuse to board vessels before the quarantine officer. The barkentine *Katie Flickinger* arrived here on the afternoon of the 18th instant from Shanghai, China. Upon my boarding the vessel I found two ship brokers aboard, Louis Rothschild and F. Al. Bartlett. I asked the captain who was his agent, and he said he had none. Mr. Rothschild stated that he came on board because he had letters from the owners of the vessel which he was directed to deliver as soon as the vessel arrived. Mr. Bartlett stated that he had been the agent for this vessel for the last six years and that he supposed he was still the agent.

I would recommend that the regulations be modified so that no agent should be allowed to board a vessel before the quarantine officer. If this is impossible, I would suggest that the collector of customs be directed to take away the custom-house license of the broker for a specified time if he disobeys the law; this would make the brokers more careful, and the quarantine officer would not be annoyed by having persons board vessels who have no right to do so.

Very respectfully,

WM. G. STIMPSON,
Passed Assistant Surgeon, M. H. S

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 29, 1896.

SIR: I have to acknowledge receipt of your letter of the 22d instant, requesting instructions in regard to agents boarding vessels, and in reply have to state that paragraph 4, Article I, page 25, of the regulations quoted by you is considered sufficiently explicit. The two men referred to by you in your letter, Messrs. Rothchild and Bartlett, could not be considered under the circumstances as agents of the vessel; and the case should be reported, should you deem it advisable, to the United States district attorney for his action.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

MEDICAL OFFICER IN COMMAND PORT TOWNSEND QUARANTINE.

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
Port Townsend Quarantine, August 10, 1896.

SIR: I have the honor to forward a copy of a letter to the Surgeon-General of the United States Marine-Hospital Service, complaining about ship brokers violating the United States quarantine regulations by boarding vessels before the inspection by the United States quarantine officer. In his reply, a copy of which I inclose, he directs me, if I should deem it advisable, to report the case to you for prosecution.

The ship brokers at this port have been warned repeatedly, both by myself and the collector of customs, that if they violated the quarantine regulations in this manner the United States district attorney would be informed and they would be prosecuted. In spite of this warning, however, they continue to disobey the law. It is unnecessary for me to call your attention to the bad practice of allowing persons, other than those entitled by law, to board vessels subject to quarantine inspection before the quarantine officer. If there is any sickness on board the vessel they may convey it ashore, as they may board the vessel and return to the city without the quarantine officers being aware that they were on board. If nothing is done, and these ship brokers are allowed to disobey the quarantine regulations without punishment, it will be difficult for me to maintain a quarantine at this port, as other persons will follow their example and the quarantine will then be no quarantine at all.

The collector of customs, upon my suggestion, notified your office of the violation of the quarantine regulations by a number of ship brokers last May, but he informs me he has heard nothing from you in regard to the matter.

Very respectfully,

WM. G. STIMPSON,
Passed Assistant Surgeon, M. H. S.

Judge W. H. BRINKER,
United States District Attorney, Seattle, Wash.

OFFICE OF U. S. ATTORNEY FOR THE DISTRICT OF WASHINGTON,
Seattle, Wash., August 12, 1896.

SIR: I beg leave to acknowledge the receipt of your favor of the 10th instant, inclosing a copy of a letter written by you to the Surgeon-General of the Marine-Hospital Service of the United States and the reply thereto, and also calling my attention to the violation of the United States quarantine regulations by certain ship brokers boarding vessels, before inspection has been made by the United States quarantine officer, and reporting such violation to me for prosecution.

In reply I have to say that I have examined the laws of the United States very carefully, and have been unable to find any law making such conduct an offense, and providing punishment therefor. In the pamphlet entitled Treasury Department, Quarantine Laws and Regulations of the United States, April 26, 1894, on page 25, I find a regulation in these words (section 4): "No person, except the quarantine officer, his employees, United States customs officers, or agents of the vessel, shall be permitted to board any vessel subject to quarantine inspection, until after the vessel has been inspected by the quarantine officer, and given his discharge." This is not a law, but a mere regulation, and, even as a regulation, while prohibitory in its terms, no penalty is prescribed for its violation. It is therefore, except for the purpose of authorizing the quarantine officer to remove any such prohibited persons from such vessel, a dead letter. Even if a penalty

were prescribed for the violation of this regulation, such penalty could only be recovered, if at all, in a civil action. No criminal prosecution could be sustained upon it. It is not in the power of any department to make, by regulation, any act an offense, punishably criminally. This power can only be exercised by Congress in the form of a statute (U. S. *v.* Manion, 44 Fed. Rep., 800; U. S. *v.* Bedgood, 49 Fed. Rep., 54).

I can not, therefore, begin any such prosecution as requested by you.

Very respectfully,

WM. H. BRINKER,
United States Attorney.

WILLIAM G. STIMPSON,
Passed Assistant Surgeon, M. H. S., Port Townsend, Wash.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., August 22, 1896.

SIR: Your letter of the 14th instant, forwarding letter of the United States district attorney, in regard to the prosecution of persons boarding vessels before the quarantine inspector, and asking further instructions on the subject, has been received, and in reply your attention is directed to section 9 of the act of August 2, 1882 (Navigation Laws, 1895, p. 121) and section 4606, Revised Statutes (Navigation Laws, 1895, p. 141). A copy of the Navigation Laws of the United States referred to will be sent to you in a few days. It is thought a prosecution of persons unlawfully boarding vessels might be had under one of these two statutes, both of which have penalties attached.

Respectfully, yours,

WALTER WYMAN,
Surgeon-General, M. H. S.

MEDICAL OFFICER IN COMMAND PORT TOWNSEND QUARANTINE.

CORRESPONDENCE RELATING TO TRESPASS ON QUARANTINE ANCHORAGE.

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
Gulf Quarantine, April 11, 1896.

SIR: I have the honor to report that I have been informed that the tugboat *New York*, of Biloxi, J. B. Roberts, master, violated the quarantine law and regulations by invading the quarantine limits before daylight on the morning of April 3, 1896, and there drawing alongside the bark *Kentigem*, a vessel detained in quarantine.

This was done without my knowledge or consent, if true, and was a deliberate violation of the laws.

This Capt. J. B. Roberts is the same who was proceeded against for a violation of the quarantine at this station February 25, 1895, when master of the *Toiler*.

I have reported the matter to the United States district attorney for the southern district of Mississippi, together with my information. * * *

Very respectfully, yours,

A. C. SMITH,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., April 28, 1896.

SIR: Referring to your letter of the 11th instant, reporting violation of quarantine laws at Gulf Quarantine Station, and mentioning particularly the case of J. B. Roberts, late master of the tug *Toiler*, I inclose for your information herewith copy of a letter from the collector of customs at Shieldsboro, Miss., relative to this case.

Respectfully, yours,

WALTER WYMAN,
Surgeon-General, M. H. S.

MEDICAL OFFICER IN COMMAND,
Gulf Quarantine (via Biloxi, Miss.).

OFFICE OF THE COLLECTOR OF CUSTOMS,
Port of Shieldsboro, Miss., April 22, 1896.

SIR: In reply to your letter of 18th instant asking what action had been taken in pursuance of instructions of March 13, 1895, to prevent violation of quarantine regulation by the tug *Toiler*, I have to say that the matter was reported to Hon. R. C. Lee, United States attorney, who caused the arrest of Captain Roberts of the *Toiler*, and bonded him to appear at the August term of the Federal court at Mississippi City.

The grand jury of that court, after investigation, failed to find a true bill against Roberts and he was released. Since that date no complaints have been received at this office of any further violations of the quarantine regulations in force at the national quarantine station at Ship Island.

Respectfully, yours,

J. H. ESPY,
Special Deputy Collector.

HON. SECRETARY OF THE TREASURY,
Washington, D. C.

CORRESPONDENCE RELATING TO THE FORCIBLE DETENTION OF PERSONS IN QUARANTINE.

OFFICE OF MEDICAL OFFICER IN COMMAND, M. H. S.,
Port Townsend Quarantine, August 24, 1896.

SIR: I have the honor to respectfully inquire if the quarantine officer at a United States quarantine station has the right to forcibly detain in quarantine sailors or other persons who may convey contagious diseases? If such persons in quarantine try to escape, has the quarantine officers the right to place guards around the reservation with instructions to shoot anyone who may try to pass without the quarantine officer's permission; and if such guard should shoot a person trying to escape from quarantine, would the law protect him from imprisonment and punishment?

I have also the honor to inquire what measures should be taken by the quarantine officer if a person in quarantine should escape from the quarantine station?

Very respectfully,

WM. G. STIMPSON,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

DEPARTMENT OF JUSTICE,
OFFICE OF THE SOLICITOR OF THE TREASURY,
Washington, D. C., September 29, 1896.

SIR: I am in receipt of a letter addressed to you through the Supervising Surgeon-General, Marine-Hospital Service, by P. A. Surg. Wm. G. Stimpson, of Port Townsend Quarantine Station, in the State of Washington, relating to question as to force that may legally be employed to apprehend and confine person at quarantine.

The surgeon remarks as follows:

"Has the quarantine officer * * * the right to forcibly detain in quarantine sailors or other persons who may convey contagious diseases? If such persons in quarantine try to escape, has the quarantine officer the right to place guards around the reservation, with instructions to shoot anyone who may try to pass without the quarantine officer's permission?" * * *

The communication above referred to has been submitted by the Surgeon-General, Marine-Hospital Service, for my opinion on the questions stated above.

The acts of Congress bearing on the subject of quarantine contain no provisions relating to the forcible detention of persons at quarantine. This appears to have been left to such laws and regulations as have been, or may be, promulgated by State or local authorities, and such as are provided for in section 3 of an act of Congress approved February 15, 1893 (27 Stat. L., 449.)

Section 3 of that act requires the Surgeon-General of the Marine-Hospital Service, under direction of the Secretary of the Treasury, to cooperate with State boards of health in enforcing their rules, and he is required to execute rules and regulations made by the Secretary to prevent introduction of contagious disease into the United States from foreign countries, or from one State to another, but such rules are not given the force of law except as hereafter mentioned.

Section 1 of the act forbids entry of all vessels from foreign ports without compliance with its provisions and the rules and regulations made by State or municipal health authorities in pursuance of and consistent therewith. Any vessel entering or attempting to enter a port of the United States in violation of this act becomes liable and may be held to satisfy a forfeiture not exceeding $5,000.

This is the only provision in the Federal statutes that imposes a pecuniary or other punishment for a violation of the quarantine laws passed by Congress.

The first question must be answered in the negative, except so far as the right of detention at quarantine is authorized by State and municipal authorities in a manner consistent with the act above referred to.

An officer authorized to make an arrest may use necessary force; may kill, if he can not otherwise take the prisoner, but not unless the offense charged amounts to a felony. (9 Port Ala., 195; 3 Horr., Del., 568; 4 Black Com., 289; 24 Me., 158; 7 Carr & P., 140; 2 Mood & R., 39.)

No attempt to escape from the confines of a quarantine station would amount to a felony, and therefore the second question is also answered in the negative. The letter above referred to is herewith returned.

Very respectfully,

F. A. REEVE,
Solicitor.

The SECRETARY OF THE TREASURY.

QUARANTINE ORDER AFFECTING CERTAIN NATIONAL QUARANTINE STATIONS.

The following order was issued to the medical officers in command of the national quarantine stations at Cape Charles, Va.; Southport,

S. C.; Blackbeard Island, Ga. (South Atlantic Quarantine); Tortugas, Fla., and Ship Island (Gulf Quarantine), Miss.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., June 20, 1896.

SIR: In accordance with paragraph 3, Article X, page 31, Quarantine Laws and Regulations of the United States, 1894, authorizing the Surgeon-General to subject to such additional rules and regulations as may be promulgated from time to time any vessels detained at quarantine, and in response to requests for information concerning the necessity for the disinfection and detention of vessels from ports suspected, but not positively known to be infected with yellow fever, the following order is given for your information and guidance:

During the active quarantine season, May 1 to November 1, all vessels from ports described below, arriving at your station will be detained, and will be treated in accordance with the provisions of Article VIII of the Quarantine Regulations for domestic ports. If any reason appears why this regulation should not be enforced with regard to any special vessel arriving at your port, you will wire the facts, together with your recommendation, to the Bureau for approval.

The ports referred to in the above are as follows: The ports in the West Indies; on the east coast of Mexico, Central and South America, as far south as and including ports on the Rio Plata; ports in Peru, Ecuador, and Colombia; and on west coast of Central America and Mexico.

Respectfully, yours,
WALTER WYMAN,
Supervising Surgeon-General, U. S. M. H. S.

The above order was made necessary by reason of the threatened extension of yellow fever from Cuba to other West Indian and to South American ports, and by want of sufficient information on consular bills of health, and was in keeping with the regulations of most of the State and local quarantines of the South. This order gave an additional feeling of security without imposing special hardship. A number of vessels were admitted without disinfection, on telegraphic recommendation of the medical officers at the stations.

INSPECTION AT REEDY ISLAND QUARANTINE OF FRUIT STEAMERS FROM CUBA, BOUND FOR PHILADELPHIA.

The following correspondence illustrates the care necessary to be exercised by the Bureau in preventing the introduction of yellow fever or smallpox from Cuba at a Northern port where the regulations provided for ports south of the southern boundary of Maryland do not apply:

PHILADELPHIA, PA., *March 2, 1896.*

SIR: Referring to your favor of October 26, 1895, as to permitting certain steamers engaged in the tropical fruit trade to pass up the river without inspection at the national quarantine, we beg to say further that in many cases the provision made by your department for inspecting steamers at the breakwater instead of at Reedy Island will in many cases save the delay about which we have to complain. In other cases, however, the delay is as great as ever. For instance, our ship arriving after sunset at the breakwater, proceeds up the river and arrives off Reedy Island at 1 or 2 o'clock, or even earlier, and is obliged to anchor

and is not passed by the doctor until after 7 o'clock, making her arrival at the wharf 11 or 12 o'clock, and thereby losing a half day of the most valuable time for our business, while if permitted to pass up without inspection she would have been at the dock by 7 o'clock in the morning and give us ample time to have all the ship's business finished and the ship ready to make her return trip the same day. The expenses of this business are so enormous that in order to make it successful we can not keep the vessel in port longer than is absolutely necessary for the discharging of her cargo. We trust that in rendering your decision you will consider that we are only asking for the privilege on steamers carrying fruit exclusively and only from ports in Jamaica; and also that this custom has prevailed for the past several years, and past experience shows that such practice has not been at all prejudicial to the public health, and it renders a very hazardous industry at best more liable to success, which is the great aim of our national legislation.

We have the honor to be, very respectfully, your obedient servants,

SIMPSON & HALDT.

SUPERVISING SURGEON-GENERAL, MARINE-HOSPITAL SERVICE,
Washington, D. C.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., March 14, 1896.

SIRS: Referring to your letter of March 2, requesting that certain steamers engaged in the tropical fruit trade be allowed to pass without inspection at either Delaware Breakwater or Reedy Island Quarantine, I have to inform you that the matter has been duly considered and the request can not be granted. It is believed that, with the advantages of two inspection stations on the Delaware River, all that can be reasonably asked is granted by the Government in the matter of inspection service. It is believed that, with good judgment, fruit steamers may be able to reach one or the other of these stations in time for daylight inspection. In any event it would be unsafe and contrary to law to allow them to go to Philadelphia without inspection.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

Messrs. SIMPSON & HALDT,
No. 420 Library Street, Philadelphia, Pa.

MARINE HOSPITAL SERVICE,
MIDDLE ATLANTIC DISTRICT, SURGEON'S OFFICE,
Port of Reedy Island, July 16, 1896.

SIR: I have the honor to report that of late steam fruit vessels arriving from West Indian ports are carrying a number of refugees as passengers. These persons, for the most part, have been acclimated, but on account of the prevalence of smallpox and yellow fever in Cuba I have thought that a question might arise in regard to the condition of their baggage.

These passengers voluntarily state, as though "prompted," that they are not going south of the port of Baltimore. I respectfully recommend that the agents or owners of these steamers in Philadelphia be cautioned by the Bureau, as the principal business of these vessels is the expeditious transportation of fruit, for which special facilities are granted.

Also, should passengers be carried, they be required to furnish certificates from the United States consular agents nearest to the ports of departure, otherwise that their baggage be subject to disinfection.

Gibara and the Jamaican ports, Antonio, Maria, Marant, and Kingston, are the principal ports of departure and all easily reached from the Island of Cuba.

Very respectfully,

A. H. GLENNAN,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 21, 1896.

SIR: I have to acknowledge the receipt of your letter of July 16, regarding fruit steamers, and quote as follows: "The principal business of these vessels is the expeditious transportation of fruit, for which special facilities are granted." You are requested to inform the Bureau what "special facilities" are referred to.

If vessels from Gibara bring passengers they can not receive the benefits of exception 3, page 26, of the Quarantine Regulations relating to vessels engaged in the fruit trade. If the same vessels are not five days from Gibara on arriving at your station they do not come under the provision of exception 2, page 25, of the Regulations, and are subject, therefore, to detention. You are requested to notify the Bureau whether these vessels are ordinarily five days out from Gibara, and in the meantime you are directed to disinfect the baggage of passengers arriving on these vessels when the said baggage of the passengers comes from a Cuban or other infected or suspected port.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

MEDICAL OFFICER IN COMMAND,
Reedy Island Quarantine (via Port Penn, Del.).

MARINE-HOSPITAL SERVICE,
MIDDLE ATLANTIC DISTRICT, SURGEON'S OFFICE,
Port of Reedy Island, July 23, 1896.

SIR: In reply to Bureau letter of the 21st instant, I have the honor to report that steam fruit vessels from Gibara, Cuba, arrive at this station in a fraction over five days and present clean bills of health. I was under the impression that fruit steamers were represented as not carrying passengers—possibly obtained from Bureau letters of January 4 and 26, February 9, and March 15 and 18, 1895, where these vessels were allowed to pass without inspection when carrying no passengers—and the privilege granted until May 1st of that year. What I feared was that passengers from Cuba might arrive, indirectly, via Jamaican ports and there be some difficulty in ascertaining this fact.

The quarantine regulations and your instructions are strictly observed.

Very respectfully,

A. H. GLENNAN,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE HOSPITAL SERVICE,
Washington, D. C.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 27, 1896.

SIRS: I have to invite your attention to a report from Passed Assistant Surgeon Glennan, in charge of Reedy Island Quarantine, stating that a fruit steamer, the *Gurley*, recently brought passengers from Port Antonio and Port Morant. You are reminded of the proximity of some of these ports with which fruit steamers trade to certain ports in Cuba now infected, and it is suggested that special care should be exercised, as the discovery of a passenger on one of your vessels suffering from infectious disease, or having come from an infected port, would subject the vessel to detention and disinfection.

Respectfully, yours,

WALTER WYMAN,
Surgeon-General, M. H. S.

Messrs. H. R. SCHULTZ & Co.,
420 Library Street, Philadelphia, Pa.

MEASURES TO PREVENT THE INTRODUCTION OF YELLOW FEVER INTO KEY WEST THROUGH CUBAN REFUGEES.

On information received from the State health officer of Florida, the following telegram was sent to the collector of customs at Key West, for the purpose of placing under surveillance refugees from Cuba landing from small boats:

You will take special precautions to prevent introduction of infectious diseases through vessels or individuals that you have good reason to believe have come from Cuban waters. Subject all such to the provisions of Article VIII, pages 29 and 30, Quarantine Regulations, 1894, and wire action in each case. Vessels of this character should be remanded to Tortugas, and persons picked up at sea in open boats, or otherwise seeking to violate the National or State quarantine regulations, should be sent to the same station or placed under surveillance of State quarantine officer.

By direction of Secretary Treasury:

WYMAN, *Surgeon-General, M. H. S.*

OFFICE OF THE COLLECTOR OF CUSTOMS,
Port of Key West, Fla., September 15, 1896.

SIR: I have the honor to acknowledge the receipt of your telegram of September 14.

I would respectfully report that in cases where I have had reason to believe that vessels or persons had come to this port from Cuban waters, I have taken the men into custody and held them until the State quarantine officer had examined them and determined whether or not he would detain them or release them. The most recent case is one that occured on September 9, when six Cubans were seen pulling into Key West in a small boat, supposed to have been landed from a small steamer which had come in from the Gulf and proceeded up to Hawk's Channel without stopping. I sent two inspectors to watch this boat and prevent the landing of the men until the State health authorities had examined them, and then turn them over to immigrant inspector for further examination. This was done, and the men were held until Dr. C. B. Sweeting, the quarantine officer of the State board of health, arrived and ordered the men to proceed to the quarantine buoy, where he held an examination of them and released them.

In view of your telegram, I would respectfully inquire whether you consider that I have the authority to order suspects whom I have good reason to believe are from infected ports to the quarantine station at Tortugas after the quarantine officer of the State board of health has released them.

Very respectfully,

JEFFERSON B. BROWNE,
Collector of Customs.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., October 2, 1896.

SIR: Replying to your letter of the 15th instant, in which you inquire "whether you consider that I have the authority to order suspects whom I have good reason to believe are from infected ports to the quarantine station at Tortugas after the quarantine officer of the State board of health has released them," I have to inform you that my action, as comprised in telegram of September 14 to you, was taken at the request of the State health officer of Florida, and should the State quarantine officer, after inspection, consider suspects free from danger, it is not considered necessary to remand them to the quarantine station at Tortugas.

Respectfully, yours,

WALTER WYMAN,
Surgeon-General, M. H. S.

COLLECTOR OF CUSTOMS, *Key West, Fla.*

PROOF OF IMMUNITY TO YELLOW FEVER.

EXECUTIVE OFFICE,
STATE BOARD OF HEALTH OF FLORIDA,
Jacksonville, Fla., June 18, 1896.

SIR: I would respectfully request an expression of official opinion as to what should constitute sufficient proof of immunity to yellow fever as contained in Article IX, Quarantine Laws and Regulations of the United States.

By reference to my letter of the 13th instant, you will note that I have asked the question, Will a "personal affidavit from the individual himself or herself, unsupported by other corroborative evidence, be considered sufficient proof of immunity." It appears to me that this matter ought to be definitely settled both by the State and United States, and as the State board of health always desires to act in harmony in health protective matters with the Treasury Department, you will oblige me very much by acceding to this request and giving me a definite reply.

Very truly, yours,

JOSEPH Y. PORTER, M. D.,
State Health Officer.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, D. C., June 22, 1896.

SIR: Referring to the subject-matter of your letters of June 13 and 18, I have to state with regard to the specific case mentioned in your letters, namely, the proof of immunity of a steamship captain who seeks employment as captain of the steamer *Mascotte*, plying between Habana, an infected port, and Key West or

Tampa, under the provisions of Article IX of the Regulations, that the Department is of the opinion that a personal affidavit from the captain himself, unsupported by other corroborative evidence, should not be considered sufficient proof of immunity.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

Dr. JOSEPH Y. PORTER,
State Health Officer, Jacksonville, Fla.

DISINFECTION OF BAGGAGE OF ALL CHINESE IMMIGRANTS AT PORTS ON THE PACIFIC COAST.

On account of information received of the prevalence of the plague in China, it was determined to require a disinfection of the baggage of all Chinese immigrants. Telegraphic instructions were therefore sent to all the quarantine ports on the Pacific, and disinfection has been constantly enforced until the present month, when, on account of the more favorable reports concerning the plague, and on recommendation of the quarantine officers, the disinfection has been made subject to the discretion of the quarantine officer. The following correspondence relates to the carrying out of this measure at San Francisco:

MARINE-HOSPITAL SERVICE,
NATIONAL QUARANTINE STATION, SURGEON'S OFFICE,
Angel Island, Cal., May 2, 1896.

DEAR SIRS: I am in receipt of telegram from the Surgeon-General directing me to disinfect the baggage of all Chinese immigrants landing at San Francisco, and I have to respectfully request the cooperation of your board to aid me to carry out this timely precaution. The same order has been issued to the other ports along the coast, and exactly the same measures are being taken at the ports of British Columbia.

I have also the honor to invite the attention of your board to the fact that I am prepared to make a bacteriological diagnosis of suspected cases of plague, cholera, or diphtheria that may come into quarantine, and desire to place my services and my laboratory at your disposal.

Very truly, yours,

M. J. ROSENAU,
Passed Assistant Surgeon, U. S. M. H. S.

The BOARD OF HEALTH,
San Francisco, Cal.

OFFICE OF THE BOARD OF HEALTH,
San Francisco, May 11, 1896.

DEAR SIR: Your letter, dated May 2, 1896, addressed to the board of health was submitted at the meeting of the board held this day, and upon a motion to that effect by Dr. J. M. Williamson, and unanimously carried, the secretary was directed to tender you the thanks of the board for your kind offer and the assurance of their hearty cooperation in the good work that you have mapped out.

Any further suggestions you may address the board will meet with prompt attention.

I am, dear sir, very truly, yours,

EDMOND GODCHAUX,
Secretary.

M. J. ROSENAU,
Passed Assistant Surgeon, U. S. M. H. S., Angel Island.

MARINE-HOSPITAL SERVICE,
NATIONAL QUARANTINE STATION, SURGEON'S OFFICE,
Angel Island, Cal., May 12, 1896.

SIR: Complying with instructions contained in your telegram of the 1st instant, I have the honor to state that the baggage of all Chinese immigrants arriving at San Francisco will be disinfected, by arrangement with the board of health, as per inclosed correspondence.

Very respectfully,

M. J. ROSENAU,
Passed Assistant Surgeon, M. H. S.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C.

CANADIAN COOPERATION IN THE MATTER OF DISINFECTION OF CHINESE LUGGAGE.

The following letter was addressed to the general superintendent of the Canadian quarantines:

WASHINGTON, D. C., *April 24, 1896.*

SIR: You are respectfully informed that Sanitary Inspector Eldridge, Marine-Hospital Service, now stationed at Yokohama, has reported to this Bureau that between January 5, 1896, and March 16 there were in Hongkong 234 cases and 204 deaths from the plague. Passed Assistant Surgeon Arnold, U. S. N., reports a mortality of 95 per cent among cases observed by him. The Straits Settlements (Singapore) have established a quarantine against arrivals from Hongkong February 27, and under date of March 3, 1896, the United States consul at Hongkong reports that that city has been affected with an epidemic of plague.

In view of these facts, it would seem highly important that special measures be taken to prevent the introduction of the disease into the United States and British Columbia, and I have therefore to recommend that all baggage of all Chinese passengers from Hongkong be disinfected before landing, and, in order to secure uniformity and minimize the danger, that instructions be given to this end to all quarantine officers on the Pacific Coast. Should this recommendation meet with your approval, I would suggest that you inform this office by telegraph in order that telegraphic instructions may be given to the quarantine officers at Port Townsend and San Francisco, it being understood that the same instructions will be given by you to the quarantine officers in British Columbia.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General U. S. M. H. S.

Dr. FREDERICK MONTIZAMBERT, F. R. C. S.,
Montreal, Canada.

A favorable response having been received to the above letter, the orders of May 1, heretofore mentioned, were issued, and in response to an inquiry from the United States quarantine officer at Port Townsend, authority was given in the following letter to accept the disinfection of the baggage at the Canadian quarantine at Victoria when properly labeled and certified:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, D. C., May 15, 1896.

SIR: In reply to your letter of the 6th instant, requesting instructions with regard to baggage of Chinese immigrants disinfected by the Canadian Govern-

ment, you are informed that a copy of your letter has been referred to Dr. Frederick Montizambert, general superintendent of Canadian quarantines, with request that the quarantine officers of the Canadian Government in British Columbia be directed to label all disinfected baggage destined for ports in the United States.

In accordance with your recommendation, you are authorized to admit baggage of Chinese immigrants officially labeled as having been disinfected at the Canadian quarantine, reserving the right to redisinfect if for any reason you deem it advisable to do so.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

MEDICAL OFFICER IN COMMAND,
Port Townsend Quarantine.

CONTRIBUTED ARTICLES UPON QUARANTINE ADMINISTRATION.

THE CARE OF FLOATING PROPERTY AT UNITED STATES QUARANTINE STATIONS.

By P. A. Surg. A. H. Glennan.

As a general rule the medical officer, upon his first detail for duty in the quarantine branch of this service, although well equipped professionally, has but a vague knowledge of the care and management of steam vessels, naphtha launches, and small boats. This knowledge is obtained in the course of time, often after much trial and tribulation.

Having had considerable practical work at the Reedy Island Quarantine Station in the altering, repair, and fitting out of a number of vessels and barges for this and transfer to other stations, I have thought that a few desultory notes might be of help in this matter.

STEAM VESSELS—DISCIPLINE.

The pilot is held directly responsible for the discipline and care of the floating property on board. Requests for shore leave are first made to him and afterwards to the medical officer, if stationed on board. He is provided with a small whistle, which, with one, two, or three calls, is promptly answered by the deck hand or attendent so designated. In this way the old tugboat system of giving a short steam whistle and all hands dropping other work and scrambling forward to see what is wanted is done away with and confusion and loss of time avoided.

Regular watches should be maintained at night, the time divided up between the crew, and the striking of the ship's bells rigidly enforced. This prevents sleeping while upon this duty, and at the expiration of the watch the next relief is called. This has been found more satisfactory than if one man maintained the whole watch, and his services are not lost during the day. The greater number of accidents to tugboats by fire and sinking will be found to have occurred while they are tied up at night. Not long ago a deck hand connected the fresh-water hose to a vessel's tank, went ashore, and, as a watch was not customary, the overflow sank the boat, drowning one or two of the crew. The sea cock is also sometimes left open accidentally.

EQUIPMENT.

Cork fenders and rubber draw buckets are expensive and unnecessary. Good canvas painted buckets, rope mats, and rope ring fenders can be made by the crew from old material on hand, and green tough wood hanging fenders are better than the dry oak ones, which split and crack under very little pressure.

A small supply of ship chandlery should be constantly on hand, such as paint material, sperm, cylinder, and lard oils, black and spar varnish, canvas, mooring lines, engine and blacksmith tools, rattling, assorted rope, etc., and these articles are best obtained on the annual contract, in small quantities, as required.

A uniform white color above the water line, with the guard faced black, and straw-colored smokestack, is best adapted and distinctive for quarantine vessels, and with a little daily care are no trouble to keep clean. Concentrated lye should not be issued to the deck hands; ordinary soap and water with very little washing soda is sufficient, with a small quantity of Putz pomade for the brass work.

A painted deck, of a lead or any other color, is only an excuse for a lack of cleanliness. A clear wood deck, well calked with lead and putty, appears better, requires holystoning by the crew only once or twice a year, and is easily kept in shapely condition. At this station all the painting from the water line up has been done by the crew. The best materials in white lead, zinc, drier, oils, turpentine, and varnishes are obtained, then smooth coats laid on, after burning and scraping the wood and iron work, if required; and the best results are thus obtained at a minimum expense. The smokestack may be given a straw color, with lead, a little oil, drier, and yellow ocher, to suit.

A good permanent white coating, for use on barges and rough woodwork, where paint would be more expensive, is as follows: Slack one-half bushel of lime in boiling water; keep covered; strain. Add 1 peck salt dissolved in water, 3 pounds rice boiled to a paste, and 1 pound of clear glue dissolved in water.

This mixture does not rub off or scale, and may be colored with yellow ocher or lampblack.

As a general rule, the hull should be scraped and painted once a year, or oftener when stationed in very salt water. Tying up or anchoring, if possible, in or near fresh water, will prevent fouling with barnacles and "whiskers." A number of patent paints are used upon the hull to prevent this fouling, but are no better than good red oxide paint, two coats, which wears as well and is less expensive.

ENGINEER'S DEPARTMENT.

I have found the use of bituminous preferable to anthracite coal for steam purposes on the steamers *Foster*, *Pasteur*, and *Woodworth*.

The change was first objected to on account of the cleaner handling of the hard coal, but a little care equalizes this. Steam is more quickly obtained after the fires are banked; burning out the grate bars, etc., is lessened, besides a saving of 40 per cent in the cost of the coal, which is a considerable matter.

I might add that this saving in the cost of the coal upon the *Pasteur* alone has paid for all the alterations and current repairs, extension of cabin, etc., which were made in converting her to an efficient inspection steamer.

With a competent engineer and pilot, breakdowns and mishaps should not happen often, and the wear and tear of the machinery are very little if constantly observed and cared for.

VESSELS OUT OF COMMISSION.

A vessel placed out of commission and improperly laid up receives more damage in a short time than if running steadily for two years. This has been experienced at this station, when a vessel ordered for temporary service arrived with little steam power and most of her floating property transferred or missing; another coming with a foot of water in her hold and 10 pounds of steam, afterwards blowing a hole in her boiler. These conditions are avoidable. When a steamer is ordered out of commission the engineer and one or two hands should be retained for a day or two to stow away and place everything in good condition for prompt service. The boiler should be blown out, tanks emptied, and pipes bled; the bright, exposed parts of the machinery and brass work leaded or coated with a special preparation to prevent rust; the tubes, fire box, and ash pit swept out; condition of steam tubes, grate bars, etc., noted; a small supply of coal left in the bunkers, and a check list of all the property filed away. If all this is properly attended to and the vessel receives ordinary attention from the watchman, a rapid fitting for service on short notice can be made should an emergency arise.

LAUNCHES.

The same rules apply to naphtha and steam launches, which with ordinary care, such as oiling, keeping the packing well fitted, and safe housing or anchorage, should be of very little expense for repairs aside from the wear and tear incident to service. The hulls can be cleaned when required, by the station force, by careful beaching at the proper run of the tides, the woodwork spar varnished, and deck canvas covered, laced taut, to prevent marring.

SMALL BOATS.

A good boat for general use in all sorts of seas and weather is a clinker-built cedar boat, New York Yacht Club model, bright finish, oiled, with length, beam, and draft to suit the waters in which it

is to be used. Its equipment would be two or more sets of oars, leather covered, brass oar locks, boat hook, tiller ropes, yoke, and small staff for ensign. The patent oar locks are more expensive, and are not found to possess any special advantages over the side or top-plate locks. A boat of this kind, 14 feet in length, has been in constant use for over two years, requiring drying out, calking, and painting occasionally. One 16 feet in length was also built and shipped to the Southport quarantine station.

The wooden boat is found superior to the metal boat, if properly cared for, except for some special local reasons, such as for making through floes of ice, beaching on a gritty shore, etc.

BATEAUX.

Bateaux can be readily built of any desired size by the station force for carrying light freight and rough usage. Three have been constructed at this station by an attendant, with his first experience at this work.

Double-dressed clear white pine boards seven-eighths inch are best, with oak stem and stern pieces, joints leaded and calked, galvanized-iron oar locks, and bottom copper painted.

In the winter season these boats are sheathed forward along the sides and bottom with ordinary tin, to prvent cutting by the ice, and placed upon wooden strip runners. Ice hooks (designed by the writer and made by a blacksmith), with 6-inch points and prongs, fitted into pole handles, are used to navigate over and through fields of ice acres in extent. This is required to keep up communication between the "disinfecting pier," island, and mainland, and is an exciting, if not always a pleasant, experience.

MANAGEMENT OF NATIONAL QUARANTINE STATIONS AND INTERPRETATION OF TREASURY REGULATIONS.

[Letter of instructions.]

TREASURY DEPARTMENT,
OFFICE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., April 15, 1896.

SIR: You are directed to prepare a handbook of quarantine for the use of officers in the quarantine service. This book will embrace two main divisions—the first relating to the details of management of a quarantine station, the second relating to the interpretation of the quarantine laws and regulations. Under the head of management of the station will be included—

1. *Inspection of vessels.* Under this head will be given all the details connected with the thorough inspection of a vessel, both at a

southern and at a northern port; the precautions which are necessary to prevent deception on the part of the master; the muster of the crew and passengers; the examination of the ship's papers; how to board, etc.

2. *Cleaning and disinfection of vessels.* Give all details in connection therewith.

3. *The treatment of the sick with contagious disease.* This involves the removal of the sick from the ship and care of sick in hospital. Any special precautions necessary, either for the benefit of the patient or for the protection of those who are attending him or who may be exposed to the disease by him.

4. *The management of suspects.* This involves the removal of the suspects from the vessel, their management in barracks or in camps.

5. *The care of the station.* (*a*) *Vessels:* Attention is called to this heading. The handbook should include a statement as to the proper management of a quarantine steamer, showing the best method of enforcing discipline thereon. The pilot should be considered captain, and should be responsible to the medical officer for the entire condition of the vessel. The engineer should report to the pilot (?). The quartermaster and all the other attendants should also report to the pilot. Reports should be made every day of the several departments of the vessel and handed to the medical officer in command. Rules should be prescribed for the management of the crew, and special rules should be prepared for the care of machinery and boiler. It is recommended that the regulations of the Revenue-Cutter Service be examined in this connection. A log book should be required to be kept after the manner of revenue-cutter vessels. Recommendation should be made as to frequency of scraping and painting and general repairs. (*b*) *Buildings and grounds:* Rules necessary for keeping same in order. (*c*) *Disinfecting machinery:* Rules for operating same, for preventing accident, and for keeping same in prime condition should be made.

6. *Personnel of station.* (*a*) Medical officers; (*b*) hospital stewards; (*c*) number of attendants and the allotment of their duties. The relations of the medical officers, hospital stewards, number of attendants, and the allotment of their duties should be plain.

There are various details connected with the management of a quarantine station which are best known to the officers who have had actual experience. For example, the best method for preparing a bichloride of mercury solution for use; the best method of discharging ballast; when to use the ships' crew, and when not; the practical working of the steam disinfecting chamber and sulphur-fumigating furnace. All these details should be mentioned. Also the care necessary in having a vessel come alongside of the wharf, lest injury should be done to the wharf or to the vessel.

The second part of the book will consist of a summarizing of the

regulations. Of necessity the regulations are arranged as at present published, but in a handbook it is believed that an index might be made, which would enable the medical officer more readily to find the regulations covering a doubtful case. It is suggested that the handbook refer to the various diseases seriatim for which a vessel is put in quarantine, and the action to be taken when each specific disease is discovered or suspected. It should be definitely stated when a vessel is to be placed in quarantine, and what shall be done with the vessel under all circumstances after being placed in quarantine. One chapter should be devoted to bills of health, and it should be made plain what course is to be pursued in case the vessel comes without a bill of health. It is suggested that the records of the Bureau for the last three years be searched with a view to reviewing the doubtful cases which have been referred, either by telegraph or by letter, to the Bureau, and the decisions of the Bureau, either quoted in extenso or statements be made embracing these decisions.

The above outline is furnished as simply giving an idea of the character of the handbook as desired by the Bureau. In preparing the same you will not be restricted, either in arrangement or in the matter to be inserted, to the items above mentioned.

A valuable aid in the work to be accomplished will be the text-book article on quarantine in Rohés Hygiene, reports of the Marine-Hospital Service, and the quarantine and immigration regulations.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

P. A. Surg. H. D. GEDDINGS,
Marine-Hospital Service, Washington, D. C.

NOTE.—The medical officer should know how much is allotted to his station for expenditure during the year, and should keep within the allotment.

A PRECIS OF QUARANTINE PRACTICE AT NATIONAL QUARANTINE STATIONS.

[Prepared under the direction of the Supervising Surgeon-General, M. H. S., by H. D. GEDDINGS, passed assistant surgeon, M. H. S.]

CHAPTER I.

FORMER LACK OF UNIFORMITY OF PRACTICE AT QUARANTINE STATIONS—ORIGIN OF THE PRESENT QUARANTINE REGULATIONS.

Until within the past few years there was a woeful lack of uniformity and apparent system in the methods obtaining at the various ports of entry in the United States; indeed it is only in the past three years that any effort has been made to systematize such practice, and in spite of the best endeavor diversity still exists and is productive of

confusion and complaint. There had previously been a certain uniformity of practice at the national quarantines, and acting under the terms of the quarantine law of February 15, 1893, there was prepared, under the direction of the Supervising Surgeon-General, M. H. S., a code of regulations for the government of national quarantines which it was ordered under the provisions of that law should be considered a minimum requirement at all ports and quarantines, State and municipal, of the country.

These regulations satisfactorily filled for a time the object for which they were drawn, but there were found some minor points which it was considered advisable to revise, and this led to the promulgation and enforcement of what are now known as the quarantine regulations of 1894, which, modified in a few particulars by Department circulars, are still in force and are giving more and more satisfaction as they become more thoroughly understood and appreciated. But the questions which have arisen in their enforcement have demonstrated the fact that in the administration of quarantine there are points which are not and can not be covered by regulations, and the solution of which must be left to the judgment of the individual quarantine officer or must be settled by appeal to the Bureau.

The decisions of the Bureau become matters of record for the individual station and officer, but, unless of sufficient importance to cause the publication of a circular, may not become matters of general information for some time. Therefore, until the officer in command of a national quarantine station becomes hardened by long service, he may be in doubt as to a given procedure—whether it will meet the approval of the Bureau, and, too, whether it may not subject himself to the criticism of State officials who are not always friendly and cordial, but are too prone to be captious, critical, and unjust. To solve the question, therefore, how to enforce the regulations and how to obtain the best results under their provisions is the main object and end of this article. With this apology, therefore, the subject will be at once taken up, and first in logical sequence comes the question of the boarding and inspection of vessels.

CHAPTER II.

METHOD OF BOARDING AND INSPECTING—DECEPTIONS PRACTICED BY SHIPMASTERS.

Here it is to be remarked that the regulations should be literally followed as to boarding without delay; that is, the vessel should be boarded and the inspection made with the least possible loss of time. For this reason it is well to have a definite and well-defined system of lookout for the arrival of vessels, and the fact of such arrival should be reported to the medical officer in person, by messenger or telephone, as most convenient or expeditious. The station should always

be prepared for the boarding of any vessel arriving during the hours specified in the regulations, viz, between sunrise and sunset. Much valuable information as to the expected arrival of vessels at a given port or quarantine station can sometimes be derived from pilots, who are generally informed in advance by the agents of the expected vessel. It is of course not to be understood that vessels are to be boarded at once, regardless of the condition of wind and weather. To insist upon this plan would be often to unnecessarily jeopardize the lives of the quarantine officer and his boat crew, and in the event of the prevalence of a gale of wind or a dangerously heavy sea, the inspection will of course be delayed. Should this be decided to be necessary, it is well to apprise the waiting vessel of the fact by signal, and for this purpose the International Code of Signals should be used, first hoisting the code pennant and the national ensign of the vessel, and on answer being made, then hoist the flags for the sentence "Can not board until wind and sea go down," or some other appropriate signal selected from the code book. It is needless, therefore, to say that every quarantine station should be provided with the International Code of Signals, the code book, and a set of the ensigns of the principal powers of the world.

HOW TO BOARD.

It having been determined to board, the boarding steamer—naphtha launch or other boarding boat—is manned, and for the proper effect produced it is most decidedly advised that the officer and crew be uniformed as provided for by regulations. In the matter of getting on board it is advised that, wind and sea permitting, the officer should board over the starboard side, for the reason that the starboard gangway is limited to the use of officers and visitors, and it is not advisable that the quarantine officer should cheapen himself by putting up with accommodations inferior to those provided for anyone else. Of course, in the event of the prevalence of a heavy wind and sea these points of etiquette must be waived and the vessel boarded from the lee side.

FIRST PROCEDURES AFTER BOARDING.

Having arrived on board, it is well to at once inquire for the master and to invite his presence. A few general and informal inquiries as to port of departure, length of passage, health of all on board at the time and during the voyage, port of destination, etc., may now be made and the character of the replies borne in mind for comparison with the replies to the formal interrogatories made in filling out the blanks in the boarding book. It sometimes happens that in an unguarded moment information of considerable importance will be let slip which it will be almost impossible to extract under the more formal conditions.

SHIP'S PAPERS.

The ship's papers are now to be looked into—clearances; manifests, with their lists of stores; ship's copies of bills of lading and consular certificates as to articles of cargo, if there be any; and, lastly, the crew lists, if the vessel is required to have any, and the consular bills of health. The sanitary condition of the port of departure should be carefully noted as described in this document and its statements compared with the information received through the "Public Health Reports" and the master's own informal statements. Carefully examine into the number of passengers and crew carried. Inquire into any cases of sickness on the voyage, their nature, duration, and termination; and if the latter have been fatal, investigate the entries in the official log concerning them.

MUSTER OF ALL HANDS.

Then proceeding to the deck, require a muster of all hands, passengers and crew, called for by the various ship's documents. The number of officers, the number of crew, and the total number on board must correspond to those given in the bill of health, or satisfactory explanation be given. Personally see every person called for by the papers; if from a suspicious port scrutinize their appearance carefully and cause any presenting signs of illness or recent convalescence to stand aside for further examination, which examination, by the way, should be held apart, to remove the subject from the influence of the proximity and criticisms of the master or other interested parties. Instances have too frequently occurred where seamen actually ill were compelled by the master to stand up and attend muster, in some instances being dragged out of bed for the purpose. Much information of more or less value, too, may be derived from the cross-examination of other officers of the ship, and from questioning the crew, if such questioning is indulged in with discretion as to time and place. It is essential that no one borne on the papers of the ship as either passenger or one of the crew should be excused from this muster. In the case of steamships it is often the case that one, two, or three will be absent, and inquiry will reveal the fact that they are members of the engine or fire room force, one or more of whom are required by the navigation laws of most nations to be on duty during the whole time that the vessel is under steam. In this event have these relieved temporarily by others of the force, taking care that the same individual does not descend one ladder or companion way and mount another and present himself as the desired individual. This trick has been tried, and it is feared has in some instances succeeded. The muster and inspection of passengers, especially if in any considerable number, present special features, and is accompanied by difficulties all its own, and increasing in geometrical proportion with the number of the same.

At the best, the deck of a vessel is a comparatively small space, and to muster 500 or 600 persons—men women, and children—not all of the highest order of intelligence, often totally ignorant of the language in which they are addressed by the boarding officer, is a task at once difficult and calling for all the tact at his disposal. Fortunately, by the present immigration law the steerage passengers are divided and manifested into small groups, and each individual bears a card setting forth his or her point of departure, port of embarkation, record of sanitary inspection daily on the voyage, vaccination, etc. By causing the passengers to pass slowly, in single file in front of the boarding officer, holding these cards ready for scrutiny, an apparently Herculean task is reduced to one of quite ordinary dimensions. All presenting appearances of disease, of recent convalescence or of any condition regarded as suspicious should be stood aside for more careful examination, their cards being taken up as a means of identification, and to prevent them being substituted for by more healthy and robust individuals. Care should also be exercised that in making the muster of passengers, the same individuals are not counted more than once through the connivance or by the dictation of the ship's officers. The law requires that all ships carrying immigrants in excess of a given number, shall also carry a medical officer, and that this medical officer shall keep and submit for the information of the quarantine officer a clinical record of all cases treated in the ship's hospital during the voyage. It is well to demand a sight of these records, for while the keeping of them may be evaded, or a clinical history be falsified, their existence proves that there were cases of disease on board which it was deemed advisable and safest to isolate in hospital. Scrutinize these passengers most carefully and get from them if possible a description of their complaint, its onset, course, and symptoms. It may as well be said outright here, what has been intimated in the above, that there will be often a persistent effort made to deceive the quarantine officer at the port of arrival, every effort and often threats being used to induce the ship's surgeon to falsify the records, in order to obtain a quick and easy passage through quarantine. Unfortunately, deception is the rule, and frank, manly dealing the exception, in the dealing of shipmasters with health authorities.

INSPECTION OF SHIP.

The personnel of the ship having undergone this scrutiny, the ship in turn is to be then thoroughly inspected in all parts, the condition of the cabins, steerages, forecastle, storerooms, and empty holds is to be ascertained by personal observation. If the vessel is loaded, the hatches should be removed and the portions of cargo immediately under them should be subjected to scrutiny, to determine their character and condition. If the vessel carry passengers, the hold containing the baggage should be opened and entered if possible, in order to

see if the regulation concerning the inspection and labeling of baggage, if from a suspected or infected port, has been observed. All baggage inspected should bear a red label, and all disinfected a yellow one, and if any of these yellow labels are found inquiry should at once be made as to the person or persons performing the disinfection, and the methods employed. More recent information than that furnished by the bill of health will then settle the question as to whether this disinfection shall be accepted or whether the process is to be repeated at the station at the port of arrival. The same information will also determine whether baggage for which inspection was deemed sufficient at the date of departure should or should not at the date of arrival be subjected to the requirements of rigid disinfection by approved modern methods. The hand baggage of the steerage passengers and the dunnage and bedding of the crew must receive careful attention. Unfortunately, the law does not provide and does not confer the power upon the quarantine officer to detain and disinfect a vessel simply and solely by reason of filth and general bad sanitary conditions, for, were this the case, the necessity for disinfection would arise much oftener than it does. It is only in the event of the arrival of vessels in bad sanitary condition and from suspected or actually infected ports that disinfection can be practiced, and this solely as a protection to the general health of the country and the prevention of the introduction and spread of contagious and infectious diseases. It may be said in general terms that there will be found few vessels of any nationality where the habitat and surroundings of the crew are not in a far from sanitary condition, and in many instances ranging in degree from this mildly stated case to a degree of foulness, filthiness, and general unsanitary condition which simply beggars description, and which must be seen to be believed. International comparisons are perhaps odious and out of place, but it may be said in a general way that possibly Spanish and Italian vessels, especially if engaged in the wine and general trade with the United States, will usually be found in the most filthy and worst sanitary condition, though it is but fair to say that but few of any nationality will be found in anything approaching an ideal shape. The general results of observation may be stated as follows: American vessels, fair to very good; British, from very poor to a high degree of excellence in some cases, averaging fairly; Norwegian and Swedish, usually fair, with a few vessels occasionally reaching a picturesque degree of cleanliness in living apartments. Many vessels of these nationalities are, however, very old, rotten, and consequently damp, and only hold together and make successful voyages by the very high degree of maritime skill and devotion to duty displayed by their personnel—officers and crews. German vessels will average fairly, but with a tendency to filth in places which do not readily meet the eye, and the forecastles are apt to be overcrowded and ill ventilated. Spanish vessels usually

carry what seems to the American mind extravagantly large crews, who are crowded into rather small forecastles, rendered still more noxious by personal neglect and other racial characteristics. The cabins often rise to a high degree of neatness, good order, and care. Portuguese and Italian vessels also usually carry large crews, who are, as a rule, careless and indifferent; the vessels themselves are often old and damp, and the combination results in a condition of affairs that once seen will long dwell in the memory of the quarantine officer.

BALLAST.

The inspection of an empty ship or of one in ballast is apt to be a tedious and arduous business, especially if said ship is from an infected or suspected port. Take first the case of the ship in ballast. The bill of health will sometimes, the manifest often, give the nature and origin of the ballast; but this is not to be relied on. Ballast should consist of hard rock, clean sand taken from a shore where it is constantly submerged by a considerable depth of sea water, or, what is sometimes found in steamships, sea water carried in special ballast tanks. Too often, however, it is composed in whole or in part of earth or loam, sand from municipal excavations, or the street sweepings of a possibly infected city, and in some instances of rubbish and refuse of all kinds and descriptions. An instance is recalled of a vessel arriving from Habana with bad sanitary history and having on board a convalescent from yellow fever. The ballast was described on the manifest as "white stone," a well-known Habana ballast. Actual observation during the operation of discharge revealed the following items in quantity so great as to preclude the possibility of accidental occurrence: Broken tiles and plaster, portions of broken laths and other pieces of wood and timber, evidently from a demolished building; rags, very soiled and filthy; bones, recent and dried; straw, apparently from the bedding of animals in stables; the droppings of horses and other animals, and numerous other articles whose advanced stage of decomposition rendered identification impossible. Inquiry should be therefore made not only into the character but the source of the ballast in every case, and the character of the ballast be also determined by personal inspection. Every accessible part of the ship should be subjected to scrutiny when the arrival is from an infected or suspicious port, or when the sanitary history during the voyage is not perfectly satisfactory.

INSPECTION OF THE HOLD.

Inspection of the holds will show the general condition as to care and cleanliness, the nature of the cargo last carried, whether there is much or little decayed and wet wood in the ceiling and timbers exposed to view, whether or not there are abundant air streaks provided in the ceiling, and whether or not these are kept open or closed by their shutters or other pieces of planking; whether the bilges are

clean and bear evidence of recent flushing and cleaning, the character of the bilge water, whether offensive or not, and also whether any dunnage wood, matting, fuel—either coal or wood—is stored in the hold, and whether the whole hold has been carefully cleaned or only swept in a perfunctory manner and the dirt and rubbish disposed in the spaces along the keelson and in the frame spaces. Certain contracted spaces fore and aft and in the run are apt to be neglected, and it is not uncommon to find refuse in these localities in a more or less decomposed condition. The chain lockers, if in the forward part of the hold, should also be examined to see whether or not the cables have been washed free of mud prior to stowing, for the reason that the mud of the harbor of Habana is believed to be dangerous and capable of conveying the infection of yellow fever. The general condition of the hold as to ventilation should be noted, and for this purpose the sense of smell forms a fair guide, and inquiry should be made as to whether aeration has been practiced by means of a wind sail or other mechanical appliance. If there is cargo in the holds, of course the inspection thereof must be limited to such portions as come immediately under the hatches, note being made of any disagreeable odors or emanations arising.

INSPECTION OF FORECASTLE AND CABIN.

The forecastle and other living apartments of the crew must be carefully inspected, the general condition of cleanliness or signs of any recent attempt to clean up being noted, whether there are accumulations of dirt and filth under the bunks, the condition of the bedding, whether wet clothing is hung upon the walls or stowed away in the bunks, and generally any conditions noted which would affect injuriously the sanitary condition of the occupants. The water-closet or other toilet conveniences should be scrutinized, and the fore peak, usually used as a place of storage for sails, cordage, and deck supplies, should be looked into. The galley and the provision storeroom also should be the subjects of inspection and inquiry. Next in order, the cabins should be visited and note made of their condition as to cleanliness, ventilation, and good order. A portion of the cabin which is sometimes the repository of considerable filth is the cabin pantry and storeroom, and this, as well as the cabin water-closet, should be carefully looked into. The matter of the inspection of vessels has been thus particularly and minutely detailed for the reason that a ship affords innumerable places for the lodgment of dirt and rubbish, and is difficult of access in its remote parts to the uninitiated. Nor is it to be understood that an inspection of such minuteness of detail will be required of every vessel arriving at a quarantine station; it is only in the case of vessels infected, suspected of infection, or arriving from a port infected or suspected of infection, by reason of its geographical situation, that such will be demanded.

DISPOSITION OF VESSEL AFTER INSPECTION.

The inspection completed, the disposition of the vessel must now be settled. If, from a careful study of the conditions and history, it be determined that disinfection and detention are not needed in the particular case, the certificate of discharge setting forth the fact of "inspected and passed" is filled out and the vessel allowed to proceed. If, however, it be decided that disinfection is necessary, the vessel is directed to the disinfection wharf, or to a proper anchorage, as circumstances require, and from this time to the time when she is discharged is under the full control of the quarantine officer, for he alone will be held responsible for any damage arising to the public health through her instrumentality. Therefore first be careful of the anchorage of infected vessels, and see that they are not anchored too close to noninfected ones which may be lying in the quarantine grounds awaiting orders, or to vessels which, having undergone disinfection, are waiting for their period of detention to elapse. Here, too, it is to be noted that there must sometimes be an understanding with local quarantine officials as to the passing of vessels with a simple inspection. Certain Southern ports require disinfection of all vessels arriving from certain latitudes, viz, latitude 23° 30′ north to 10° south, between May 1 and November 1 of each year; some others require disinfection of all vessels arriving from certain ports, notably Habana, Santos, and Rio de Janeiro, throughout the entire year. The national regulations being simply a minimum requirement, such regulations are perfectly within the law, and national authorities being required also to cooperate with State and municipal authorities, in these cases the rules for the government of national quarantines must be exceeded and the vessels treated according to the sanitary requirements of her port of destination, however unnecessary it may at times seem to the officer in command of a national station. In addition, such a course will have the important effect of preserving harmony and proving that the interests of the individual port are looked after at the national stations.

The above it is believed sufficiently covers the inspection of vessels, a subject of the utmost importance, and one at the same time peculiarly difficult to handle in the abstract. Its importance will readily be appreciated when it is remembered that no matter how rigid and efficient may be the treatment of a vessel detained in quarantine, the passing of one on insufficient grounds may and probably will be productive of great harm. Therefore let the inspection be rigid, erring, if at all, on the side of overcaution and care.

CHAPTER III.

CLEANING AND DISINFECTION OF VESSELS.

CLASSIFICATION OF VESSELS.

In the consideration of this subject, vessels will be divided into the following classes for convenience and because the treatment of each

class differs in important particulars: (1) Vessels empty or in ballast; (2) vessels with cargo, and each will be treated under the subheadings: (*a*) Wooden vessels; (*b*) iron vessels, which latter subdivision is made for the reason that it will be shown later that the methods for wooden and iron ships have little in common except the general principles involved.

PRINCIPLES INVOLVED IN DISINFECTION.

The rationale of cleansing and disinfection depends upon the fact, in the first place, that for countless ages tradition has assigned to dirt and filth, and especially to organic matter undergoing the process of decomposition, an important place in the production of diseases, especially those of an epidemic or pestilential character. At this time it is not necessary to mention this theory save to say that in the present stage of our knowledge it is extremely problematical whether any disease ever arose from this source alone, but experience does tend to prove that in the warmth, moisture, and presence of organic matter associated with decay pathogenic germs do find a habitat most favorable to their growth and multiplication. To remove, then, this favorable nidus is the object of this mechanical cleaning; to inhibit the process of growth and multiplication is the object of disinfection, which process can best be defined perhaps as the practical application of agents found to be germicidal in laboratory experiment and having the power, if not of rendering an object absolutely sterile, of at least inhibiting the growth of any pathogenic bacteria with which we are acquainted. Therefore cleansing and disinfection go hand in hand, the one supplementing the other, the disinfection accomplishing what is left undone by the cleaning.

For the sake of convenience, therefore, we will take the case of a wooden vessel in ballast first, then proceed to the consideration of an iron vessel empty or in ballast, and reserve for the last the case of a vessel of either wood or iron with cargo, which are comparatively rare at national quarantine stations.

DISINFECTION OF A WOODEN VESSEL IN BALLAST.

The disinfection of this class of vessels presents many difficulties, and is probably the crucial test of the efficiency of the practice at any quarantine station, nor is this difficult to account for. As has been previously stated, the ballast is in itself a very possible vehicle of infection, and the vessels are in themselves damp, with more or less rotten wood, and many inaccessible places which are difficult to reach by germicidal agents, either liquid or gaseous.

Treatment of ballast.

Let us first consider the treatment of the ballast itself, and a brief review of the nature and kinds of ballast presenting themselves at

stations will not be uninteresting. From Habana comes a stone ballast which is so frequently seen as to be familiarly known as "Habana white rock," a fairly dense rather friable white stone, obtained from quarries in the immediate vicinity of that city. When unmixed with other stuff, it makes a fairly good ballast, but too often it is contaminated with what is known as sand, which is partly sand but largely rubbish, and often of a nature previously described in this article. It is needless to say that such ballast is of the most dangerous description. From Rio the principal ballast is a hard dense granite or micaceous gneiss, which is easy to handle and leaves comparatively little detritus. Colon sends us the worst possible rock ballast, it consisting of a species of coral rock, very porous, very dirty in itself, and making a very dirty ship. In addition to these various kinds of rock, we have earths and sands of various sources of origin, all more or less dangerous, all difficult to handle, and all tending to make a dirty ship during the various processes of disinfection. With these preliminary remarks, then, it may be stated that in vessels from an infected port the ballast is in itself a distinct source of danger, and it is highly probable that many of the cases of yellow fever occurring at quarantine stations and at least some of the epidemics of the disease in Southern cities (Savannah) have originated from this source. Therefore it is advised that whenever there is reasonable ground for suspicion that the vessel is infected, the preliminary disinfection prescribed by paragraph 2, Article VIII, should be performed, and indeed the impression is growing in the minds of some that this preliminary disinfection should be a matter of routine in all cases before subjecting the crew of the vessel and the personnel of the station to the danger of handling possibly infected ballast in the confined atmosphere of a ship's hold. The best way of performing this disinfection will depend on the nature of the ballast and other conditions too numerous to mention. If the ballast is of rock, loosely piled and with not too much fine stuff filling up the interstices, a fumigation of the hold with sulphur dioxide with exposure of from twenty-four to thirty-six hours will probably be sufficient. If the interstices of the mass are filled with the fine stuff, the fumigation should be followed by a drenching of all accessible portions of the pile with the solution of mercuric chloride 1 : 800 or 1 : 1000. There is ample reason for believing that this preliminary work will reduce the risk to those handling the ballast and exposed in the hold at least 75 per cent. After this process, or first in order if it be deemed unnecessary, comes the discharge of ballast; for it is a rule with almost all Southern ports that ballast from an infected port shall not be allowed to enter. This rule is insisted upon at Savannah, Ga., and all Florida ports. Charleston admits ballast if it has been disinfected by "dipping," and the same rule obtains in some of the ports of Alabama, Mississippi, Louisiana, and Texas.

Discharging ballast.

There are many methods of discharging ballast, and no reasonable comparison can be drawn between them, for the reason that what is an ideal method at one station would be impracticable at another. In general, it may be stated that there should be a steam hoisting apparatus with iron ballast tubs, these being emptied into a car capable of dumping through the bottom or at the side, and the ballast carried on a track and either dumped on a pile or thrown overboard in such a situation that it will be submerged. It is believed that if the ballast is kept exposed on a dump it should always be disinfected prior to discharge. But now comes a most tedious and trying operation.

Dipping ballast.

Few vessels are so constructed that they can stand up with all their ballast removed; consequently ballast must be provided to take the place of that discharged, or some portion of the original ballast must be allowed to remain. It goes without saying that if the ballast is supplied it must be from an undoubted source, or that what is left must be subjected to a process of known efficiency as to disinfection, leaving nothing to chance. Inquiry of the master will always reveal how much ballast he needs to feel safe, and arrangements must be made to leave him this quantity. In discharging the ballast, therefore, it is well to entirely clear out one part of the hold sufficiently large to accommodate the specified quantity of ballast. As the process of discharging goes on, it is well to trim into this space all the best and largest pieces of rock, which should be trimmed into one or more piles according to quantity, and this is allowed to remain, all the rest being discharged. The hold is now washed out with a hose and water and mechanical cleanliness is effected by means of brooms, mops, etc. Tubs of solution of bichloride of mercury, 1:800, rendered acid with muriatic acid in the proportion of 2 of acid to 1 of mercury, are then provided, and into this solution each individual piece of the rock is dipped and submerged. On removing it from the tubs it is trimmed into the position it is to occupy, either under the hatches in a heap, in the run of the ship alongside of the keelson, or in the wings of the hold, as the fancy of the master or the build of the vessel may require. This is the so-called and much abused "dipping" process, and this constitutes what is spoken of in quarantine parlance as "dipped ballast." The process is undeniably slow, troublesome, and apparently unnecessarily minute; but is it so in reality? The object of subjecting the ballast to a disinfecting or sterilizing process is to make sure of the fact that if it was infected such infection was destroyed by the process, and in no other way than submersion can this object be attained. Careful experiment with wetting the ballast by means of a hose has demonstrated the fact that the liquid as applied soon establishes for itself definite channels throughout the mass, and that portions of the pile

remote from these channels are touched lightly, if at all. If there is any danger in ballast—and the mass of evidence is in favor of the view that there is—then every part of it must be reached to render it safe, and the only process apart from the dipping would be to immerse it in situ, a process at once wasteful of the solution, carrying large quantities of fine stuff into the bilges and limbers of the ship, and when completed accomplishing no more than the process of dipping.

Sulphur fumigation.

The ballast being disposed of and all that is allowed to remain on board having been dipped, the ship is now ready for the fumigation with sulphur dioxide, required by the regulations to be in the strength of 10 per cent volume, with forty-eight hours' exposure.

To obtain this percentage of gas a furnace of special construction is necessary, or the gas must be liberated from its liquified form, in which latter case the quantity must be 2 pounds for every pound of sulphur required. All quarantine stations being equipped with a sulphur furnace, that method will alone be considered here. To produce the 10 per cent volume of gas required demands the combustion of 10¼ pounds of sulphur to 1,000 cubic feet. On account of the irregular shape of the hold of a vessel, it is a difficult matter to make measurements to determine the cubic capacity of a hold; therefore the following method is given as effecting practically correct results in cases where the vessel has only one hold, or holds communicating with each other. A ton can be reckoned at about 40 cubic feet; therefore there are 25 tons to every 1,000 cubic feet. The net tonnage of the vessel as indicated by her register will show the cubic capacity of her cargo-carrying space, the gross tonnage will show the total cubic capacity, and the difference between the two will give the capacity of the spaces devoted to living apartments, galley, storeroom, etc. The ship being in one hold, or in communicating holds, as is usually the case with wooden vessels, the quantity of sulphur needed in a given case can be easily determined. The sulphur furnace is prepared by having a small fire built in each of its fire boxes, which is continued until the sulphur pans become sufficiently hot to ignite sulphur, a small lump of which is thrown in from time to time, and when this degree of heat is reached, the fires can be allowed to go down, as the combustion of the sulphur will be continued by the heat produced by its combination with atmospheric oxygen. The charge of sulphur, or as much of it as the pans will hold without danger of overflowing, is then introduced into the pans, and the small engine which drives the exhaust fan connected with the furnace is started, slowly at first, and more rapidly as the combustion becomes fully set up. But here let it be said that the operation of the sulphur furnace is usually given too little care; the fan is run altogether too fast, and the result is a large portion of the sulphur is sublimed and carried over, the furnace overheated, and pipes and

hose rapidly destroyed. With the usual double-ended pattern of furnace and the No. 4 "Monogram" pattern of fan furnished, the governor of the engine should be set to allow not more than 350 to 400 revolutions of the fan per minute, and while the temptation is great to run it faster and get through with the combustion of the given quantity of sulphur in the shortest possible space of time, still it is urgently recommended that a summary example be made of any employee who is found exceeding these limits. Care, too, should be paid to the admission of air through the dampers provided for the purpose. Only enough air should be admitted to keep the sulphur burning with a low blue flame, as any more admitted only means that an unnecessary draft is being maintained and molten sulphur carried over to be sublimed on cooling. The furnace being in operation, the gas is conveyed into the hold by means of the iron or rubber pipes provided for the purpose. It is believed to be good practice to carry the conducting pipe well below the level of the hatchway through which it is led and to leave as few vents as possible for the escape of the confined air of the hold. So soon as sulphur dioxide in good volume escapes from these vents they should all be closed and every opening sealed as tightly as possible save the one carrying the sulphur pipe. The operation of the fan should be continued until all the sulphur is consumed, and the last opening should then be closed as tightly as the rest. The hold is kept closed for forty-eight and in some cases for as much as seventy-two hours, not that such prolonged contact with germicidal agents is deemed necessary for any known or suspected organism, but to permit and encourage the thorough diffusion of the gas. The question of the fumigation of the cabin and forecastle presents difficulties altogether out of proportion to the size of the spaces and other conditions, for the reason that the regulations only require 6 per cent volume of gas and twenty-four hours' exposure. Six per cent is a little more than can be obtained by the combustion of sulphur in pots, and the introduction of the sulphur hose into these spaces is attended with considerable difficulty. If, as is often the case, there is a small scuttle in the cabin floor leading into the hold, the fumigation of the cabin is easily provided for by leaving this open, and it can usually be closed without much difficulty after the lapse of twenty-four hours, though with the hold full of sulphur dioxide for a day longer the cabin is seldom habitable. For the forecastle we must either introduce the sulphur pipe or trust to pots, burning a full quantity and closing all orifices with great care. It is well to seal all openings, to be certain that they are not opened without authorization before the lapse of the required time.

Application of bichloride solution.

The next step in the disinfection is the application of the solution of mercuric chloride. For this purpose the hold should be opened and

thoroughly aerated by means of a wind sail, or left open, though this will occasion a loss of time. The fumes of sulphur dioxide being removed, the bichloride hose is stretched and carried into the hold, and the solution, in the strength of 1:800, is thoroughly applied to all surfaces. There are two methods of applying the solution, one from an elevated tank by force of gravity, the other by means of a pump, either steam or hand. The pump method is infinitely preferable, and the steam pump to the hand one, for the working of the hand pump is hard work, and this is liable to lead to a slighting of this most important process. It is decidedly advised that every quarantine station be provided with a steam pump for bichloride solution, having an iron water end to prevent amalgamation, with a suction pipe of 2 inches and a discharge outlet of not less than 1½ inches, with 1½ inch hose, and nozzles capable of throwing a heavy spray or a solid stream of not less than one-half inch diameter. The patented appliance now on the market under the name of the "ball" nozzle will probably play an important part in disinfection when its value is fully known. It is recommended that the spray be used on large, flat surfaces and that it be changed to the solid stream in the angles of deck beams, in corners, to penetrate cracks in the inner sheathing, and, in general terms, to wash out confined spots. The pump is preferable to the gravity method for the reason that the stream has so much more force that it penetrates much more deeply into cracks and crevices, and drives before it any foreign substances that may have effected lodgment there. The quantity of solution used should be large; it is impossible to say how much, for a large quantity should be run into the bilge and allowed to remain there in the hope that by the rolling of the ship it will spread to a considerable distance in the dead space between the inner and outer planking.

Steam disinfection of clothing.

Next in order comes the steaming of bedding, clothing, and all fabrics aboard the ship. Nothing should be excepted from this process, for it is believed that in the dunnage of crews and the baggage of passengers lies most of the danger of the transmission of contagious and infectious disease. All wearing apparel, curtains, carpets, bedding, and mattresses should be carried ashore and put into the steam chamber. After everything is reported ashore, one or more of the employees of the station should be sent through the ship on a still hunt, the result of which is often the bringing to light of a further stock of goods, the suppression of which was probably due as much to accident as design. The steam chamber should be so arranged that the two ends are practically in different apartments, and in one of these the goods should be put into the chamber and unloaded in the other. This will prevent any possibility of contamination to the disinfected articles by passing over the spot traversed by the infected

ones. Should the chamber have only one door, the floor in front of it should be washed down with the bichloride hose after the goods are disposed in their places in the chamber. The chamber being loaded and the doors secured, the jacket should now be warmed up by the admission of steam until a temperature of 70° to 80° C. is reached, the object being to bring the articles to a temperature at which the live steam admitted will not be condensed and saturate the fabrics, not only damaging them, but also preventing the further penetration of the steam. Next the vacuum apparatus is put in operation until a vacuum of 10 to 15 inches in the interior of the chamber is indicated by the gauge. If a vacuum pump is used for the purpose, this will be a matter of considerable time, varying with the size and speed of the pump; with a vacuum jet apparatus the desired vacuum will be obtained in from a half minute to one minute. The object of producing a vacuum is to remove the greater part of the contained air from the chamber and the contained fabrics, and thus expedite the penetration and circulation of the steam, and to prevent the formation of dead spaces in the chamber in which the temperature corresponding to the pressure of the steam admitted can not be obtained by many degrees. As soon, then, as the desired vacuum is produced the steam is admitted into the interior of the chamber until a pressure of 7 to 10 pounds is indicated by the gauge instead of the vacuum. When this pressure and temperature are reached the drip or blow-off cocks are opened, and the circulation of steam is maintained for at least thirty minutes, the direction of its flow being varied, if the construction of the chamber permits, by closing the bottom and opening the top steam inlets, or vice versa, until it is reasonably certain that, aided by the vacuum, every part and portion of charge of the chamber has been in contact with live steam for the required time. Then the steam is shut off from the inside of the chamber, the temperature is maintained in the jacket, and the vacuum is again applied, and the jacket kept warm for ten to fifteen minutes, acting as a drying closet for the articles which may have been wet by condensation. The chamber is now opened, the car run out, and if the chamber is of approved construction and the process has been carefully carried out the articles will be found dry and too hot to be handled until they have been exposed for a few minutes to the air. A few details of practice as to the steaming process will not be out of place. It is well to make a separate process of the property of the forecastle and the cabin. This may be a prejudice, but is in the main a justifiable one when the dunnage of the average crew has once been seen, and but little time is lost thereby. Again, it is well to give distinct notice that articles of leather, gutta-percha, or rubber will be ruined by the steam, and must on no account be put into the chamber, and that this caution extends even to hats, which will be distorted by the action of the

steam on the leather bands. The articles, too, must be spread out, not necessarily in a single layer, but as thinly as circumstances will permit.

Bathing of crew.

Everything about the ship and crew may now be considered as reasonably sterile, with the exception of the clothing worn by the crew while the process of steaming has been in progress. These are now removed and put into the steam chamber, and while they are undergoing the disinfecting process the entire crew are required to take a bath, preferably with warm water, always with soap, and with the addition of an antiseptic if cholera is suspected or is the disease which is being quarantined against. By the time the bath is completed the sterilization of the removed clothing will be completed, and it can be resumed, or new garments from the disinfected dunnage donned. A word on the subject of the baths. A rain or shower bath is preferable for quarantine purposes to a tub bath, being quicker, certainly as efficient, and requires less water, which is an item if the water for the baths has to be specially heated. Nothing now remains to be done but to subject the boots and shoes, rubber and oil cloth clothing, and the containers, as trunks and chests, to a washing with an antiseptic solution—bichloride of mercury, 1:1000, or carbolic acid, 3 per cent, either of which can best be applied by means of a hose or a large watering or sprinkling pot with a fine rose.

DISINFECTION OF AN IRON VESSEL, EMPTY OR IN BALLAST.

The disinfection of these vessels, while depending upon the same general principles as those of wood, presents some few points of difference which will now be briefly dwelt upon. Some few sailing vessels are built of iron, and it may be said perhaps that their number is slightly increasing; certainly they are met with more frequently now at quarantine stations than they were ten years ago. They are usually of good size, are as a rule rather sharply built, and therefore carry large quantities of ballast, to the handling of which the general rules as given in the case of the wooden vessels fully apply. The main point of difference in the treatment of the iron vessel is that the washing down with the bichloride solution may precede the fumigation with sulphur dioxide. This is not an arbitrary ruling, but depends upon the following cause: Experiment both in the laboratory and in actual practice at various quarantine stations has demonstrated the fact that the sulphur dioxide will not penetrate into a crack or small orifice if such crack is protected or sealed by a comparatively thin layer of water. Now, in the wooden vessel there are two distinct sheathings or layers of planking, between which there is a space, usually damp, sometimes containing much rotten wood, and frequently the receptacle for more

or less dirt and rubbish; consequently a dangerous space from a quarantine point of view. Nothing of the kind obtains in an iron ship. While there is some inside sheathing, it is usually the iron plates of the hull which form the inside walls of the holds and cargo spaces. There is little or no dead space, and certainly no cracks or crevices in the iron sheathing. In the case of the wooden vessel the cracks filled by the solution of bichloride would have been rendered practically impervious to the gaseous sulphor dioxide, and it is on the gaseous disinfectant that we principally rely for disinfecting inaccessible localities. Hence it is that in the regulations there is a distinction made in the order of procedure in the case of iron and wooden vessels. In the iron ship, therefore, let the processes come in the following order: Washing and mechanical cleansing; washing down with bichloride solution; fumigation with sulphur dioxide, and sterilization of clothing, bedding, and fabrics by steam.

Iron steamships—"tramps."

Another class of iron vessels arriving at quarantine stations, and annually increasing in number, are cargo steamships usually and colloquially designated as "tramps," to distinguish them from passenger steamships and regular liners. These vessels present some points of interest to the quarantine officer. They are usually of foreign register, principally English, though German, Spanish, and French are not wanting. They usually carry small crews, and even these crews are not all sailors in the ordinary acceptation of the term, but laborers and cargo handlers. They are run on the most economical scale possible, and delay to them at quarantines is a most serious matter, a detention of a few days sometimes consuming all the prospective profits of a long voyage. Consequently the masters of such vessels are, as a rule, grumblers and growlers of the highest order, and, to put it very mildly, are prone to deceit. Therefore all of their statements as to antecedents and incidents on voyage are to be carefully scrutinized and thoroughly corroborated. The vessels are usually of good size, some very large, are usually empty on arrival, with holds in a fair degree of cleanliness, but with forecastles in the very reverse condition. They usually carry water as ballast, stowed in special tanks in the run of the vessel, and the only suspicion as to the ballast is that it may be the water from a possibly or positively infected harbor. It is therefore suggested that as a rule they be required to empty these ballast tanks upon arrival at the station and replace the water discharged with sea water, and pump this out, and then to again refill and pump out. As there is no communication between the ballast tanks and those for the engine room and drinking water, a safe degree of cleanliness is thus obtained, even in vessels arriving from ports where cholera prevails.

Precautions as to pumping ballast.

A point in this connection must here be noted, however, and that is that this pumping of possibly contaminated water ballast must not be allowed in fresh-water streams, which may possibly form the water supply of cities and towns upon their banks, but that the pumping must be done upon or near the open sea. During the seasons of 1893 and 1894, when cholera was scattered throughout Europe, vessels arriving at the Delaware Breakwater Quarantine were required to pump their ballast beyond the Capes of the Delaware, being sent to sea for the purpose, and one of the station force being sent along to witness the process.

Peculiarities in construction of iron steamships.

These ships are usually built in three, four, or more distinct non-communicating holds, and here it is necessary to compute the cubic capacity of each and allot to them the necessary quantity of sulphur to comply with the 10 per cent of the regulations. The bilges are usually easily accessible for cleaning, consisting usually of an iron trough or channel on either side of the keelson, leading to the bilge pumps, which are situated in the engine-room compartment amidships. Access to them is obtained usually by lifting certain plank covers in each hold.

DISINFECTION OF VESSELS ARRIVING WITH CARGO.

Ships arriving with cargo are fortunately rare at the national quarantine stations, though during the course of the year a good many are seen at the Mississippi River station. Their management calls for no particular notice, save to say that it consists usually of coffee or sugar in bags. The vessels are usually loaded with a shaft or tunnel under each hatchway leading from the upper tiers of cargo down to the keelson. Into these the sulphur pipes are led, and the gas thus conducted through the cargo. The washing with bichloride solution is, of course, omitted, but in all other particulars the treatment of the vessel is as indicated above.

Dangerous cargoes.

During the past five years there have been several arrivals at quarantine stations of vessels carrying cargoes of rags, bones, and scrap iron from Habana, a cargo highly dangerous and certainly very offensive. These have been handled by opening up a shaft under each hatchway reaching to the keelson and disinfecting by sulphur through these channels. The cargo removed in making these shafts was transferred to a lighter alongside and thoroughly drenched with the bichloride solution. It is hoped that the expense incurred in thus handling these few cargoes will prevent their arrival in any large number, as their disinfection must at best be an unsatisfactory matter.

Detention of vessels.

The disinfection of the vessel having been completed, she is now to be directed to the anchorage which she is to occupy during her period of detention. During this period she should be visited each day and a muster made of all hands to ascertain their condition of health. If the period of detention passes without any outbreak, at its conclusion the proper discharge from quarantine is given and the vessel passes on to her port of destination. In the event of the occurrence of any infectious or contagious disease, the forecastle or cabin is again disinfected by sulphur or bichloride or carbolic solution, and all clothing and bedding again steamed. In this case the detention begins anew from the completion of the process, the last possible period of infection.

While it is not believed that every minute point in the inspection and disinfection of a vessel is covered in the above, still it is thought that enough has been said to elucidate the principles governing such procedures, and the rest must be a matter of routine practice, varying according to the station and the peculiar conditions always pertaining to it.

PREPARATION OF BICHLORIDE SOLUTION.

A few words may not be amiss here as to the best methods of preparing the solution of bichloride of mercury. The salt is of somewhat difficult solubility in cold water, much more freely so, of course, in hot, and the solubility in cold water is much increased by the presence of certain salts, notably the chlorides, and especially the chlorides of ammonium or sodium. It therefore follows that it is much more soluble in sea than in fresh water, or if fresh water is necessarily used the chlorides should be added in the proportion in which they are present in sea water, about 30 per 1,000, or 3 per cent. With frequent stirring and agitation this rapidly effects solution. It has been found of advantage to reduce the bichloride to rather fine powder and to place it in a box, keg, or other receptacle perforated with fine holes and suspended over the tank in which the solution is made and stored. The necessary amount of water is then pumped over it, and by the constant percolation the solution is effected without the necessity for agitation.

CHAPTER IV.

REMOVAL FROM VESSELS OF THOSE SICK WITH CONTAGIOUS DISEASES—METHODS OF REMOVAL—PRECAUTIONS IN THE MANAGEMENT OF INFECTIOUS HOSPITALS.

It may be laid down as a general rule that any or all persons suffering from a contagious or infectious disease upon the arrival of a vessel in quarantine, or who may develop such disease at any time during the detention of a vessel in quarantine, shall, as soon as possible, be removed to hospital, not only for the prevention of the further

spread of the disease, but because the chances of recovery are better in the commodious and well-ventilated ward of a hospital than in the confined quarters of a vessel.

CIRCUMSTANCES WHICH MAY FORBID REMOVAL.

There may be circumstances which would render it inadvisable to remove a patient, viz, it would be prejudicial to remove a patient during the second stage or so-called "stage of calm" of yellow fever; or a cholera patient during the stage of collapse; or a smallpox patient in inclement, rainy weather during the fever of eruption, but in these cases good judgment and humanity must decide and no hard-and-fast rules can be laid down. The advice is therefore reiterated to remove all patients as soon as possible. The methods of removal must depend somewhat upon circumstances and upon the disease from which he is suffering. To remove a patient, helpless from disease, from a vessel by means of a small boat to a hospital more or less distant is always a matter of difficulty, sometimes of danger, and will tax the ingenuity of the medical officer to the utmost. Should the attack be discovered in the incipiency, should the weather be calm and all circumstances propitious, the patient may be gotten down an ordinary gangway ladder, assisted by the quarantine employees, but should at once be made to lie down upon a litter or bed, previously prepared, and arriving at the hospital should be raised on this litter or bed, borne in, and at once put into the bed which he is to occupy. The boat carrying the patient should preferably be towed by the naphtha or steam launch, rather than be propelled by the oars, though one attendant should remain in the towed boat to carefully steer it in the wake of the launch and prevent it being moved around violently by sudden changes of course. But should the patient be prostrated, or should there be any considerable sea on, the problem becomes a much more difficult one. Then the patient must be lowered from the vessel into the boat, an operation always fraught with more or less terror for the patient and uneasiness for all who witness it. A careful study of many appliances devised for the purpose leads to the conviction that possibly the "hammock litter" devised by Medical Director Albert H. Gihon, U. S. N., possesses features of distinct value over all others, and that one or more of these apparatus should form part of the armamentarium of every quarantine station. In brief, the apparatus consists of a piece of canvas about 6 feet 4 inches in length by 2 feet 6 inches in width, hemmed along the long edges to permit the introduction of bearing poles, which are kept apart at the head and foot by stretchers either secured by lashings or by some simple mechanical device. A pillow of small size is attached to the head of the cot so as to be always at hand when wanted. A broad canvas band is secured by one of its ends to one of the long sides of the canvas, the other end being furnished with ties to secure it over the chest of the patient. Similar but smaller bands pass over

and secure the ankles, and still another pair, disposed diagonally, are used as perineal bands and hold fast the thighs and buttocks. By clews and cringles the whole apparatus may be suspended and then lowered with the patient in either a recumbent, reclining, or upright position. The proper bed clothing and blankets sufficient to prevent chilling, should be spread and secured by light lashings. Simple as this may sound it is an ordeal calculated to try the nerves of the stoutest patient, and the fright and discomfort may be far-reaching in their effects.

The acting assistant surgeon at South Atlantic Quarantine once removed a patient seriously ill with yellow fever from a steamship by a method which may not be new, but mention of which has never been met with in print. The patient on his cot was placed on the thwarts of one of the ship's quarter boats, the boat lowered from the davits, and then towed ashore. The plan is recommended where the boats are easily lowered as they are on a steamship. Secured as they usually are on a sailing vessel, it would be impracticable.

MANAGEMENT OF QUARANTINE (INFECTIOUS) HOSPITALS.

A word as to the management of quarantine hospital management. All quarantine employees should be protected against smallpox by vaccination; all should, if possible, be immune to yellow fever, but two at least should be absolutely immune, and these should be chosen for their fitness as nurses and detailed for such duty.

Certain facts should be impressed upon the minds of all quarantine employees, viz, that vaccination is almost a sure preventive of smallpox, and that if a vaccinated individual succumbs his attack will probably be a mild one; that a previous well-authenticated attack of yellow fever is almost a certain safeguard against another; that the infection of cholera is contained in the dejecta and vomited matters of the patient, and that if care is taken not to convey these to the mouth through the medium of hands soiled by them there is little danger of infection, and that the virulence of the contagion of typhus fever is much diminished by abundant dilution with fresh pure air.

There should be no visiting of the hospital permitted, and in its management and running strict nonintercourse with the rest of the station should be observed. All necessary supplies should be deposited at a distance of 100 to 200 yards from the building, and then carried in by the hospital force. Messages, requisitions, etc., should be in writing and deposited in the same place, and no personal intercourse, social gossip, or intercommunication be allowed between the nurses and the remainder of the station force. In fact, the hospital should be quarantined against by the rest of the station. As a matter of routine, all alvine discharges and vomited matters should be disinfected by bichloride of mercury or carbolic acid solutions, and all soiled clothing, bedding, etc., should be saturated in the same solutions and allowed to dry before being sent to the laundry.

In the matter of the treatment of the patients it is needless to say that they should be made as comfortable as possible, being immediately undressed on admission to hospital, receiving a sponge bath if their condition permits it, clad in hospital clothing and put into freshly made beds, with all the comforts possible to be given them. Their special diets should, if possible, be prepared in the hospital kitchen, and in the management of such a hospital, as in any other, ice should not be regarded as a luxury, but as a necessity, and should be provided without stint if possible. In spite of some unfortunate experiences in this direction, it is hardly a question as to whether every quarantine station should not be provided with a small ice-making machine.

In an article of this character it is not deemed expedient to enter into the therapeutic treatment of the quarantinable diseases, as cholera, smallpox, yellow fever, and typhus fever, consequently nothing will be said on these topics.

CHAPTER V.

THE REMOVAL OF SUSPECTS FROM VESSELS—THEIR MANAGEMENT AND TREATMENT IN CAMPS AND BARRACKS.

This subject becomes one of vital importance at those quarantine stations which are situated near the large ports of entry of the United States, where, in addition to a large commerce, there are almost daily arrivals of vessels with large numbers of passengers, a large number in the first-cabin accommodations of such vessels, but by far the larger number in the second-cabin and steerage apartments, mostly foreigners and constituting, in a few words, the immigrants seeking our shores. The principal ports of entry of this class of passengers are the ports of New York, Boston, and Philadelphia, by far the larger number arriving at the port of New York—in all probability at least 80 per cent of the entire number. Arrivals of immigrants at the Southern ports are few in number and far between, there being at this time no regular line of steam vessels making the carrying of such a class of passengers a special feature of their business. A very large proportion of these immigrants are also of European origin. A few lines of steamships bring a small number of passengers from South American and West Indian ports, but these are, almost without exception, of the better and wealthier classes, arrive almost exclusively at the port of New York, and cut but little figure in the consideration of quarantine as influenced by immigration or passenger traffic. From the standpoint of the national quarantine regulations, therefore, the principal dangers arise from cholera when that disease is scattered broadcast throughout Europe, as it was in the years 1893–94, from smallpox at almost all times, but especially during the winter months, and occasionally from typhus fever. The subject of the removal of suspects, therefore, is to be considered principally

as it interests the quarantine officer in dealing with passenger steamships with reference, generally, to the two diseases cholera and smallpox, and practically has little of interest for Southern quarantine stations, where every effort is usually bent to the detection and exclusion of yellow fever, with an incidental but quite subsidiary lookout for smallpox. This is indeed fortunate, for the difficulties at stations dealing largely with commerce in sailing vessels and cargo steamers would be vastly increased were there added the removal, isolation, and supervision of suspects in camps and barracks. The reason for this is not hard to find. Sailing vessels and the cargo steamships, as has been previously stated in this article, are as a rule manned by only sufficient crew to comply with the laws of the nation under which they are registered, or to be barely capable of working the vessel on the basis of sound physical condition in all hands. The masters of such vessels would bitterly resent and oppose any proposition looking to the reduction of their already small force by the removal of any part of them from the vessel for the purposes of observation, and, were it insisted upon, would fix upon the quarantine officer the blame for any accident or incident which might happen to their vessels during their stay in quarantine. Therefore, paragraph 1, Article VIII, United States Quarantine Laws and Regulations, has been construed to apply only to passengers in requiring the removal and isolation of all persons not required for the care of the vessel, it being generally impracticable, as has been said above, to spare the services of any of the crew.

OBSERVATION OF SUSPECTS ON BOARD VESSELS.

Under these circumstances, therefore, the best that can be done is to allow the entire crew to remain on board the vessel pending the outbreak of any disease among them. As previously stated, there should be a muster and inspection every day of the crews of all vessels remaining in quarantine, and on this we must depend for the detection of all cases of infectious or contagious disease. If upon one of these inspections a man presents himself complaining of feeling sick, or who presents suspicious appearances to the quarantine officer, this man should at once be taken under supervision and either isolated in a remote part of the ship or, what is decidedly better, at once removed to an isolated building or tent for observation. If, after the requisite time for such observation, a diagnosis of contagious or infectious disease is arrived at, he should at once be removed to the infectious hospital, the observation building or tent thoroughly disinfected, and the bedding used by the subject sterilized, or, if the complaint proves a trifling one from a quarantine point of view, he should receive appropriate medical treatment, and on recovery be returned to duty on board ship. This process is simple, but it is usually effective, and is probably the very best that can be done under the

circumstances. But the case is far different when a case of infectious or contagious disease makes its appearance upon a vessel carrying hundreds or, as sometimes happens, over a thousand passengers. Here, even under ideal conditions of shipboard accommodation, there is much crowding; it is almost impossible to enforce the isolation of the sick from the well; panic and demoralization soon make their appearance, and humanity no less than policy demands that the persons exposed to the infection be removed to better conditions of accommodation, ventilation, and out of sight of scenes of horror and terror.

THE MANAGEMENT OF SUSPECTS IN CAMPS OR BARRACKS.

Paragraph 4 of the preamble of the regulations to be observed at the ports of the United States recites at length the equipment of a complete quarantine station, and mention is made of apparatus for disinfection by steam, by sulphur, by disinfecting solutions; hospitals for contagious and doubtful cases, detention barracks for suspects, bathing facilities, a crematory, and an abundant supply of good water. For the subject upon which we are now about to enter, all of these are necessary, the only item admitting of substitution being tents or a camp for the barracks in case of emergency. Example being better than precept, let it be supposed that a steamship with between 700 and 800 passengers should arrive at one of the quarantine stations, having on board at the time of arrival, or having had on board during the voyage, a sufficient number of cases of infectious or contagious disease to prove that the said contagion or infection is more or less scattered throughout the whole steerage. There are a certain number of sick in the ship's hospital; the occupants of one of the compartments of the ship have certainly been exposed to infection; the occupants of others in all probability have been more or less exposed. The occasion is one demanding prompt action. In the first instance, at once remove the sick with the contagious disease to the contagious hospital; those sick with any complaint whatever, to the suspect hospital, pending decision on their cases. Then the occupants of the compartments in which the disease first made its appearance are to be removed from the ship, with such baggage as is found in their apartments, carried ashore, stripped, the clothing which they had on disinfected in the steam chamber, marked and tagged, and its place supplied for the time being from the stock of simple, plain clothing for men and women which is at all times carried as a part of the outfit of the station. While the process of disinfection of clothing is in progress, each individual is taken to the bath house and there receives a warm shower bath with soap, with or without the addition of a germicide, as may seem necessary. Bathed and clothed in garments known to be free from infection, they are now conducted to the barracks, the sexes being placed in separate buildings, and the

number in each section of the barracks not being allowed to exceed 30 to 40, according to the plan of construction. As rapidly as possible, this process is repeated for every compartment of the ship until she is emptied of her human freight and these collected under one roof, but in small groups, under good sanitary conditions, under constant supervision, and indiscriminate mingling prevented. If the disease be smallpox, general vaccination is of course at once practiced, but apart from this and in a few other particulars the management of this disease and of cholera would be conducted on the same general lines. Let us look into the routine for a day. The kitchen is fully equipped with the most approved apparatus for cooking for the large number of inmates of the barracks. Plain but substantial meals are served at stated hours. The mess hall is provided with a number of tables, each seating the occupants of one section of the barracks. The food is placed on the tables and the portions served out in tableware capable of complete sterilization by boiling water. The meal finished, the inmates of each section of barracks return to them, and their places are taken by others, until in a comparatively short space of time the whole number are served with a full meal. Care is to be taken that nothing is removed from the table and taken away into the barracks for consumption between meals. This is a most important point, and should be carefully scrutinized, no scruples being felt in exercising the right of search, if thought necessary. At 8 o'clock a. m. a medical inspection of the whole station is made. The suspect hospital is visited, and cases which have declared themselves since the last visit are removed to the infectious hospital; those convalescent from simple ailments are either treated, remanded to barracks, or allowed to remain, as may seem best for them. The barracks are visited, and every occupant is scrutinized while he or she is standing in place. All presenting suspicious symptoms are remanded to the suspect hospital; no one sick is allowed to remain in the barracks. The latrines are inspected to see that every receptacle contains a solution of carbolic acid, chloride of lime, or a sufficient quantity of milk of lime. These receptacles are to be removed and emptied into a common sewer as fast as they fill to the level of the disinfecting solution, and their place at once taken by others with a fresh charge of the germicide. The kitchen and mess hall are visited to see that everything is in scrupulously good condition, that the food for the next meal is being properly prepared, and that flies are kept out of the kitchen and mess halls by screens at the windows. The guards are instructed to report to the medical officer every person who visits the latrines oftener than twice a day, and to see that the floors and seats of these are not soiled by urinary or fecal evacuations. Should he find such to be the case, he shall promptly close that compartment and notify the employees who have the matter in charge, who will at once clean up and mop the floor and seat with a

strong germicidal solution. The guards will also be cautioned to see that the drinking water is kept free from contamination, that it is consumed while the person drawing it is standing near the drinking-water receptacle, and not carried into or kept uncovered in the barracks, and that positively no washing or laundry work is done, save in the station laundry, and that only by the authorized parties. Mingling of the groups from separate sections of the barracks is not to be tolerated, and the parties offending are to be promptly brought to the attention of the medical officer. No hesitation must be shown in ordering those offending incorrigibly in any particular into light confinement, for the discipline of the station must be preserved, and any infractions might result disastrously. At noon dinner is served in the same manner as indicated above, the same precautions being observed at every meal. At 4 p. m. another general inspection of the whole station is made by the medical officer. At 5 p. m. supper is served. On the approach of darkness the lamps and lanterns are lit by the attendants designated for the purpose, and after lamplight all inmates must confine themselves to their quarters, only leaving them for absolutely necessary purposes, and returning as soon as possible. At 9 p. m. all must retire for the night. At 9.15 p. m. all lights, save one burning dimly in each apartment, will be extinguished, and from this time until daylight each section must be visited hourly by the guards, and anyone found sick must be promptly reported to the medical officer, who shall at once investigate the case. At midnight a final visit should be made to the hospitals, both suspect and infectious, for the purpose of receiving reports and observing the performance of duty by the night attendants.

A study of the above will show that there is practically no part of the twenty-four hours during which the entire station and every inmate is not under constant surveillance, and such a system, modified to suit conditions, must soon bring order out of chaos. Some of the precautions named above might not be necessary if smallpox were the disease under observation, as the disinfection of all discharges, the precautions as to drinking water and food in the barracks, the supervision of the latrines, etc., but it is thought that full precautions in all conditions will make the station more efficient for all emergencies, and would increase the ease of administration by establishing a routine which was not to be departed from, save in the event of special instructions being given to that effect. The bodies of all persons dying of the infectious diseases should be cremated; but if this is impracticable, they should be deeply buried, surrounded by caustic lime.

At the expiration of five days all groups in which no outbreak has occurred may be discharged, after disinfection of clothing and personal effects, if they have been detained on account of cholera; after fourteen days, if for smallpox.

TREATMENT OF VESSEL AFTER REMOVAL OF SUSPECTS.

To now return to the vessel, the treatment of whose passengers has been dwelt upon at length. She should be treated on the general principles which have been laid down in a former portion of this article. If she be detained for smallpox, disinfection of the hold will in general be unnecessary, but all the passenger apartments should be thoroughly disinfected with sulphur dioxide and bichloride solution; all clothing, bedding, and fabrics of every description by steam. If cholera be the cause of detention, not only should these processes be applied to all passenger compartments of the ship, but the holds should be disinfected by means of sulphur dioxide after the manner described for ships with cargo, that portion of the cargo necessarily discharged being placed on lighters and receiving a surface disinfection by means of the bichloride or carbolic-acid solutions. Upon a cholera ship also the water tanks should be given a thorough disinfection, either by steam or by a solution of potassium permanganate. In the event of the former method being chosen, steam from the boilers of the ship should be conducted into the tanks until the whole mass of water is raised nearly to the boiling point. The water should then be thoroughly pumped out, the tanks filled from a source of undoubted purity, again pumped out, and then refilled. Should this method prove inapplicable, it is suggested that the tanks be emptied and then filled completely with a solution of potassium permanganate of not less than 2 per cent strength, which, after being allowed to remain in contact for twenty-four hours, is then to be emptied, the tanks rinsed with water of known purity, and then refilled.

After thorough disinfection of the ship in the manner and by the methods above detailed it will not be necessary that she should await for the final developments in the case of her passengers, for this might prolong her detention indefinitely. So soon as it can be established that the vessel, through the means of her cargo and crew, is not liable to convey the infection of any of the quarantinable diseases she should be discharged in free pratique and the passengers detained for such a time as will give like assurances in their case.

CHAPTER VI.

CARE AND MANAGEMENT OF QUARANTINE STATIONS—MANAGEMENT AND DISCIPLINE ON QUARANTINE STEAMERS AND NAPHTHA LAUNCHES—CARE AND PRESERVATION OF BUILDINGS—DISTRIBUTION OF THE DUTIES OF EMPLOYEES—CARE AND MANAGEMENT OF DISINFECTING MACHINERY—GENERAL CONSIDERATION OF STATION DISCIPLINE.

It is difficult to offer any definite suggestions for the management of quarantine stations, for the reason that the conditions are not identical at any two stations, owing to their situation, their distance from

a base of supplies, the number and character of the vessels which form their clientele, and other conditions too numerous to mention. A few general suggestions, therefore, as to the care and management of quarantine steamers and naphtha launches, the general care and preservation of buildings, the care of disinfecting machinery, and the distribution of the duties of attendants and employees is all that will be attempted.

CARE AND MANAGEMENT OF QUARANTINE STEAMERS AND NAPHTHA LAUNCHES.

Personnel.

Every effort should be made by the medical officer to secure the services for the quarantine steamer under his command of the best possible men as pilot and engineer, for by so doing not only will the boat be kept up to a high state of efficiency, but a load of responsibility will be lifted from shoulders which have already enough to carry.

The pilot should, if possible, be a man in the prime of life, a steamboat man of long experience; accustomed if possible to handling and maneuvering towboats; if possible, should be a good pilot for the waters in which he is employed; of good moral character, sober, alert, and, above all, capable of handling men as well as boats. Should such a man be found, every possible inducement should be held out to him to secure his services. It would be well in the event of finding such a man to get the consent of the Bureau for his employment for the entire year, as his services would be valuable even when the boat was laid up at the close of the season, and refitting in the spring at the opening of the quarantine season would be found a much less expensive business.

The engineer should be a licensed marine engineer, holding a certificate from the United States local inspectors of steam vessels, and the higher the license, generally speaking, the higher the grade of man. It is decidedly advised that if possible a man holding a license as "ocean chief" or "first assistant ocean steamship" should be obtained. Men with licenses "under 100 tons," or "river and harbor," or "inland" should not be engaged unless they come most highly indorsed, as they usually lack experience with compound condensing engines. By all means the engineer should not only be a runner, but should have machine-shop training; should be competent to make his own running repairs and overhaul his own engines; should understand the use of machine tools; be competent to repair shell and coil boilers, and if he knows anything of forging it will be of advantage. He should also be an expert pipe fitter, and should be capable of making specifications and estimates of materials and their quantities. It is needless to say that he should be thoroughly sober. Given such a man, and if in addition he should prove amenable to discipline, gets along on good terms with the pilot and proves a good shipmate, his

value is beyond price, and every effort should be made to secure his services by the year. It may be objected that an ideal character has been sketched; it is admitted that they are rare.

The relative positions of these two important, highly skilled employees should be settled at the outset by making the pilot the master of the boat, alone responsible for good discipline on board, and, in brief, "the captain of the whole ship." The engineer should be under his orders as an integral part of the crew, should receive his orders from the pilot as to when and for what duty to have steam, and should not undertake repairs or alterations in his machinery, temporarily putting it out of service, without consulting the pilot on the subject, informing him of the probable length of time necessary, and obtaining his consent. In other words, when the engine-room bells are rung by the pilot they should find engineer and engines ready for duty. On the other hand, it will largely depend on the tact and good judgment of the pilot whether such an order of affairs can exist without friction, or whether there is a constant war between the deck and engine-room forces. Nothing in this, however, should be construed as preventing the engineer from having direct access to the medical officer, and making known to him directly the needs of his department.

It is suggested that the complement of the steamer in addition to these consist of four seamen or deck hands, two firemen, a cook, and a mess boy. Two, at least, of the four deck hands should be able seamen, all should be good boatmen, and should be handy with the sail needle and the palm and the paint brush.

The firemen should preferably be young men who are not only skilled firemen, but who are ambitious of obtaining engineers' licenses for themselves. Unless running both day and night, it would be well to have them stand watch and watch in the fire room and in the engine room as oiler and helper. The pilot should ship the deck hands, the cook, and the boy; the engineer should be allowed to ship his firemen. Upon the skill, willingness, and obliging disposition of the cook much of the comfort and happiness of all on board will depend. The boy should serve the pilots and engineers' table and care for their rooms, and assist the cook in serving the men's mess.

Records and reports.

It is recommended that certain records be kept on the steamer. In the first place, a book to be known as the "order and complaint book." In this will be written any orders as to work and duty, time of sailing, etc., which the medical officer desires to extend. Any orders of this nature should be marked "Receipt of the above order is hereby acknowledged and the order is fully understood," and signed by the pilot and engineer, who will then be held responsible for its proper execution. In this book, also, the medical officer should note the results of his inspections of the steamer and his criticisms upon

her condition, which entries shall be considered as calling for explanation on the part of the pilot and engineer. In this book, also, the pilot and engineer should be required to note any infraction of discipline, defect in hull or machinery, or any important recommendation which they desire to bring to the attention of the medical officer, who may enter acknowledgment by attaching his initials and noting his action, if he sees fit so to do. Also a "want book," in which the pilot and engineer will make request for the various articles required in their respective departments, in the quantities needed for immediate use, both such articles as are authorized upon contracts and those requiring special requisition. These the medical officer may authorize by attaching his initials or name or deny by scratching out, it being distinctly understood that the party purchasing will be held personally responsible financially for any article not so authorized unless some very good reason can be given to account for the unauthorized purchase.

It is also suggested that a "log" be kept, in which shall be noted by the pilot daily the number of hours under way, the number of miles steamed, vessels assisted, position at noon, and the state of wind and weather and reading of barometer and thermometer at 8 a. m., noon, and 8 p. m., and by the engineer the number of hours steaming under way, number of hours with banked fires, quantities of coal received and consumed, and amount of oil, grease, waste, and general engine room supplies expended.

Discipline.

All hands should be uniformed strictly in accordance with the regulations, and this uniform should be habitually worn when entering or leaving harbor, invariably by the man at the wheel; and the only exception that is made should be the fireman actually on duty in the fire room. At work overalls of uniform pattern should be worn, or working suits of white duck or drilling may be worn over the uniform to protect them from soiling or undue wear.

If the pilot is the right man for his place he will manage, without overworking anyone, to keep his crew always busy at something from the call of "all hands" in the morning until supper in the evening, allowing an hour each for breakfast and dinner; and, moreover, the work will go on without loud talking, singing out, boisterous laughter, or loud singing or whistling. Certainly the men will not be allowed to smoke habitually while at work, but one pipe in the forenoon and another in the afternoon will be permitted and tolerated, not as a right, but as a relaxation of discipline which will not be criticised. Any man chewing tobacco who is caught spitting upon the decks, rails, or sides should be dealt with so summarily that the offense will not be repeated, and the man at the wheel should not be permitted to chew tobacco, nor should smoking be permitted in the forecastle during meal hours or on deck aft of the pilot house. The vessel should

be painted outside from the water line up twice a year, on going into commission and midway in the season. Deck houses should be painted outside once a year, and inside work as often as may be necessary, which should not be oftener than once in every year. Nothing in this schedule should be construed as forbidding the touching up, painting over, or freshening up of marred or defaced spots on any painted surface.

The national ensign should be hoisted astern every morning at 8 a. m., or earlier if the boat is earlier on duty. The yellow quarantine flag should be hoisted forward at the same hour if the boat is on strictly quarantine duty. If lying at anchor or at moorings in harbor the ensign should be flown astern and the union jack forward, but the jack should not be flown while under way. All colors should be lowered at sunset, and the riding light or masthead light, if under way, should leave the deck at the same moment that the ensign leaves the truck.

When a boat is ordered away her crew should be in full uniform, unless directed to the contrary, and if for the use of the medical officer, the national ensign should be displayed on its staff astern as he steps in, and struck as he steps out, except when lying alongside of a vessel undergoing inspection, during which duty it shall be kept flying.

Laying up and refitting.

At the close of the quarantine season, or as soon thereafter as possible, the steamer should be laid up for the winter, the pilot and engineer being retained as watchman and care taker or keeper. Preparatory to laying up, all exposed brass work should be polished and then coated with white lead. All awnings and sails should be taken down, dried, mended, and patched, and then rolled up, tagged, and put away. All bedding should be washed, done up, and, with the mattresses, put away in a dry place and safe from rats. The wheel should be lashed amidships and the compasses secured. In the engine room the boiler should be emptied, washed out, and, after removing all scale or deposit, should be thoroughly drained and dried. The smokestack should be covered with a canvas cap, stretched over a framework to prevent sagging by accumulation of rain water. The cylinder heads and steam chest covers should be lifted and insides of cylinders and chests wiped dry and coated with heavy oil, and covers then loosely replaced with all bolts in position but not set up. Condenser should be drained, washed out, and head plates slacked up. All pumps should be drained and water and steam heads slacked up; all bright work to be polished and coated with white lead and tallow or vaseline. Boiler fronts should be scaled and scraped and painted. Tanks to be emptied and all water connections to be disconnected and drained. Bilges to be cleaned, washed, and pumped dry, and, during the winter, hatches and skylights should be frequently opened in dry,

bright weather, and cabins, holds, and forecastles thoroughly aired. The moorings should be frequently looked to. During the winter any needed repairs to hull, boiler, and machinery should be reported, and, authority being granted, should be made at this time.

Refitting and placing in commission.

In the spring authority should be asked for placing the steamer in commission, and she should not be so placed until the authority is granted, but plenty of time should be granted for the necessary work. The engine and boiler and their appendages should be polished off and made ready for service, pumps connected and tanks and bunkers refilled with the necessary coal and water, and the steamer taken to the nearest dry dock or marine railway and hauled out. Here the bottom should be thoroughly scraped and cleaned, repainted with one of the many antifouling compositions if of iron, or metal sheathing thoroughly gone over and repaired if the hull is of wood. It is impossible to state definitely how often this hauling out should be done. In the case of a sheathed wooden vessel it should be a matter of routine at least once a year, but twice would be better. In warm latitudes iron vessels would be the better for a cleaning and scraping and repainting every three months, but this will probably prove impracticable, but it should be at least twice a year. While the boat is on the ways all seacocks, closet valves, and outboard openings should be examined and thoroughly overhauled. The propeller wheel and its shaft, the stern bearing and stuffing box should have careful attention, and in an iron vessel the propeller should have one or more coats of the same composition which is put on the bottom. In a sheathed vessel with an iron wheel the wheel should be carefully and thoroughly painted with a mixture of red lead and zinc white, though a brass or bronze wheel is the only sure preventive against serious corrosion and pitting. Below the water line being now in good shape, the boat is floated and the painting and cleaning above the water line receives attention. Paint should not be put on coat after coat, especially white paint, but the old should be removed by burning, and after careful scraping and sandpapering two or three coats of paint should be applied, each being allowed to thoroughly harden before the application of the next. The decks should be cleaned, recalked where necessary, and oiled or shellacked. The awnings, bedding, and all articles removed should be replaced on board, and the boat is ready for service.

CARE OF QUARANTINE STEAMERS AND THEIR MACHINERY.

It would be obviously improper to attempt in an article of this character to do more than make the most general suggestions as to the management of boats and their motive power, for the reason that such instructions should properly come from one experienced in the handling of such boats, or that the management of their machinery belongs

to the domain of the mechanical engineer. There are a few points, however, which it is well that the medical officer should bear in mind, as they are sometimes the source of vast and far-reaching trouble. The care of the boiler should first claim our attention, for the reason that any neglect is liable to result disastrously not only in the loss of the boat's services at possibly a critical time, but in serious expense, exasperating repairs, and possible loss of life and damage to property. By far the most common cause of failure in boilers is the formation of scale from the use of hard and calcareous waters or the use of sea water either in whole or in part for steaming purposes. In the event of the necessary use of sea water for steaming constant care should be exercised that the concentration of the water in the boiler should never exceed a certain standard, which is determined by a specially graduated hydrometer marked in "charges of salt" and the blow-off point is arbitrarily fixed at $1\frac{3}{4}$ charges. It has been also recommended that the blow should be from the surface rather than from the bottom, for the reason that the evaporation takes place from that point. The boilers should also be washed out as frequently as possible with fresh water, and inspected carefully and frequently to observe the formation of scale. As a rule sea water should never be used in coil or pipe boilers, for the circulating spaces in these boilers are small at the best, though numerous, and the many angles and changes of direction in the pipes afford favorable spots for the lodgment of solid particles. In all waters used for steaming, whether sea or fresh, it is the lime and magnesia salts which are the most prejudicial, the sulphate of lime forming the most dense and resistant scale, though the carbonates are almost as bad. The use of heavy or fixed oils for the prevention of scale should not be permitted under any circumstances, as the consensus of expert opinion seems to be at the present time that such a practice is dangerous and is responsible for many boiler disasters. Of late a great deal has been written in technical journals on the use of ordinary kerosene oil as a preventive and solvent for scale. This can be supplied either by adding in quantity at stated periods to the water in the hot well, or, what is much better, by feeding it constantly and drop by drop with all feed water, either from the tanks or the hot well, by means of special feeders, several of which are now upon the market at reasonable prices. The quantity of the oil to be used varies with the hardness of the water from one-half to several pints per thousand gallons of water evaporated, and its use must of course be accompanied by systematic and intelligent blowing. It is urgently recommended that every boat be fitted with one or more of these kerosene oil feeders. Every effort should be made to exclude as much oil as possible from the boiler through the medium of the condenser and hot well. The sponges or other filtering material in the hot well should be frequently and carefully examined, and if found very greasy and dirty should be replaced by new, or, in the

case of sponges, be cleaned by boiling with washing soda or concentrated lye, and subsequently rinsing with plenty of fresh soft water. From time to time soda should be dissolved in the hot well and the boiler frequently blown off under pressure until all grease is removed. At least once in six months the condenser, too, should be boiled out with soda or lye and washed out with fresh water.

Another point in the management of boilers which causes much trouble is the disposition of ashes. If they are allowed to accumulate in the ash pans they interfere with the draft and retard steaming, and if not removed they will cause dropping and burning out of the grates and bearing bars themselves. Nor is the fireman alone to blame for this. There is no more prolific source of war between the engine room and the deck on board steamboats than the ashes question. Of course, it is exasperating to the pilot when he has had his decks and sides nicely cleaned to have them at once soiled by the hoisting out and dumping of ashes. Equally important is it that they should not be allowed to accumulate in the fire room. A compromise is usually best made by ruling that in harbor or on short runs ashes must be hoisted out before the decks and sides are washed and cleaned, and holding the firemen responsible for any soiling after this. This rule is generally practicable, but not always so, and the best that can be done on long runs is to require the disposal of ashes at some stated time in each watch.

In the matter of the care of the engine, though there is much to be done, there is little to be said here. It is to be reasonably expected and must be demanded that it should be kept clean and presentable at all times; clean and polished when not in use or undergoing overhauling. At all times it should be kept so keyed and set up that there is no undue wear and an entire absence of all disagreeable and harsh noises; in fact, the best marine engines of the present day are almost noiseless in operation, and any noise should be looked after. The stuffing boxes of cylinders, steam chests, and pumps should be kept well packed and set up; the piston rings set out and kept sufficiently close; follower bolts frequently sounded and kept tight, and, in fact, the old adage of "a stitch in time saves nine" should constantly be borne in mind. The supposition is that the engineer is a good man and knows his business. If he is, he will naturally be jealous of any interference or even of much supervision, and must be handled with judgment and discretion. If he is not a good man, he must be gotten rid of without delay, as he will prove a most costly investment. The engineer has a right to expect that he shall receive timely notice of the end of a run or the probable termination of the boat's services in any particular duty, to the end that he may regulate his fires to the best advantage, and not have to blow off steam through the safety valves after the boat is stopped. He should not,

except in cases of grave emergency, stop his engines without signal from the deck, or, if compelled to stop, do so without notifying the pilot. Having stopped for any reason, he should not start up again without signal, and if the stoppage has been to make any trifling repair or adjustment, he should notify the pilot of the probable time necessary and desired and of its completion when accomplished. Neither should the pilot when the boat is under full headway ring the stopping and backing bells without previous notice, except in case of grave emergency. Mutual consideration between the two departments must always be displayed.

THE CARE OF NAPHTHA LAUNCHES.

But little will be said on this head. These boats are fairly satisfactory for light duty and for short periods of time. It is a question whether for severe duty in rough water and for lengthy periods the larger naphtha launches give as much satisfaction as steam launches of equal size and more power. In the smaller sizes they certainly are handy, serviceable boats for smooth-water work. So far as construction is concerned, the hulls of all of them, apart from possibly a little lightness and consequent tenderness, are models of good workmanship and careful design. In the opinion of some they are not worth the money that they cost as compared with the performances of full-powered steam launches which could be purchased for the same price. They require the most careful handling, and the claim that their engines require no skilled care is not justified by results. They do require repairs, and the repairs are somewhat difficult to make from the fact that all working parts are concealed from view and the entire motor has to be taken apart to make even the most trivial adjustments. The principal points to be observed in operating them are to see that the naphtha or gasoline used is of the proper specific gravity and that it is strained free of all impurities before entering the tanks intended for its storage; that only the best sperm oil, and that in very limited quantities, is used for lubrication; that the pressure in operating them does not exceed the limits laid down by the builders, and that the launch be not run in water sufficiently shoal to interfere with the condensation of the naphtha returned from the engine. Care should also be taken to see that all stuffing boxes are set up sufficiently tight and that only asbestos wicking and plumbago are used for packing them, and that if it is necessary to break any joints only heavy manilla paper and shell-lac are used for renewing them. Rubber packing and red or white lead must not be used. With the careful observance of these precautions these launches should give satisfaction. Whether they do or not every man must decide for himself. It is not believed that the various types of "explosive" naphtha engines, or steam engines using naphtha or oil for fuel, deserve any consideration for quarantine use.

CARE AND PRESERVATION OF BUILDINGS AT QUARANTINE STATIONS.

At most of the quarantine stations the medical officer will receive from the Secretary of the Treasury, through the Supervising Architect, an appointment as custodian of the buildings of the station under his command, and most of the work of repairs, alterations, and addition will be authorized by and conducted under the direction of that office. To this end, recommendations should be made early in each fiscal year (shortly after June 30 of the calendar year) for all needed repairs and alterations, and requisitions should be made for the material to do such work as it is desired to perform with the force of the station. In general, it may be said that all of this work should be done during the winter and early spring months, prior to the opening of the active quarantine season. In northern latitudes, of course, it will be impracticable to do much work out of doors, but this time should be devoted to the renovation and overhauling of interiors, and it is suggested that the buildings be taken systematically, one at a time, or in a given building, one room at a time, until the whole is done. In the spring the exterior of buildings should be repainted or whitewashed, so that the opening of the season will find the station looking its best and ready for any emergencies to which it may be subjected. As a rule, the colors applied to the outside of buildings should be uniform for the whole station, though in this matter individual tastes may be consulted with advantage. Whitewash should not be applied one coat over another, but the surfaces should be gone over with a heavy scraper and all loose and dead lime removed. The improved appearance of the buildings and fences will amply compensate for the extra time expended. Nor should the whitewash be a simple mixture of lime and water. The lime should be caustic and carefully slaked by the addition of water until it falls to powder. To this should be added the desired quantity of water and a certain proportion of glue and salt, the proportions of each to be determined by experiment. It should be quite thick, and yet spread evenly and smoothly under the brush. All roofs should be painted, whether of shingle or tin, with an oxide of iron paint. It has been found of advantage to mix this paint after the following formula: To each gallon of raw linseed oil add 6 pounds of the oxide of iron, stirring to break up all lumps, and then to each gallon add one-half gill of Stockholm tar thinned with linseed oil. This makes a paint which covers well, adheres firmly, and which does not rub off after drying. All fences should be repaired and either whitewashed or painted with the above paint. Grounds should be put in order, sand heaps leveled, and grass seed sown, with the hope of forming sod, which will prevent the formation of sand drifts. The planting of shade trees should be tried if there are none naturally around the buildings and reservation.

During the winter months it should be endeavored to get the

wharves belonging to the station in good condition. The Architect should be requested to authorize the replacing of all worn-out and worm-eaten piles with new, preferably sheathed with heavy yellow metal, and the decking, where worn-out or broken, should be renewed. It is decidedly recommended that, if the soil and climate permit, a vegetable garden should be cultivated at every quarantine station, as it will be found to pay for itself many times over, not only in the actual money saving in the cost of the ration, but in increased comfort to officers and employees.

CARE AND MANAGEMENT OF DISINFECTING MACHINERY.

The disinfecting machinery of a quarantine station usually consists of one or more steam disinfecting chambers, a sulphur furnace, with fan and engine for operating the same, pumps for water and bichloride solution, and hoisting engine, and ballast car and tubs. All of these require more or less care to keep them in good condition, and some suggestions as to their management may not be amiss. It should be seen that the interior of the steam chamber is kept free from rust, and this is probably best prevented by frequent paintings of the inner surfaces with the iron oxide paint before mentioned, or with red lead and boiled oil. The exterior of the chamber is usually covered with a non-conducting material either finished to a hard, smooth surface, or covered with canvas. These surfaces should be repeatedly painted with ordinary white lead or zinc white, and finished with one or more coats of white enamel paint, permitting the whole exterior to be frequently washed off as it becomes soiled, and thus always insuring a neat and pleasing appearance. All steam and water piping not covered with insulating material should be kept painted with asphaltum varnish, and provision should be made for draining all piping to prevent freezing. To this end all steam piping should have a pitch toward the boiler, and all water piping should be erected with a number of T's, taking the places of elbows, the extra opening being closed with a plug, which can be removed in cold weather and all water removed. This simple precaution will obviate much freezing and bursting of piping and consequent delays and expense. Pumps should be well painted, and kept so, except piston rods, valve stems, and moving parts, and the packing of steam and water cylinders should receive careful attention and be kept tight. Boilers, if not covered with insulating material, should be kept painted with either asphaltum varnish or with a commercial article known as "silica graphite paint." The sulphur furnace will give more trouble than any other item in the whole disinfecting plant, owing to the excessive temperatures to which it is subjected. Many experiments with various articles lead to the belief that nothing will so long and so successfully resist the action of heat as the silica graphite composition mentioned above, and it should be applied every two or three months. The engine and fan

demand no special consideration, except to say that they should be kept at all times in presentable condition by frequent cleaning and the occasional application of some paint. It is advised that there be no superfluity of bright work about the engine. Attention has been already called in the early part of this article to the necessity for operating the engine and fan at a moderate rate of speed. Flexible (rubber) sulphur hose, with all the care which can be given it, will cause much trouble by baking hard and cracking. Care should be exercised to see that it does not become unduly heated and that it is not sharply bent in use, as either course will lead to its speedy destruction. A conducting pipe of some other material is a much felt want at quarantine stations, and experiments have not been lacking in the search for it, but no altogether satisfactory substitute combining the qualities of strength and flexibility has as yet been introduced. All small hose should be thoroughly washed out with fresh water after use with bichloride solution, and then stretched out until dry; not coiled away while wet, as it will soon rot. A ready and convenient method of making a bichloride solution has already been given and the method of operating the sulphur furnace described, so nothing further on these subjects will be said.

DISTRIBUTION OF THE DUTIES OF EMPLOYEES.

The conditions and needs of the various quarantine stations differ so widely that it is almost impossible to give any suggestions even as to the number of employees and the methods of apportioning their duties. All should be employed under the wise general provision of paragraph 66, Regulations Marine-Hospital Service, 1889, as hospital attendants or quarantine employees, and be required to perform any duties to which they may be assigned by competent authority. To this rule an exception may be made in the case of the cook, who should be specifically employed as such and chosen for his special fitness for the position. As in the case of the cook on board of the quarantine steamer, much of the comfort of the station will depend upon his ability and faithful discharge of duty. Indeed, the lot of this employee is not an easy one. He is required to be the first up in the morning to have breakfast for the rest of the force; his work is more or less constant and trying during the whole day, and after supper, when the duties of the station are completed for everyone else, he has one or two hours work still ahead of him in his kitchen. For these reasons he should, it is believed, be treated with all possible consideration by the medical officer and should be protected by him against any impositions which are frequently attempted upon him by any of the other employees.

Another employee who is a most valuable man in the conduct of a station is the carpenter, and every effort should be made to procure for the position a first-class man of tried ability and versatility of

talent. There is hardly a day that the services of this attendant will not be in requisition, and if he is expert, the amount of money which he can save for a station, and the varied uses to which he can be applied, would not be believed by one who has not had experience in the matter. Every effort should be made to give him a comfortable place to work in and good and sufficient tools to work with, and against the unauthorized use of these by other attendants he should be protected by stringent station rules.

One of the attendants should be competent to perform the duties of a stationary engineer and should be charged with the care and management of the disinfecting apparatus, though of course when a steamer is attached to the station, repairs and renovation to this part of the equipment will usually fall to the engineer of the boat.

If a garden is cultivated, as has been suggested, the detail of one of the force as gardener will be almost necessary, but there will be no hardship in requiring all attendants to give an hour of their own time once or more a week to this duty, which will add so materially to the comfort and well being of all. If horses are kept at the station, it is suggested that one attendant be charged with the care of the horses and the management of the garden.

All the attendants should be given specific daily duties to perform, and on the completion of these each day they should report to the steward for further orders, and can then be assigned to any duties which may be most urgent.

STATION RULES.

The following code of rules is suggested as a basis for the general management and discipline of the station, subject to such modifications as may seem desirable to the medical officer, or necessary by reason of local conditions:

Rule 1.—All attendants and employees are required to yield a cheerful and ready obedience to all orders issued by competent authority, and no disposition to question, hesitate, or argue will be tolerated. It is expected that the hospital steward and the pilot and engineer of the steamer will, by precept and good example, assist in the enforcement of this rule.

Rule 2.—The hours for work will be determined by the medical officer, and the time for the station and for the station steamer will be regulated by the office clock. The hospital steward ashore and the pilot on board the steamer will be held responsible for the proper observance of the hours of duty as laid down in the schedule. The hours will be as follows: 6 a. m., turn out all hands; 6.30 a. m., attendants' breakfast; 7.30 a. m., commence work; 11.45 a. m., stop work for dinner; 12 m., attendants' dinner; 12.45 p. m., resume work; 4.45 p. m., cease work; 5 p. m., attendants' supper.

Rule 3.—Between the call of all hands and the hour for commencing work all quarters must be put in order for the day, and must be ready for inspection by the medical officer or hospital steward immediately

after breakfast. The station kitchen and the steamers galley must be ready for inspection by 10 a. m. each day. The hospital steward is required to make a record of such inspections in a book kept for the purpose, and to submit the same daily to the medical officer before 12 m. for his information and action.

Rule 4.—At all stations where there is a quarantine steamer in service an anchor watch shall be kept on such steamer every night while lying in harbor, from 8 p. m. until 6 a. m. The details for this watch shall be arranged by the pilot subject to the approval of the medical officer from the deck force of the steamer, and the pilot shall satisfy himself from time to time that the said watches are faithfully kept. During the hours named the time shall be struck every half hour on the ship's bell, according to the custom prevailing on vessels. The last watch shall call the station and steamer's cook at 5 a. m.

Rule 5.—All routine duties shall be commenced immediately after the breakfast hour unless in the event of orders to the contrary. Immediately upon the completion of these duties the several attendants will report to the hospital steward for further orders.

Rule 6.—It is expected that all work will progress in a steady and orderly manner without singing out, shouting, or loud talking. Promiscuous smoking during the hours of work will not be permitted, but smoking for a few minutes between 10.30 a. m. and noon, and for the same length of time in the afternoon will be tolerated provided that it interferes with the performance of no duty. Attendants chewing tobacco are forbidden to spit upon or deface any floor or wall, or to spit upon the deck, sides, or rail of any boat. Smoking in any boat while on duty is prohibited.

Rule 7.—No attendant will be permitted to have in his possession at any one time any considerable quantity of liquor, wine, or beer, and no attendant shall give, sell, procure, or provide such for another, on pain of dismissal. Drunkenness will not be tolerated, and any attendant or employee offending in this particular will be subject to peremptory dismissal. Gambling or the playing of any game of chance or skill for money or any stake of value will not be permitted.

Rule 8.—All loud talking or noise of any description in quarters must cease at 10 p. m.

Rule 9.—The uniform as prescribed by regulations shall be procured by all attendants and employees within one month after the approval of their nominations by the Department. Said uniform shall be habitually worn at all musters and inspections; habitually on Sundays; on duty in any boat, unless ordered to the contrary; by the entire crew of the steamer when entering or leaving port, and invariably by the man at the wheel. While at work on duties likely to soil or damage the uniforms, overalls of uniform pattern may be worn, and on quarantine boats in southern latitudes working suits of white duck or drilling may be habitually worn while engaged on ordinary duties.

Rule 10.—Propriety of conduct will be insisted upon. No bad language or obscene conversation will be tolerated in the mess rooms, and any profane or insulting speech toward any attendant by anyone in authority is strictly forbidden. Personal cleanliness and neatness of dress at meal hours and in the mess rooms will be insisted upon, and no attendant shall sit at table without a coat.

Rule 11.—The care of the station boats shall be distributed among the various employees of the station, and each will be held responsible for the good condition of such boat and her equipment. On such a boat being ordered for service, the attendants designated to man her shall bring her to the wharf, stage, or landing steps fully equipped, clean, and dry; cushions spread in the stern sheets, and the national ensign ready for displaying on its staff at the stern. Upon the medical officer entering the boat the ensign shall be displayed, and struck when he leaves the boat, except during such time as she may be lying alongside of a vessel undergoing inspection, during which time it shall remain flying. The crew of each boat shall be instructed in boat drill and shall wait for orders before giving way or ceasing to pull. The attendant charged with the care of the naphtha launch shall in addition be held responsible for the care and good order of the motor and for the presence in the boat of the equipment of tools and oilers belonging to her. Such tools shall not be permitted to be taken from the launch without the express order of the medical officer.

Rule 12.—All tools belonging to the station shall be under the care of the carpenter, except such as belong to the engine room of the steamer, for which the engineer of the steamer shall be held responsible. Attendants are forbidden to help themselves to tools without application to one of the above named, and they will be held responsible for any tool taken out until it is returned in person and its receipt acknowledged verbally at least. Any tool broken in service shall be at once submitted to the hospital steward, and no tools so turned in shall be removed from the unserviceable-property room without specific permission. The loss of any tool beyond recovery shall in like manner be reported to the steward, who will report the same to the medical officer with a full statement as to the circumstances of the loss. Any attendant losing or breaking any article and failing to comply with this rule will be held to a pecuniary liability for the same.

Rule 13.—No application for leave of absence will be considered during the active quarantine season.

Rule 14.—No attendant will be permitted to levy any charge on vessels seeking the station, under the guise of pilotage or for any other service which he may render in an official capacity.

Rule 15.—Services rendered to vessels in distress shall be limited to the saving of life and personal property, and any charge in the nature of wreckage or salvage will not be permitted. Quarantine steamers rendering assistance to vessels in distress shall be governed

by the regulations made for such cases by the Secretary of the Treasury applying to vessels of the Revenue-Cutter Service and the Coast and Geodetic Survey.

It is suggested that a copy of the code of rules which may be adopted for the government of the station be reduced to writing and posted in a conspicuous place, and that they be read at several of the Sunday inspections until every employee becomes thoroughly familiar with them and with their meaning. Once fully understood, there should be no excuses received for their infraction, and punishments varying from mild reprimand to summary dismissal should be inflicted for their violation. Above all, they should be made to bear equally in their application.

CHAPTER VII.

BILLS OF HEALTH.

As there seems to have been some misapprehension on the subject of bills of health and a lack of uniformity of practice in regard to them at the various quarantine stations, a few words in regard to them at this time may not be out of place. Under the provisions of the act of February 15, 1893, it is required "that any vessel at any foreign port clearing for any port or place in the United States shall be required to obtain from the consul, vice-consul, or other consular officer * * * at the port of departure * * * a bill of health in duplicate in the form prescribed by the Secretary of the Treasury," and further prescribes that the collector of customs and the United States district attorney shall proceed in certain form against any and all vessels violating this provision of the law. Therefore upon these officers, and not upon the quarantine officer, devolves the responsibility of its enforcement. It is admitted that the arrival of a vessel from a port or place known to be infected with one of the quarantinable diseases, and without a bill of health in the form prescribed by law, is in itself a fact to excite the gravest suspicion, for it is notorious that prior to the passage of this act shipmasters were prone to not apply for or to not present a bill of health whose statements they considered prejudicial to their interests in obtaining prompt entry at the port of arrival. Therefore a vessel arriving without a bill of health should be subjected to an extraordinarily severe scrutiny before being allowed to pass quarantine, but all that can legally be done is to note the fact of the absence of the documents in the discharge from quarantine and to make report by letter or telegram to the Bureau and the collector of customs of the facts in the case. Through the collector, the Supervising Surgeon-General Marine-Hospital Service, and the Commissioner of Navigation the proper penalty for the violation of the law will be enforced. Should the quarantine officer be convinced, however, that the absence of the bill of health is intentional and is intended to conceal facts of interest in the sanitary history of the vessel, the public health should be given the benefit of the doubt, the vessel should

be placed in quarantine pending decision in the matter, and the fact of the absence of the bill of health still reported in the discharge from quarantine. It frequently happens that vessels clear from foreign ports which are of such small importance that there is not stationed at them any consul, vice-consul, or consular agent. This is particularly the case with many of the small ports of the United Kingdom and Norway and Sweden. These vessels usually present a bill of health from local health authorities, and it would be obviously unjust to hold them for an offense which it was impossible to avoid. Therefore, as before, the absence of the bill of health should be noted in the discharge from quarantine, and in applying for entry at the port of arrival the truth of the statement as to the absence of a consular officer will be investigated and proper action taken. Therefore the simple absence of a bill of health as prescribed by law is not in itself a sufficient reason for the detention of a vessel in quarantine. Each case must be decided upon its merits. If the quarantine officer is led to believe that it is intentional, no risks must be taken and the vessel must be detained. If, on the contrary, the absence of the bill of health would seem to be an unavoidable condition, the quarantine officer is not the person to adjudge a penalty for the omission, and this must be left to other branches of the Government to determine.

CHAPTER VIII.

CONDITIONS UNDER WHICH VESSELS ARE TO BE HELD FOR QUARANTINE PROCEDURES FOR THE VARIOUS QUARANTINABLE DISEASES SPECIFIED IN THE REGULATIONS.

This is a subject which has led to much confusion and upon which there is more or less uncertainty in the minds of many. An endeavor will therefore be made to state clearly the conditions under which a vessel must be placed in quarantine for each of the usual quarantinable diseases, viz, yellow fever, cholera, and smallpox.

YELLOW FEVER.

This disease will have to be considered from two standpoints:

1. At a Northern quarantine station, i. e., at a quarantine station situated north of the southern boundary of Maryland—

(*a*) Having yellow fever on board at time of arrival.

(*b*) Having had yellow fever on board within the thirty days preceding arrival, or on the present voyage.

(*c*) Having had yellow fever on board subsequent to March 1 of the current year, unless satisfactorily disinfected thereafter. This disinfection should be in full accord with the quarantine regulations of 1894.

(*d*) If the vessel has on board passengers bound for a port or place in the United States south of the southern boundary of Maryland via the Northern port, said passengers should, if non-immune, be detained and their effects subjected to disinfection.

2. At a Southern quarantine station, i. e., a quarantine station situated south of the southern boundary of Maryland—

(*a*) With yellow fever actually on board at time of arrival.

(*b*) Having had such on board at the port of departure, on voyage, or subsequent to March 1 of the current year, unless satisfactorily disinfected as above.

(*c*) For certain Southern ports if from a port of departure within the latitudes 23° 30′ north to 10° south, and arriving between May 1 and November 1.

(*d*) For certain Southern ports, regardless of the time of year, if from the ports of Habana, Santos, or Rio de Janeiro.

(*e*) If from a foreign port where yellow fever prevails via a Northern port where detention is not required under the regulations.

The Southern ports mentioned in 2, *c* and *d*, are those making requirements in excess of the national regulations, whose wishes, however, must be respected, as stated in a previous portion of this article.

CHOLERA.

This disease is treated alike at both Northern and Southern ports.

1. With cholera actually on board at the time of arrival.

2. Having had cholera on board at the port of departure, or on the voyage, or on a prior voyage, unless satisfactorily disinfected thereafter.

3. If from a port or place where cholera prevails, or having on board persons, baggage, or merchandise from a port or place infected with cholera, though there may be no cholera actually prevailing at the port of departure, unless all the provisions of the regulations in regard to vessels, their passengers, crew, and cargo sailing from a foreign port for a port in the United States have been complied with. The vessel may also be held a sufficient time for thorough observation under the provisions of paragraph 8 of the preamble and paragraph 3, Article X, of the Quarantine Regulations.

SMALLPOX.

The treatment of a vessel in quarantine for smallpox is limited to the personnel and their effects. Treatment of the holds or cargo spaces will in general be unnecessary, unless the cargo be exclusively rags, and these gathered in a place where smallpox prevails in epidemic form, and shipped without preliminary disinfection, which is not likely to be the case.

Where smallpox has occurred on the voyage, remove those sick with the disease, and remove or vaccinate all exposed who do not present marks of recent vaccination or a previous attack of the disease; disinfect the living apartments of passengers and crew, and disinfect the personal effects; detain passengers and crew for fourteen days after last exposure to infection if vaccination is refused.

REPORTS FROM THE NATIONAL QUARANTINE STATIONS.

CAMP LOW, SANDY HOOK, NEW JERSEY.

The operations of the quarantine service at this station have been confined, as last year, to the care and preservation of the buildings and contents. The War Department having made a demand for a return of the reservation, the same being required in the plan for coast defenses, measures have been taken to distribute the movable property for storage at the several marine hospitals, the detention camp at Waynesville, and the quarantine stations. After this has been done, in accordance with the request of the Secretary of War and by direction of the Secretary of the Treasury, this reservation will be returned to the War Department.

DELAWARE BREAKWATER QUARANTINE; POST-OFFICE ADDRESS, LEWES, DEL.

REPORT OF TRANSACTIONS OF THE DELAWARE BREAKWATER QUARANTINE STATION, DELAWARE, FOR THE FISCAL YEAR ENDING JUNE 30, 1896.

By P. A. Surg. C. P. WERTENBAKER.

Vessels disinfected, none; vessels inspected and passed, 292; vessels inspected and allowed to proceed without pratique, 31; vessels spoken and passed, 4; total, 327. Vessels held for observation, 6; vessels remanded to Reedy Island Quarantine, 1.

In regard to the vessels allowed to proceed without pratique, referred to in the above list, they were vessels arriving from infected ports with foul bills of health, and while there had been no sickness on board, it was considered wisest to require them to obtain pratique at their port of entry, this being only a port of call.

No case of contagion has been treated at the station during the year.

There has been a slight increase in the number of vessels inspected during the year over the previous year, owing to the fact that the Bureau authorized the inspection here of vessels bound for Philadelphia, arriving at this point at an hour too late to permit their being inspected at Reedy Island the same day. The change has given much satisfaction to the shipping people interested, and has reduced the delays on account of quarantine to a minimum. The cargoes arriving at this station consist usually of raw sugar, the vessels being sent to the Breakwater for orders. The length of time they remain here varies from a few hours to several weeks. The vessels come chiefly from the East and West Indies. During the past year a considerable quantity of raw sugar has arrived from Egypt. It is of a good quality and somewhat higher grade than that from the Indies. It has usually been shipped from Alexandria, Egypt. Owing to the disturbed condition in Cuba, but comparatively little sugar has been shipped from that island, and an increased amount from neighboring islands. A small amount of sugar has arrived from South America, with a prospect of an increasing trade in that article in the future.

Vessels arriving here during the year have been usually clean and with but little sickness of any kind on board, and that usually of a trivial nature.



U. S. QUARANTINE STATION, DELAWARE BREAKWATER, TRANSFER BARGE NO. 1, FOR TRANSFERRING IMMIGRANTS.

One vessel from the East Indies had three cases of beri-beri on board on arrival. One case was removed to the marine hospital at the request of the master. The patient died, after two weeks, of heart failure, as the result of some slight exertion, when convalescent.

Violations of the quarantine regulations have been few in number and of a minor character, consisting chiefly of failure to hoist the quarantine flag on arrival and in a few instances holding communication with the shore before being inspected. It is a notable fact that all such violations have been by masters of American vessels, usually sailing vessels from the West Indies, who seem to have developed their independence to such an extent that they consider the laws of this country mere matters of form, to be observed or disregarded as is most convenient to them. Prompt action by the Department in these cases has had a salutary effect.

There are some cases in which the violations have been due to ignorance. I would recommend that every quarantine station in the United States be required to fly the quarantine flag at a point where it can be most readily seen, say on the station flagstaff beneath the national ensign, from sunrise to sunset daily, during the period when quarantine inspection is required at that port; that all vessels subject to quarantine inspection be required to hoist the quarantine flag to the foretop on entering the harbor, and to keep it there until after the vessel has been inspected and discharged by the quarantine officer; that a list of quarantine stations, with their location in the harbor, be published, and furnished to vessels through consuls, collectors of customs, quarantine officers, and others. I believe that such action would materially lessen the violations of the quarantine laws, with all the dangers incident thereto, and contribute largely to the efficiency of the service.

In this connection I would suggest the advisability of a law requiring all registered vessels to carry a set of international code signal flags. Many of the smaller vessels have no means whatever of communicating by signal and are unable to understand signals from quarantine stations, other vessels, etc.

The small cost of a set of these flags and the great advantages to be derived from them would seem sufficient reason to make them compulsory. The masters of the vessels say they would be glad to have the signal flags, but in many instances the owners refuse to expend the small amount necessary to procure them.

Additions and improvements.—Some much needed furniture for bedrooms and dining room was purchased for the surgeon's quarters, at a cost of $254.

A low-pressure steam-heating apparatus has been put in the executive building and surgeon's quarters, and a new flue for same built, at a total cost of $1,130. It has added much to the comfort of the building, which, previous to the introduction of steam heat, was almost uninhabitable during cold weather.

A 38-foot 12-horsepower naphtha launch was purchased for the use of the station, at a cost of $3,870, including one 12-foot cedar boat to be used as a tender to the launch, one pair of differential blocks, chains, etc., steel davits, etc., for hoisting the launch in the boathouse. A shelter for the launch, to protect it from storms and floating ice, was erected, at a cost of $600.

A portable forge, with drill press, stocks, dies, anvil, blacksmith tools, etc., was purchased, at a total cost of $85.

With these appliances the station can make its own repairs to pipes or other ironwork without having to call in skilled labor from outside. By converting a small building, previously used to store coal, into a blacksmith and repair shop, a much needed addition was made; cost, nominal.

A commodious barge (*Transfer Barge No. 1*), to be used in bringing immigrants ashore, was sent to this station from Cape Charles Quarantine. This barge is anchored under the lee of the breakwater. On it the crew of the launch sleep. During the summer the launch is made fast alongside this barge.

The experiment of a previous year of planting trees at the station having proved so successful, another lot of cottonwood cuttings were set out in November, 1895. They have nearly all lived and are now in full leaf, adding much to the appearance and comfort of the station. These cuttings were obtained from trees in the village of Lewes, without cost, the owners being willing to give the cuttings to the station for the trimming of the trees, which was done by attendants of the station. The cuttings were from 8 to 12 feet in length, cut square at each end; in fact, they were mere sticks, the larger the better. They were cut in the fall of the year, when the sap was down, and planted at once. Our method has been to dig a hole in the sand (there is no soil on the reservation) until water was reached, usually at a depth of 3 or 4 feet. Stable manure was then thrown in around the end of the cottonwood cutting and the rest of the hole filled with sand. In the early spring, as soon as the frost was out of the ground, a little more manure was put around each tree. By the first week in April the buds began to appear, and by July 1 quite a number of branches had put out and were in full leaf. The cottonwood grows very rapidly and does not seem to be affected by salt water. It is better adapted to the sand than either the willow or the maple. The planting of cuttings will continue until there is a good growth of trees at the station.

The work of leveling and grading the grounds has continued throughout the year, and some progress has been made. The sand blows about with every wind, necessitating a great deal of work to keep the grounds in order. After being graded, gravel is hauled from the beach and thickly strewn over the graded portion; this only will hold the sand in place.

The site of the contagious-disease camp has been graded and graveled over the greater portion. Work is now in progress building a bulkhead to hold the edges of this camp. This will then be filled in and the whole camp site leveled and graded.

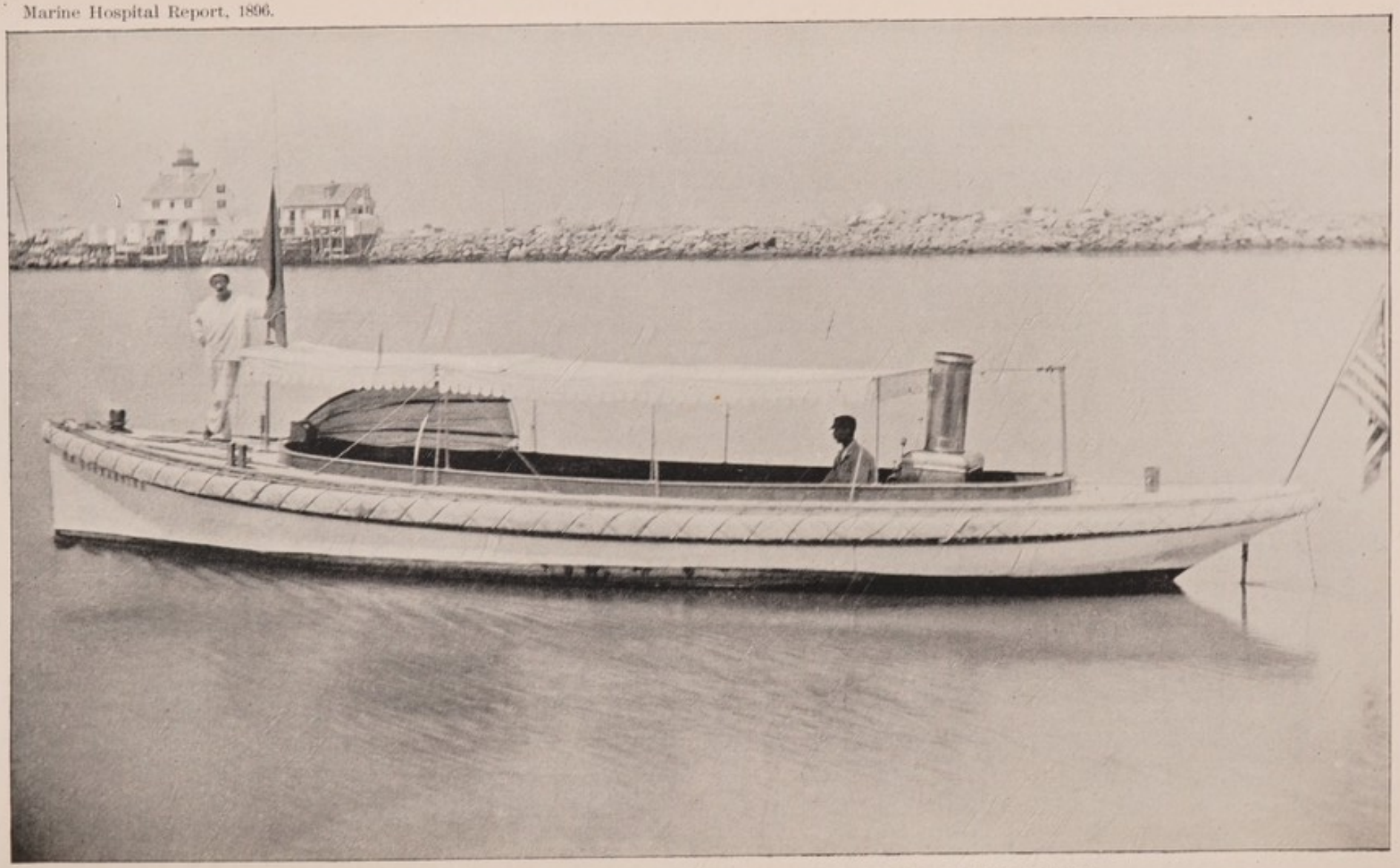
The landing pier for small boats in front of the executive building has been extended 80 feet farther out. The beach line is making out rapidly and the water shoaling to such an extent that it is barely possible to get a skiff to the end of even the present pier at low water. At high water there is a depth of 6 feet at the end of the pier, which allows the launch to come alongside. A pier extending out to deep water, a distance of about 1,000 feet, should be built as soon as possible. This would permit the landing of immigrants, supplies, etc., directly on the reservation, instead of landing on the iron pier, half a mile from the station, as at present.

On February 6, 1896, a hurricane struck this station, blowing in one side of the shelter for the launch, catching the launch under the falling timbers, swamping it and damaging it to the extent of about $150, and also destroying the shelter. The barge broke her moorings and went aground in shallow water near the inner end of the iron pier. She was but slightly damaged. Repairs to both launch and barge were made by our own force. No damage was done to station beyond cutting large quantities of sand from around building, etc., and piling it up in the most inconvenient places, entailing much labor to clear it away.

The fish-oil factories, a short distance from the station, are still a nuisance and a menace to public health. On every favoring breeze their oils and nauseating odors permeate the entire reservation, while swarms of large green flies cover everything that is exposed. Legal proceedings are still pending in the United States court to suppress these factories, and it is fervently hoped that they will succeed in abolishing them. No effective quarantine can be maintained with such swarms of flies as these factories breed.

Needs of the station.—One of the most urgent needs of the station is the replacing of a section of the general inclosure fence at this site of the contagious-disease camp, and a similar fence should surround the other two sides of this camp.

A water tank capable of holding 10,000 gallons is urgently needed.



U. S. QUARANTINE STATION, DELAWARE BREAKWATER. NAPHTHA BOARDING LAUNCH SPRAY.

Lavatories for each section of this immigrant barracks, with sewer connections, are greatly needed.

A power force pump is a necessity to enable the use of the water from the bay in case of fire.

Another horse is much needed. The only horse now attached to this station is fully occupied in going daily to the village for mail, etc., and in general work on the station.

The sewers leading from the kitchen, contagious-disease camp, and executive building should be extended farther into the bay, the low-water line having extended out beyond where they discharge.

All the buildings on the station need painting, especially the executive building and surgeon's quarters. The barracks, kitchen, and storeroom should be shingled. All the buildings need minor repairs. Proposals are now being asked to do the painting and make the necessary repairs.

There should always be kept on the station about 20,000 feet of rough lumber for repairs. Such a provision would obviate much delay and inconvenience and often prevent further damage by having repairs made promptly.

The station generally is in good condition and ready to receive immigrants at all times.

DESCRIPTION OF BOARDING LAUNCH SPRAY, DELAWARE BREAKWATER QUARANTINE.

The naptha launch *Spray* was built especially for the Delaware Breakwater Quarantine Station by the Gas Engine and Power Company of New York City. She was intended to be used as a boarding launch, and has been used as such continuously since August 13, 1895, on which date she arrived at the station from the builders.

This launch was designed for especially heavy sea work. She is 38 feet over all; beam, 8 feet; depth of hull, 4 feet; draft, 3 feet; has a 12-horsepower Gas Engine and Power Company's motor, and has a speed of 9 or 10 miles an hour under ordinary conditions. She is very stanchly built and is a good sea boat. Her distinctive feature is a canvas, cork-filled fender that runs entirely around the boat, between the plank-sheer and the lower molding. This fender is 20 inches in circumference at its largest part, and is held in place by a lacing of cord that passes through screw eyes fastened in the plank-sheer. The fender is filled with granulated cork, and is of great service in protecting the launch from damage in going alongside a vessel in a heavy sea. The launch has been in constant use since its arrival at the station, and has given entire satisfaction. She has a spray protector forward and is fitted with lockers under the seats. Her tank has a capacity of 200 gallons of naptha, and she consumes about 6 gallons per hour when running. Her cost was $3,870, which included a clinker-built 12-foot cedar boat as a tender, davits for hoisting, and other fittings.

FISH-OIL FACTORIES.

Referring to the nuisance and the danger to the Delaware Breakwater Quarantine Station caused by the proximity of fish-oil factories, which, in addition to the intolerable stench they create, are a positive menace by reason of the large swarms of flies which are attracted and bred there and which infest the station and may become carriers of disease germs, I have to state that the matter of the removal of the factories is still in the hands of the United States district attorney at Wilmington, Del. The district attorney has within the past few weeks

been securing evidence in the shape of testimony, oral and by deposition, "in the cases of The United States against S. S. Brown & Co. and Luce & Bro." These cases are still pending.

REEDY ISLAND QUARANTINE; POST-OFFICE ADDRESS, VIA PORT PENN, DEL.

REEDY ISLAND QUARANTINE,
September 18, 1896.

REPORT OF THE MEDICAL OFFICER IN COMMAND.

SIR: I have the honor to make the following report of the transactions of the Service at this station during the past fiscal year:

Ice breaks and pier.—The new ice breaks to the disinfecting pier, which were mentioned as contracted for in my last report, have been completed in a strong and substantial manner.

These structures at either end of the pier are V-shaped, pointed up and down stream, shod with three-sixteenths-inch steel plates, and are calculated to resist any ordinary strain or cutting from heavy ice floes.

Weather Bureau signals.—In compliance with my offer to the Chief of the Weather Bureau, with your approval, to display storm signals without expense, if the flags and lanterns were furnished by that Bureau, this equipment has been received.

A number of outbound vessels anchor at this station, waiting for a rising tide in order to pass over Baker Shoal, and this telegraphic information is of great value to the station.

Tidal indicator.—In the early part of this season a "tidal indicator" was erected upon the north ice break by the United States Coast and Geodetic Survey, under the efficient superintendence of Asst. J. F. Pratt, of that Service.

This is the second and largest apparatus of the kind in this country, a smaller one being located at Fort Hamilton, New York Harbor.

The accompanying cut illustrates its operation and also shows the substantial work of the ice breaks coming to a point in the foreground.

Tidal indicator—Notice to mariners.—The following description was published by the Superintendent United States Coast and Geodetic Survey for the information of mariners:

"The position of the tidal indicator established January 1, 1896, on the northern end of the ice breaker at Reedy Island Quarantine Station is shown on the charts.

"The indicator appears as a large semicircle painted white, and faces upstream. The inner edge of the semicircle is divided into spaces by heavy black lines representing feet and half feet. The longer of these division lines are numbered by figures in black.

"A pointer, actuated by the rise and fall of the tide, turning about the center of the circle, sweeps along the inner edge of the graduations and indicates, at any moment, the number of feet of water above or below the plane of reference—mean low water—to which soundings on the charts are reduced. The minus sign, shown near the left edge of the indicator, indicates the number of feet below the plane of reference.

"An arrowhead, placed in the center of the disk, is made to point up while the tide is rising and down while it is falling. A glance at the indicator will enable the navigator to tell the height of the tide, whether above or below mean low water, and whether it be rising or falling.

"The division lines, figures, pointer, and arrowhead can readily be seen at the distance of about a mile with the aid of an ordinary marine glass.

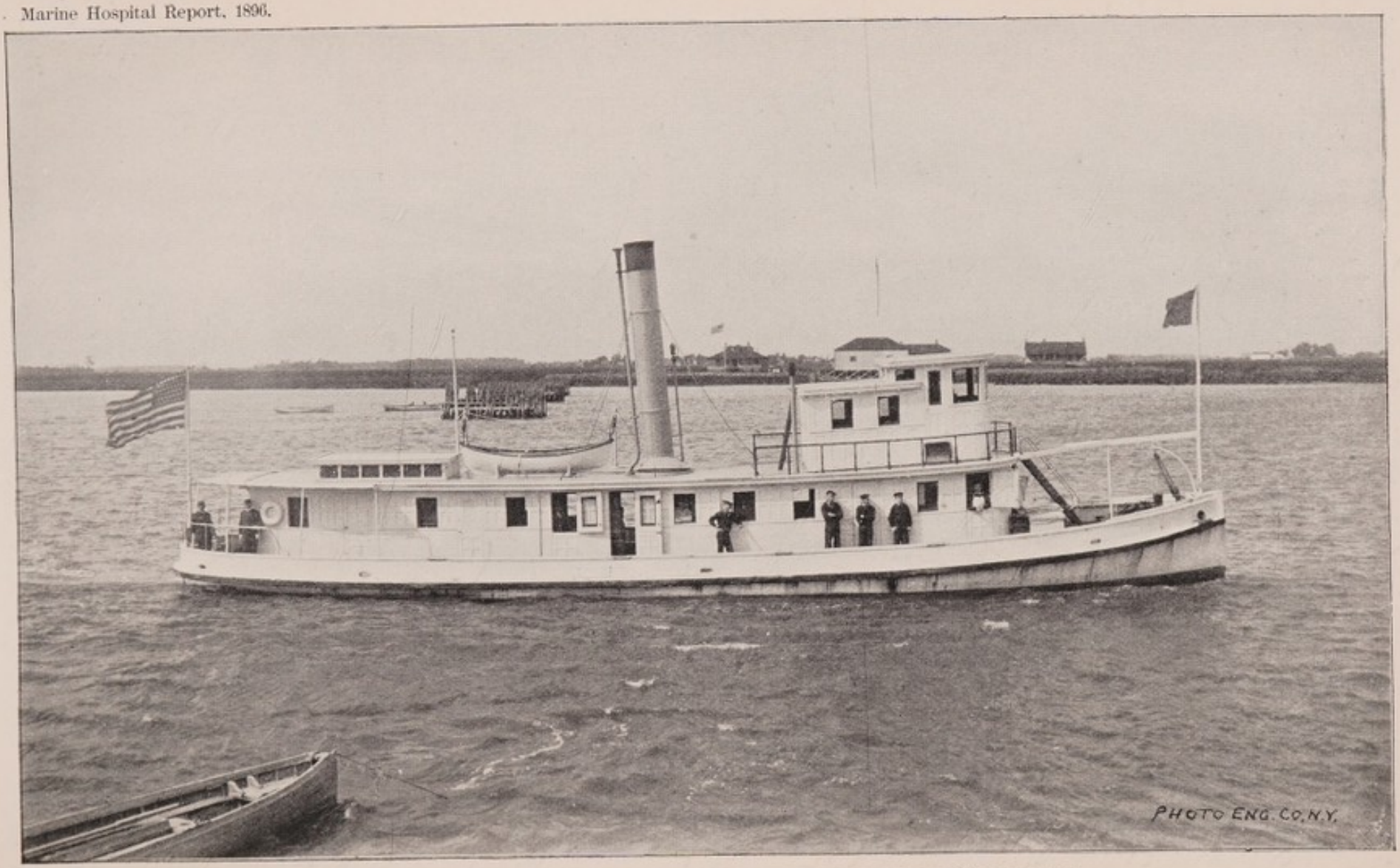


U. S. QUARANTINE STATION, REEDY ISLAND, DELAWARE, SHOWING PIER AND TIDAL INDICATOR.



U. S. QUARANTINE STATION, REEDY ISLAND, DELAWARE, SHOWING SURGEON'S COTTAGE AND RIP-RAP TO PROTECT WATER FRONT.

(Completed under direction of P. A. Surgeon Glennan.)



U. S. QUARANTINE STATION, REEDY ISLAND, DELAWARE, BOARDING STEAMER PASTEUR.

"The ebb and flood currents in the vicinity continue to flow for quite a period after the water has begun to rise or fall. The arrowhead indicates whether the water is actually rising or falling regardless of the direction in which the current may be running at the time.

"The tide tables, published annually by this office, give the times and heights of the tides for each day, but these may be greatly modified by meteorological disturbances that can not be foreseen and can not enter as elements in the calculation of the tables. The predictions taken from the tide tables may not, therefore, represent the actual condition of the tides. The tidal indicator, however, shows the actual state of the tide at all times.

"Outward-bound vessels, when about a mile above, should be able to read the indicator with the aid of an ordinary marine glass, observe the stage of tide, and note whether it be rising or falling.

"Should it be found that a vessel is too deeply laden to cross Baker Shoal at the stage of tide indicated, she will have sufficient time to anchor before the indicator is reached and be in a position from which it may be watched until it shows that the shoal may be safely passed.

"The cut shown herewith will enable anyone to understand the operation of the indicator. It shows a falling tide at 1¼ feet above the plane of reference.

"This affects Chart 125."

Improvement of grounds.—Under the appropriation of $4,200 for the "improvement of grounds, to prevent overflow," etc., competitive proposals were invited to prosecute the work, but were found to exceed the appropriation by $1,500. These proposals were therefore rejected, and the work directed by the custodian. Separate bids were obtained for the use of a steam mud machine, lighter loads of broken stone, lumber for boarding up the areas beneath the buildings, and laborers were nominated at a monthly rate, with rations furnished. In this way the improvement has been completed within the amount of the appropriation.

Some silver-leaf maples, obtained from Fort Delaware, have been set out, and what was previously a salt marsh, covered with a foot of tide water, has become a garden spot, which, with a lawn, garden, and the setting out of fruit and shade trees, will become one of the most attractive quarantine reservations in the Service. This grade work also protects the buildings from fire, as the rank growth of reeds, from which the island derives its name, becomes very dry and inflammable in winter.

Work is about to be commenced upon an artesian well, and it is hoped that a natural flow of water will be obtained. If this is not possible, a small hot-air engine with pump can be set up, at a small expense, to give all the storage and pressure required. The large wooden cistern upon the pier can be removed to the island for this storage.

Sanitary transactions.—Vessels inspected and passed, 971; spoken and passed, 21; vessels disinfected, 6. Over 28,000 immigrants were also inspected.

In July of this year the bark *Canopus*, one hundred and seven days from the island of Mauritius, arrived with six cases of beriberi, which were removed to the cottage hospital upon the island, and all recovered.

Later, the British steamer *Earnwell* was thoroughly disinfected, having lost her captain and first officer by smallpox. These vessels of the Earn Line convey iron ore from Santiago de Cuba, where the master only was allowed ashore in order to clear the vessel. Captain Carter, the first victim, was a nonbeliever in vaccination, and conveyed the infection aboard. The lesson has had a salutary effect upon other mariners coming to this port, and who held similar views.

Recommendations.—Shower and tub baths with a small heater, tank, and force pump should be placed in the north end of the disinfecting building for the better treatment of the crews of vessels undergoing disinfection. The large wooden

cistern now at that end is too large and heavy for the structure, and should be removed to the island.

A brick chimney, blinds, and wire window screens are needed to the attendants' quarters; also water and sewer connections to this building and the cottage hospital, and stationary washstand in the bathroom to the surgeon's quarters.

I beg leave to join with Surgeon Murray (annual report for the fiscal year 1895, p. 288) in the suggestion that a distinctive United States quarantine flag be adopted. The lines of steamers with which this Service comes in contact have their house flags and distinguishing funnels, and it would seem that this country is entitled to a special designation of this kind for her advanced position in modern maritime sanitation.

Estimate of alterations and repairs.

Lavatory outfit for treatment of the crews of vessels undergoing disinfection; for ceiling and partitioning rooms and closets, heater, boiler, tank, force pump, and baths	$850
Brick chimney, blinds, and wire screens to attendants' building, and baths, closets, water and waste-pipe connections to the hospital and other buildings	1,000

Very respectfully,

A. H. GLENNAN,
Passed Assistant Surgeon, M. H. S.

The SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

CAPE CHARLES QUARANTINE; POST-OFFICE ADDRESS, FORT MONROE, VA.

(Boarding and disinfection station, ship *Jamestown*, Hampton Roads; hospitals and detention barracks, Fisherman's Island, off Cape Charles, Va.)

REPORT OF THE MEDICAL OFFICER IN COMMAND.

CAPE CHARLES QUARANTINE, *July 7, 1896.*

SIR: I have the honor to submit the following report of transactions at this station during the fiscal year ended June 30, 1896:

Five vessels were disinfected and 64 inspected and passed.

Additions, alterations, and repairs.

Steamer Dagmar.—On September 4 the engineer, with the assistance of a machinist from the Newport News shipyard, patched one pipe in the boiler. On or about November 9, 1895, the vessel was put on the ways at Norfolk and the bottom scraped and painted. Repairs were made on steering and reversing gear at a cost of $73.20. Cost of putting steamer on ways, painting, and scraping, $160. Extensive repairs to boiler were recommended, but the condition of the fund available would not permit of an outlay sufficient to cover the cost.

Steamer Koch.—On September 6, 1895, a defective tube in the boiler was plugged and the sheet-iron casing around the boiler was patched; cost, $70.23. Was put on the ways at Norfolk about November 9 and bottom scraped and painted. While there the blow valve was repaired, at a cost of $25, including a new valve and flanges, and minor repairs to the amount of $5 done. A heating stove for the forecastle was purchased on December 10, at a cost of $6.50.

Ship Jamestown.—During July, August, and September the crew was engaged in painting the entire ship, inside and out; also calked and cemented the deck. During the winter, while the ship was laid up at the Norfolk Navy-Yard, the commandant of the yard turned over to the vessel three pairs of davits and a boat boom, all part of the original equipment. Nothing but a few minor repairs were

necessary during the year; all done by the crew, excepting straightening anchor stock, which cost $15. A cooking stove was purchased; cost, $20.

Fisherman's Island.—The gangway to the wharf was repaired by driving 23 creosoted piles, and 19 were put under the house on the wharf, securely braced, at a cost of $1,500. All the buildings were painted and roofs tarred. A complete set of pipe tools were purchased under advertisement, so the keeper could make all minor repairs to piping on the island.

Naphtha launch.—A 21-foot launch was furnished the station last November and has been used constantly as a tender to the *Jamestown*, also for boarding vessels in Hampton Roads. It has proved a serviceable boat and required but few repairs. When received a part of the coil had been burst, requiring repairs costing $8; done by the makers at Morris Heights, N. Y. A stout fender was made for her rail, and prevents to a great extent the wear and tear caused by going alongside vessels during rough weather. The boat would be much more serviceable if the engine had 1 horsepower more strength; it can barely make headway against the choppy seas so frequent here.

Additions, alterations, and repairs thought necessary during the fiscal year ending June 30, 1897.

Contract for water-closets and lavatories for each ward has been awarded and work is soon to be begun. The wharf and gangway are in a dangerous condition, and unless repaired may be carried away during the winter. To complete the repairs necessary to place the wharf and gangway in good condition, 39 creosoted piles should be driven under the house and 142 under the gangway, with proper bracing; estimated cost of these, $5,000. The range in the main kitchen is out of order and unfit for use. The keeper's house is unprovided with a cooking stove; cost, $20. All the buildings are in good condition, except the roofs, which need some repairing and tarring. This can be done by the keeper and his assistant. Some method of lighting the wards is necessary; the use of lanterns probably would prove the best under the circumstances.

Recommendations.

Ship Jamestown.—Should be coppered along the water line, where the copper is full of holes and badly worn. Ship leaks very badly, and it will be necessary to put her in a dry dock when copper is put on. It is suggested as being very convenient and economical, that this might be done in the dry dock at the Norfolk Navy-Yard, when the ship is laid up there next November This office thinks suitable arrangements could be made with the Navy Department. If this dry dock is used, the estimate for these repairs would be $500. New awnings are badly needed, as those in use are rotten and were badly injured by a storm. A sheet anchor should be provided for the ship and fastened to the starboard cathead, ready to be dropped on an emergency. A method of securing one of the original sheet anchors belonging to the ship has been recommended to the Bureau. Estimated cost of new awnings, $400.

Steamer Dagmar.—Renewal of all tubes below water surface in boiler; new grates and bearing bars; estimated cost, $700, including the renewal of a considerable amount of piping. The awnings on board are worthless, and new ones should be provided, to cost $100. The entire vessel needs painting badly. The vessel should be put on the ways some time during the summer and the bottom scraped and painted. The stern-anchor windlass needs repairing.

Steamer Koch.—Boiler needs a new set of tubes and new steam gauge. The two forward tanks should be connected with an inspirator to feed pump aft. Brick casing around boiler needs renewal, and a new smokestack with front-connection door is necessary. The propeller in use at present is entirely too small, only allowing a speed of about 5 miles per hour—entirely too slow for the station. The

awning on after-deck is worthless and a new one is needed, and the entire vessel is badly in need of painting. Estimated cost of these repairs, $500. Sulphur tubes and bichloride hose are practically worn out and liable to give out when disinfection of some vessel is being done, causing serious embarrassment. The sulphur furnace should be arranged in some way so the tubes passing through the water tank on top of the furnace can be cleaned when they become clogged with sulphur. This has happened once this season and caused great trouble while fumigating the hold of a large steamer. A layer of fire brick arranged between the furnace and the cooling tank might serve the purpose. The guard rails will have to be renewed in places.

The wharf and gangway at Fishermans Island should be repaired this summer, as during the winter the work is difficult and much more expensive.

The steamer *Koch* is badly in need of repairs, but this office can not form any plan for disinfecting vessels while this is being done, as there have been but few days during this season when large vessels could have been safely placed alongside the *Jamestown* for disinfection. Several days during the time ships have been undergoing disinfection it would have been positively dangerous had they been made fast to this ship. Without a steamer a vessel could neither be placed alongside nor taken away without some risk to the *Jamestown*, and tugs are not easily secured on short notice in Hampton Roads. The steamer *Koch*, properly repaired, would be a most efficient vessel for this station; without it but little disinfection can be done, and vessels might lie here for several days before they could be safely made fast to the *Jamestown* for disinfection. With an awning to cover the deck of the *Koch* she could be used as a means of transferring patients and passengers to Fishermans Island should such a course become necessary. An additional sailor and fireman are needed. When a vessel is being disinfected, the medical officer is compelled to run the naphtha launch to and from the shore for provisions and mail, also for telegrams, as there is no other person available to manage it. With the *Koch* in good repair—and such repairs should be done when the active quarantine season is ended—this station will be well equipped for disinfecting and boarding and communication between the distant points of the station fairly easy.

Very respectfully,

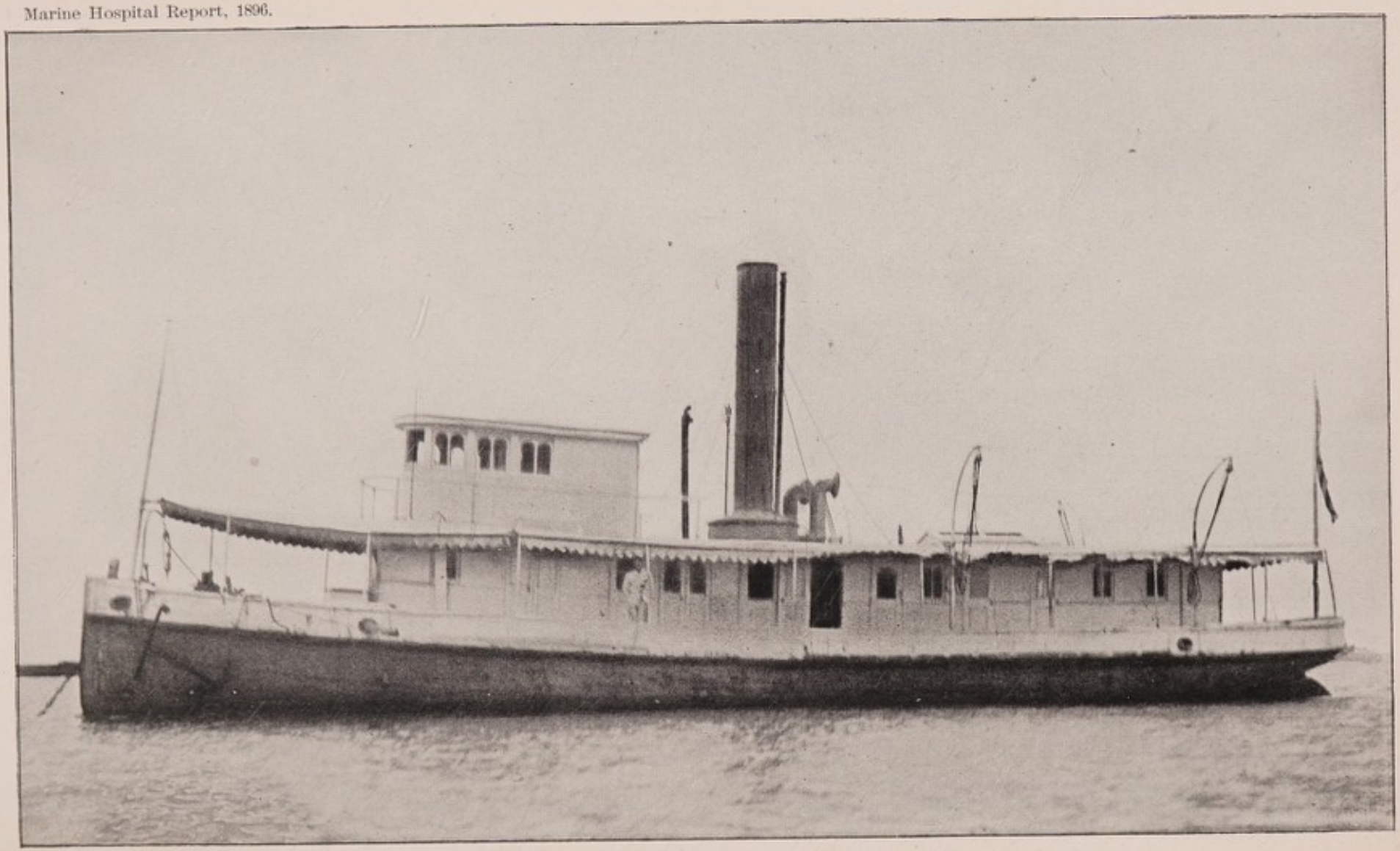
W. J. PETTUS,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

On account of the difficulty of boarding vessels bound for Baltimore at the entrance of the Chesapeake Bay without causing detention, and because of the freedom of European ports from cholera, the boarding of these vessels has been waived at this station and has been conducted at the local quarantine, 6 miles below the city of Baltimore. On account, also, of the limited appropriation for the maintenance of the United States quarantine stations, it became necessary as soon as the active quarantine season had expired, November 1, 1895, to place the boarding steamer *Dagmar* out of commission and to send notice to the local quarantine officers on the Chesapeake Bay and its tributaries that during the winter months the quarantine examinations would necessarily be made at the respective ports. At the same time the local quarantine officers were informed that in the event of the discovery of any contagious disease upon a vessel notice should be immediately sent to the national quarantine officer at Fort Monroe, who would take charge of the vessel and care for the sick. No request of this nature was received.



U. S. QUARANTINE STATION, NEAR SOUTHPORT, N. C.
(Under construction.)



U. S. QUARANTINE STATION, SOUTHPORT, N. C. STEAMER WOODWORTH.

At the beginning of the active quarantine season in May, 1896, the *Jamestown* was placed in position in Hampton Roads, and boarding and inspection of all vessels entering Chesapeake Bay, excepting those bound for Baltimore, was begun and has been continued until the close of the season.

UNITED STATES QUARANTINE STATION, SOUTHPORT, N. C.

REPORT OF MEDICAL OFFICER IN COMMAND.

UNITED STATES QUARANTINE STATION,
Southport, N. C., July 11, 1896.

SIR: I have the honor to present, as directed in Bureau letter (F I) dated June 29, 1896, the following report of the transactions and general condition of this station for the fiscal year 1896:

The inspection of vessels by the Marine-Hospital Service was begun at Southport, N. C., July 13, 1895. The quarantine at the mouth of the Cape Fear River had previously been under the control of a quarantine board, consisting of three medical men, receiving their appointments from the governor of North Carolina. Two of the members of the board were residents of Wilmington, N. C., and the third—the executive officer—was stationed at Southport.

At the time inspection of vessels was begun by the Marine-Hospital Service plans and specifications had been drawn and contracts made, through the Office of the Supervising Architect, for a quarantine pier and plant near Southport.

Pending the completion of the station and the provision of proper facilities, I had been directed by you, under date of July 10, 1895, to direct all vessels from infected or suspected ports to the nearest United States quarantine station for treatment. It was not found necessary during the fiscal year 1896 to send any vessels away for treatment. During this period 82 vessels were inspected and passed and 4 vessels spoken and passed. Two vessels arriving from foreign ports had not, previous to clearing, been provided with United States consular bills of health. The sanitary condition of these vessels being beyond suspicion, they were given certificates to that effect and, in accordance with your instructions, the collector of customs at Wilmington, N. C., was informed of the deficiency in the ships' papers.

With the close of the fiscal year the quarantine pier and buildings at this station are not yet completed, and the work of construction is at a standstill. The delay has been due to the failure of the contractor to push the work, and during the last month of the fiscal year the work was taken out of the hands of the contractor and he and his men warned off the premises. Specifications for completing the work are being prepared, and competitive proposals for finishing the station will be taken.

Location.—The site for this quarantine station was selected by a board consisting of a medical officer of the Marine-Hospital Service, the commanding officer of the revenue cutter stationed at Wilmington, N. C., and a representative of the State board of health of North Carolina. It is located on the east side of the channel of the Cape Fear River, 1½ miles from Southport, and about 25 miles from Wilmington, N. C. As provided for in the specifications, the station, when completed, will consist of a pier, a disinfecting house, a hospital, men's quarters, medical officer's quarters, and a ballast crib. The general plan of the pier, which is built upon a substructure of metaled piling, is in the shape of a cross, the foot planted upon the shoals, the head of the cross, represented by the pier head, extending into the channel to a depth of 20 feet at mean low water. At the tip of the cross is the disinfecting house, a building 76 by 25 feet in dimensions, suited for the installation of disinfecting apparatus, and provided with a wharf head 120 feet in length, at which vessels can lie during treatment. At the

extremity of one of the arms of the cross is the hospital, a small building consisting of a ward with room for four beds, a dispensary, a nurse's room, a kitchen, and a water-closet. At the end of the other arm it was designed in the original drawings to place the medical officer's quarters. At the junction of the two main piers is the site for the men's quarters, and 170 feet back from the pier head, to which it is to be connected by a roadway, is a ballast crib, supported by metaled piling, standing in 7 feet of water at mean low tide. It is intended by the gradual collection of ballast to form in time an artificial island.

An artesian well is to be driven at the junction of the two main piers. Contract has not yet been entered into for building the medical officer's quarters and the men's quarters. The quarantine employees, at present five in number, are quartered on the quarantine steamer *Woodworth*, which is out of running order and is moored in front of Southport.

In addition, the station is provided with a naphtha launch for boarding purposes and with two small boats.

Recommendations.—Regarding recommendations looking toward the perfecting of the station, I think it is very essential that a suitable 3-acre tract of land be purchased. Such a piece of ground across the channel from the pier is available.

This would be a much more suitable location for medical officers' quarters than on the pier, where they would be damp and uncomfortable as a place of residence, expensive to maintain, and in constant danger of being demolished by storms or battered in by drifting vessels. There will be necessity for a storehouse as soon as the station is in operation. For the storage of supplies, unserviceable articles, and other public property, a one-story house, having two 15 by 15 feet rooms, should be built ashore.

Provision for the disposal of the dead should be made. In a tract of land ashore a plat could be set aside as a burying place.

A suitable pier should be placed in front of the land ashore. It should be built on hand-driven piles, have a gangway 3 feet in width provided with a hand rail, and extend out to about 5 feet of water at mean low tide. The pier is necessary as a landing place for the launch and boats, as the river shore shoals very gradually at this point.

I recommend that the hospital being erected under the present contract be used as a hospital for "suspects," and that another similar hospital building for contagious cases be erected on a separate pier 500 feet inshore from the ballast crib.

A suitable well-house should be placed over the artesian well as soon as it is driven.

Contract for the building of the men's quarters, as provided for in the original specifications, should be entered into without delay.

Either the steamer *Woodworth* should be put in running order for use as soon as the station is completed or another suitable vessel with power should be supplied. It is necessary to have in connection with the station a tug that can be used to move vessels in quarantine to and from the pierhead and anchorages and that can be used to communicate with the shore during rough weather, which often prevails here in the latter part of summer and in autumn.

A flat-bottom boat for working purposes and a self-righting boat to be used as a lifeboat at the pier should be provided.

Davits or other suitable apparatus for hoisting boats up to the level of the wharf decking should be added to the pier. This is necessary for the preservation of the launch and other small boats.

The approaches to the pier, which were not included in the contract now in force, should be added.

I recommend that this station be officially known as the Cape Fear Quarantine Station. I consider the title Southport Quarantine Station inappropriate, inasmuch as Southport is not a port of entry, but simply a neighboring place of only

1,200 inhabitants; because Southport was until very recently called Smithville, and is known by the latter name to most mariners; because there are other Southports in different States, e. g., Connecticut, Louisiana, and Maine; and because Cape Fear is a prominent landmark and is well known to all navigators.

Respectfully submitted.

J. M. EAGER,
Passed Assistant Surgeon, M. H. S.
SURGEON-GENERAL MARINE HOSPITAL SERVICE.

At the date of this annual report the erection of the pier, disinfecting shed, and attendants' quarters has been completed. The disinfecting apparatus has been constructed and is being installed, and work is in progress on the artesian well.

SOUTH ATLANTIC QUARANTINE; POST-OFFICE ADDRESS, INVERNESS, GA.; TELEGRAPHIC ADDRESS, VIA DARIEN, GA.

REPORT OF THE MEDICAL OFFICER IN COMMAND, P. A. SURG. J. A. NYDEGGER (ASSUMED CHARGE, UNDER OFFICIAL ORDERS, MARCH 17, 1896).

SOUTH ATLANTIC QUARANTINE STATION, *July 21, 1896.*

SIR: I have to submit the report of the operations of this station for the fiscal year ended June 30, 1896, and especially of that portion of the period from March 18, being the date upon which I assumed charge.

During the year 85 sailing vessels and 12 steamships arrived at this station. Of this number 64 were inspected and passed, by months, as follows: July, 2; August, 2; September, 2; October, 5; November, 7; December, 3; January, 4; February, 12; March, 13; April, 6; May, 8; June, 0. Sixty-three of those inspected and passed were foreign; 2 were American.

In October, the Norwegian bark *Golden Horn*, from Belfast, arrived, having had 4 cases of typhoid fever on board en route; 2 had entirely recovered and 2 were convalescent. The water tanks were emptied, disinfected, and refilled.

Twenty-one sailing vessels were inspected and detained for disinfection in accordance with the quarantine regulations. The months of their arrival, where from, where bound, and the number of days at quarantine are given in the following synopsis:

Sailing vessels disinfected.

Date.	Arrived.	Disinfected.	Where from.									Where bound.					Stone ballast.	Sand ballast.	Number of days in quarantine.
			Rio.	Santos.	Habana.	Cienfuegos.	Santiago de Cuba.	Para.	Ponce.	Maranham.	Manzanillo.	Savannah.	Sapelo.	Brunswick.	Darien.	Union Island.			
1895.																			
July	1	1	....	....	1	....	....	....	....	....	....	....	1	....	....	....	....	1	16
August	4	4	2	....	....	....	1	1	....	....	....	3	....	....	....	1	2	1	57
September	2	2	1	....	....	....	....	....	1	....	....	....	1	....	....	1	....	1	33
October	2	2	1	1	....	....	....	....	....	....	....	1	1	....	....	....	2	....	59
November	2	2	1	....	....	....	....	....	....	1	....	2	....	....	....	....	2	....	35
1896.																			
March	2	2	....	1	1	....	....	....	....	....	....	2	....	....	....	....	1	....	21
April	1	1	....	1	....	....	....	....	....	....	....	....	....	1	....	....	1	....	13
May	1	1	....	....	....	1	....	....	....	....	....	....	....	1	....	....	....	1	12
June	6	6	5	....	....	....	....	....	....	....	1	4	1	....	1	....	4	....	88
Total	21	21	10	3	2	1	1	1	1	1	1	12	4	2	1	2	12	*4	†334

* Two empty, 3 not stated.

† Average number of days at quarantine, 15¼.

The Norwegian bark *Midas* arrived in August, having had four of her crew sick in Habana with a suspicious fever. The Russian ship *Columbus* had one case of yellow fever in Rio previous to sailing. The Norwegian bark *Oreb* arrived in June, sent three cases of yellow fever to hospital in Rio, and had one death at sea from the same.

Below is a table showing steamships arrived during the year and the disposition of each.

Steamships arrived, inspected and passed, and disinfected.

Date.	Arrived.	Inspected and passed.	Disinfected.	Where from.									Where bound.					Number of days quarantined.
				Rio.	Habana.	Vera Cruz.	Santiago de Cuba.	Sagua la Grande.	Cienfuegos.	Cardenas.	St. Christopher.	Charleston.	Savannah.	Fernandina.	Port Royal.	Charleston.	Sapelo.	
1895.																		
July	1	....	1	....	....	....	....	1	....	....	....	....	1	....	....	....	....	5
August	1	....	1	....	....	....	....	....	1	....	....	....	1	....	....	....	....	13
September	4	*2	2	....	1	....	....	....	....	1	1	1	2	....	....	....	2	25
October	1	....	1	....	1	....	....	....	....	....	....	....	1	....	....	....	....	18
November	1	†1	....	....	....	....	1	....	....	....	....	....	1	....	....	....	....	....
1896.																		
May	1	....	1	....	1	....	....	....	....	....	....	....	....	1	....	....	....	9
June	3	....	3	1	....	1	....	....	1	....	....	....	....	1	1	....	1	23
Total	12	3	9	1	3	1	1	1	2	1	1	1	6	2	1	....	3	‡94

*One remanded to Brunswick Quarantine Station.
†Remanded to Savannah Quarantine Station.
‡Average number of days at quarantine, 10⅔.

The cook on the Austrian steamship *Boskenna Bay* was taken sick with yellow fever the fourth day out from Habana. Shortly after arrival he was removed to the tent hospital on shore. Death occurred on the tenth day. No other cases appeared among the crew.

To prevent delay and consequent expense one steamship was remanded to the Brunswick Quarantine Station for disinfection. One steamship from Rio for Savannah arrived after the close of the active season and was accordingly directed to the quarantine of the latter city.

Repairs and improvements.—Paints and oils were purchased at a cost of $103.73. Steward's quarters were painted. All roofs at the south end, save those of the lazaretto and stables, were given a coat of fireproof paint. Boats and launches were painted and kept in repair.

Five grates were purchased, costing $172.50. Two were placed in medical officer's quarters and three in steward's quarters. They give satisfaction and add much to the comfort of the quarters in winter season.

A new cooking stove, together with general utensils, was placed in steward's quarters; cost, $40.30.

A chain for lighter and launch anchorage, costing $88.69, was procured and put in use.

An enameled iron bath tub and fittings was placed in medical officer's quarters; cost, $44.95.

During the winter season a telephone line, connecting the wharf with the south end, was erected. The material, including three instruments, cost $85; poles, $75. The work of erection and insulation was performed by the attendants. This line has been of much assistance to the station, greatly lessening the number of trips to the north end specially to see if any vessels have arrived since the last visit. A

drawback to its more complete satisfaction is the lightness of the wire. Most every high wind the line is broken at one or more places, necessitating the sending out of an attendant on horseback to locate and repair the breaks. The instruments also are not giving the satisfaction they should. Those for connecting in multiple would perhaps work to better advantage.

The naphtha launch *Hygeia* was repaired; cost, including freight, $499.23. She is again out of repair since May.

In December the 25-foot naphtha launch *Delta* was received. While not the best for boarding purposes, yet it answers well. Altogether it is a most useful boat. It is utilized for carrying freight from the north end, and makes weekly trips to Crescent, Ga., for supplies. The station would be at a big loss without it. Awnings have been furnished it to give protection from sun and rain; cost, $21.

Two wheelbarrows, gin block, coal barrow, 2 coal scoops, 1 ballast car, and 2 ballast tubs were purchased at a cost of $240, the last-mentioned articles replacing those lost overboard by the collapse of the ballast gangway.

Repairs were made to kitchen-range water back and valves, and pipes laid for supplying hot water to steward's quarters and laundry; cost, $16.50

A heating stove and accessories for heating the office, costing $23.10, were procured.

Owing to the slow and uncertain means of transportation between here and Savannah, permission was obtained to purchase ice and beef supplies in open market at Darien, Ga., the transportation being made by the station launch when in repair and overland via Sapelo when otherwise. The matter of getting freight and supplies to the station is becoming something to be thought of. Formerly a steamer made one to two stops weekly, giving an ample service. Now we are dependent on one small sailboat, the time of arrival of which is very uncertain, not being dependent upon the station patronage for maintenance, but vice versa. I see no way of improving this service at present.

A substantial bridge 16 feet wide, placed on piles so as to be above the spring tides and out of reach of the waves in storms, was built across the creek at north end. The approaches to bridge are made of riprap and covered 2 feet all over with oyster shells. The sides are protected from the force of the waves by breakers built of stone hauled from the ballast pile. The material necessary for the bridge was collected on the beach, and all labor connected therewith performed by the attendants, the total expenditure being $1.44 for nails. It fills a long-felt want.

A temporary hospital camp was prepared early in May, ground cleaned, and all paraphernalia placed in a store tent opposite the wharf on shore. The camp consists of one tent, 12 by 28 feet, for the sick, and one each for the physician, nurses, kitchen, and commissary. All tents are provided with frames and floors. Later a rough board building, 16 by 22 feet, will be added to be used as a storeroom.

Considerable work has been done on the reservation in the way of grading grounds and partly filling in with coal ashes the road leading to the beach. Dead trees in the neighborhood of paint shop, stables, and cow sheds were cut down and removed. The stable yards were cleared of stumps and roots. A board walk was laid from storeroom to stables. The tool house was moved from adjoining attendants' dining room to a more appropriate spot. The foundation and floor of a coal house, 10 by 12 feet, was erected.

The lead joints on steam chamber were found to be in bad condition. Pending the arrival of new leads, the old ones were improved by hammering up the edges. The new ones can not be put in place until after the close of the active quarantine season.

Repairs amounting to $6,964.40 were made to the ballast wharf last summer and autumn. Additional repairs to ballast wharf and ballast gangway are contemplated this season.

The well-known needs of the station, namely, a new ballast wharf with accessories, a small hospital, boathouse, attendants' quarters, and boat landing, were provided for by the last Congress, and work will shortly be begun on these additions. Besides the sum of $15,000 for the ballast wharf, $750 was appropriated for dredging out the "cut" to make it passable for launches at low water. Owing to the increased number of vessels arriving toward the end of June, it became necessary to detail three additional attendants for duty at the north end, thus increasing the force to five. It also became necessary to press the transfer lighter into duty as a receptacle for ballast. Good progress was made with it, discharging on an average almost as large an amount of ballast as is done by more improved methods.

With an increasing clientele the providing of a steam tug for hauling vessels alongside and away from the wharf should be kept under consideration. Much valuable time is frequently lost when vessels are obliged to wait for a favorable tide, and in rough weather everything is at a standstill. At least such has been my experience. Mooring buoys would be of assistance.

An officer should be on duty at the north end during the active quarantine season. To that end proper quarters should be provided.

Respectfully submitted.

JAMES A. NYDEGGER,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

REPORT OF DAMAGE BY STORM AT SOUTH ATLANTIC QUARANTINE.

SOUTH ATLANTIC QUARANTINE STATION,
September 30, 1896.

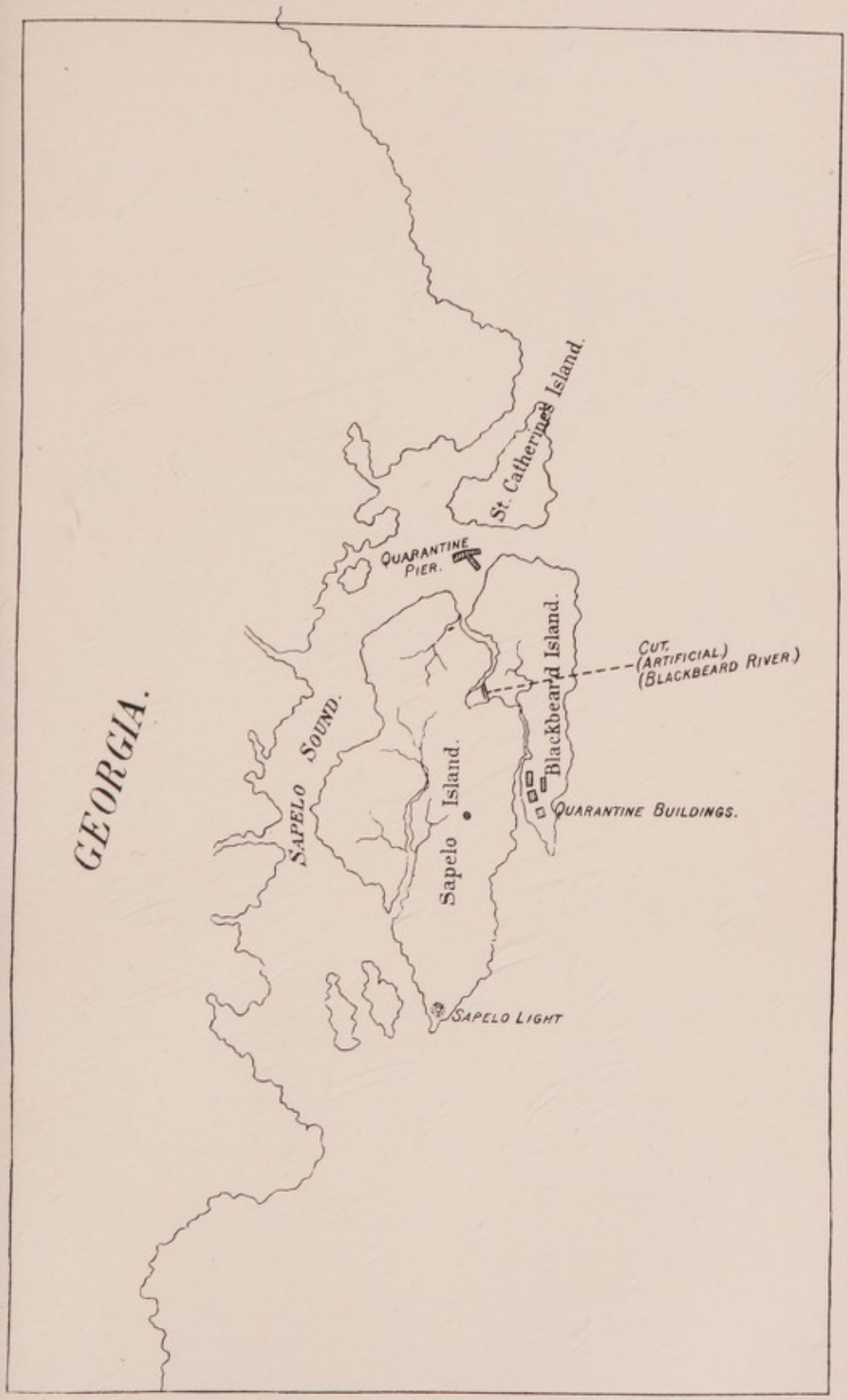
SIR: Reporting further the result of yesterday's storm: At the south end the attendants' quarters are completely unroofed and windows out, the roof having been blown over the tree tops and landed in the marsh. All fences are down and more or less broken. Flag pole down and broken. At officers' and steward's quarters window panes, sash, shutters, shades, veranda railings, and awnings are partially broken, blown down, or otherwise destroyed, and damages to furniture and personal property. Office building sash and glass broken at exposed part—medical and other supplies damaged. Bridge and approach swept away. Launch *Hygeia* is in marsh one-fourth mile from station, and will require much work to float her. As far as ascertained damages are slight. Old Dayton wagon and street lamps broken by falling trees. Many trees on reservation are uprooted and branches from others lie everywhere. At the north end the hospital camp is completely demolished, tents blown into threads, bedding and other articles stored there scattered in all directions. One bichloride tank carried off platform and smashed to fragments. One ballast tub overboard and lost. Minor damages to boats, windows, etc. Launch *Delta* in marsh 12 miles from station, where she was deserted and the men picked up several hours later. (*Delta* gotten off to-day and is all right.)

Three men have been employed temporarily, at $1 per day, to assist getting off launches and replacing heavy bridge timbers. Material ordered for making necessary repairs to buildings.

Respectfully, yours,

JAMES A. NYDEGGER,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.



MAP SHOWING LOCATION OF SOUTH ATLANTIC QUARANTINE (BLACKBEARD ISLAND, GEORGIA).

BRUNSWICK QUARANTINE, BRUNSWICK, GA.

REPORT OF THE SANITARY INSPECTOR, MARINE-HOSPITAL SERVICE, IN CHARGE OF THE STATION.

BRUNSWICK QUARANTINE, *October 6, 1896.*

SIR: In compliance with instructions contained in Bureau letter under date of June 29, 1896, directing me to transmit a detailed account of the transactions of the Service at this station for the fiscal year ending June 30, 1896, I have the honor to make the following report:

During the year 166 vessels arrived at this station from foreign ports. Of this number 111 were inspected and passed and 55 detained for disinfection. Of the number disinfected 40 were from Cuban ports, 25 of which were from Habana, 3 from Cienfuegos, and 12 from other Cuban ports. Of the remainder, 3 were from Rio de Janeiro, 2 from Santos, and 10 from ports of the West Indies, Central and South America. One vessel from the port of Cienfuegos, with earth ballast, was remanded to the South Atlantic Quarantine for disinfection, as the regulations for this port prohibit the importation of that character of ballast from that and certain other ports during the season from May 1 to November 1.

No quarantinable disease appeared on board any vessel while at this station, but 3 had had cases of yellow fever aboard after leaving port of departure, and prior to their arrival at this station. Two of these were from the port of Rio de Janeiro. The Russian bark *Australia* reported 5 cases with 2 deaths and the British barkentine *Grenada* 4 cases with 2 deaths. The American schooner *Hattie P. Simpson*, from Habana and Cienfuegos, 1 case, recovered.

During the year the following expenses were incurred:

Repairs to Whitehall boat	$7.95
Repairs to vacuum pump	5.00
Total expense for repairs	12.95
Telephone service	156.00
Fuel for engines	105.00
Water	18.00
Subsistence account (groceries, etc.)	370.43
Miscellaneous (freight, drayage, etc.)	7.75
Pay of medical officer and four attendants	3,120.00
Total	3,790.13

By way of additions to the station, 12 iron wheelbarrows were purchased at a cost of $92.50. A new ballast wharf with extension for discharge of vessels was erected and furnished with hoisting engine, cars, and tracks, at a cost of $1,300; making the entire expenditures of the station for the fiscal year, $5,182.63.

Congress appropriated $1,550 for improvement of ballast plant, and of that amount $1,300 was used as above named.

Respectfully submitted.

R. E. L. BURFORD,
Sanitary Inspector, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

REPORT OF DAMAGE BY STORM AT BRUNSWICK QUARANTINE.

BRUNSWICK QUARANTINE, *September 30, 1896.*

SIR: I have the honor to report that this station suffered much damage yesterday, September 29, from the storm. The surgeon's quarters and those occupied by two of the attendants were blown away. The furniture was demolished, and many of the records of the station were lost. The other buildings are damaged. One of the wharves was carried away, with the hoisting engine and two ballast

cars. A portion of the ballast run was also carried away. The other wharves are badly damaged. One vessel lying at the wharf was blown away and carried into the marsh half a mile distant. The full extent of the damage will be forwarded as soon as practicable.

Respectfully, yours,

R. E. L. BURFORD,
Sanitary Inspector, M. H. S.

SURGEON-GENERAL, MARINE HOSPITAL SERVICE.

BRUNSWICK QUARANTINE, *October 3, 1896.*

SIR: Supplementary to the letter from this office under date of September 30, 1896, reporting damage to this station from the storm of September 29, 1896, I have the honor to state that the new ballast wharf, which is a total loss, was carried away by the American schooner *Lizzie E. Dennison*, which was in quarantine at the time. At the height of the gale she broke her moorings, dragged anchors, and drifted into the dock broadside, carrying it with her. The hoisting engine, ballast cars, and two ballast tubs which were on the wharf were carried overboard and sunk in 16 feet of water. The ballast tubs were old and worn. Four new ballast tubs were received yesterday from Brunswick Foundry and Machine Works. The wharf was a good one, and would have stood the gale but for the extra weight of the vessel hurled by the waves against it. The foundation pilings are still standing and can be utilized in rebuilding. The floor fender pilings are gone. A small portion of the floor of the ballast run adjoining the wharf was carried away. The remaining ballast wharf can be utilized for discharging ballast of vessels until the other is rebuilt, which should be done at once. The disinfecting wharf is, in its present condition, unsafe, having been partially washed up by the heavy seas. It, however, can be used the remainder of the season by giving it such repairs as can be done by the attendants of the station. The quarters of the officer in charge and two of the attendants having been destroyed, they are at present quartered in a portion of the disinfecting room. This building suffered no damage except the loss of the gutters, which were blown away.

New quarters for the officer in charge and hospital attendants are needed. Temporary quarters can be used until November 1 or the end of the present season, when permanent and suitable quarters should be erected.

Respectfully, yours,

R. E. L. BURFORD,
Sanitary Inspector, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

The following estimate of repairs at the Brunswick Quarantine Station, made necessary on account of the windstorm of September 29, 1896, has been received from Sanitary Inspector Burford:

Repairs on disinfecting building	$50.00
Repairs on surgeon's quarters	1,500.00
Repairs on attendants' quarters	400.00
Repairs on engine	560.00
Two cars	110.00
Car track and switch	60.00
Four dolphins	50.00
Building wharf	300.00
Total	3,030.00

TORTUGAS QUARANTINE STATION; POST-OFFICE ADDRESS, KEY WEST, FLA.

[The name of this station, formerly officially known as Key West Quarantine Station, was, by act of Congress (sundry civil appropriation bill, approved June 11, 1896), changed to Tortugas Quarantine.]

REPORT OF THE MEDICAL OFFICER IN COMMAND, P. A. SURG. L. L. WILLIAMS (ASSUMED CHARGE, UNDER OFFICIAL ORDERS, APRIL 18, 1896).

TORTUGAS QUARANTINE STATION, *August 9, 1896.*

SIR: In compliance with Bureau letter (F I) of June 29, 1896, I have the honor to submit the following report of the transactions of the Service for the fiscal year 1896:

During the year 32 vessels were inspected and passed and 46 vessels were disinfected. Of those disinfected, there were 19 steamers, 20 schooners, 1 bark, 4 barkentines, 1 brig, and 1 brigantine.

Seven cases of yellow fever occurred during the year, all of them during the season of 1895, and all recovered.

Disinfecting plant.—This plant is in fairly good order. A new smokestack for the wharf boiler has been purchased, at a cost of $20.75, and minor repairs have been made by the station force. The top plates of the steam chamber are quite thin, having been rusted by leakage before the bichloride tank was removed from the top of the wharf shed. The chamber will probably last one more season.

Wharf.—This is in good condition, but is too small and is shut in by a sand spit at either end. Large vessels can not be moved either forward or back, and consequently the sulphur furnace is often not available, because the hatches can not be reached by the delivery pipe. Unless the wharf is abandoned and a floating plant built, the most feasible measure is to dredge away the sand spit at the north end of the wharf and a small portion of the spit at the south end, and to extend the wharf from the north end by means of dolphins and a narrow gangway on piles, the latter for the accommodation of the extended sulphur pipe. This, I believe, would give sufficient wharf room for many years to come. The cluster piles near the south end of the wharf have been recently pulled up by a steamship, and should be replaced.

Bird Key Hospital.—This building was erected during the fiscal year 1895. It was not equipped during this fiscal year, there being no funds available for the purpose. It will be put in good condition as soon as practicable, and has meanwhile been partially fitted out with the material on hand. I will not enter upon a discussion of the question of the location of the lazaretto until there has been opportunity to thoroughly test the present one. I should prefer, however, a floating hospital moored in the inner harbor, if a suitable hulk for the purpose can be procured, the deck space, roofed over, to be utilized for the treatment of patients. If the Bird Key Hospital is to be permanent, an annex should be built to contain a room for the medical attendant and a dispensary.

Quarters.—The entire roof of officers' quarters has been repaired and new gutters put up, new gutters put up on twelve kitchens, and window sashes repaired, at a cost for material of $539.20. The roofs of four kitchens have been reshingled and the roofs of eight kitchens repaired, at a cost of labor only.

Two cisterns have been cemented, at a cost of $28.80.

A new walk has been laid out from medical officers' quarters to sally port. Shelving has been put up, painting done, and other minor repairs made by the station force.

The piazza of officers' quarters is in a dilapidated and dangerous condition and should be renewed, the third story being omitted. The plastering in quarters should be repaired.

Steamer Charles W. Foster.—This vessel has been sufficiently repaired by the engineer and station force to enable her to run during the present season. The forecastle has been enlarged and remodeled and is now roomy and comfortable. The water tanks have been lined with copper, the deck calked, the upper deck re-covered with canvas, and the vessel painted. Her bottom needs to be scraped, and this will be done as soon as the ways at Key West are available. It will be necessary during the winter to have her thoroughly overhauled. The principal repairs that will be required are a new propeller and stern bearing and boring out the cylinders, the latter having been worn unevenly.

Schooner Montross.—This boat is used as a ballast lighter, for which purpose she is very well adapted. During the past winter she has been used as a mail and supply boat between this station and Key West, a duty for which she is unfit. During the latter part of the year the trips were made at considerable peril to the crew, owing to the decayed condition of the mainmast. Extensive repairs would be required to render this vessel again available for such work, including a mainmast, new deck, new centerboard case, new rigging, calking, and painting, involving altogether an expenditure of about $800. I do not think she is worth the expense of repair, and for harbor work merely she requires none. A new mainsail and foresail have been made during the year, at a cost of $125.60 for material.

The small boats belonging to the station have been repaired and painted. The naphtha launch *Mary Lee*, which has been found to be very serviceable, will require minor repairs. As the launch is liable to get out of order, however, a stanch centerboard sloop-rigged boat is needed for boarding.

The following recommendations are respectfully submitted:

Renewal of piazza of officers' quarters (two stories); estimated cost, $2,000. Repair of plastering in quarters (about 100 square yards); estimated cost, $200. Four stationary bath tubs and fittings for officers' and attendants' quarters; estimated cost, $250. A small hot-air pumping engine to supply quarters with sufficient water; estimated cost, $300. Dredging sand spits and extension of wharf as referred to above; estimated cost, $7,000. Dismantling schooner *Montross* and constructing in her hold a bichloride tank of 3,000 gallons capacity; a small pumping engine should also be put on board of her to be operated by steam furnished by steamer *Foster;* total estimated cost, $350. This apparatus would make it possible to complete the disinfection of a vessel at her anchorage, after treatment with sulphur at the wharf, and would thereby increase the capacity of the station. The tank, being below the deck, would not interfere with the use of the vessel as a ballast lighter.

No recommendation is made for the construction of a ballast wharf, as but little ballast (except an occasional load of sand ballast) is likely to be discharged at this station.

The following improvements are contemplated during the present year, the work to be done by the station force: Building a small pier at Bird Key, construction of a boathouse, and the erection of a roof over the wharf bridge. The latter is needed for the protection in rainy weather of the employees and the clothing of crews when the steam chamber is being operated.

Very respectfully,

L. L. WILLIAMS,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

GULF QUARANTINE—LOCATION, SHIP ISLAND; POST-OFFICE ADDRESS, BILOXI, MISS.

REPORT OF THE MEDICAL OFFICER IN COMMAND, P. A. SURG. A. C. SMITH (ASSUMED CHARGE, UNDER OFFICIAL ORDERS, MARCH 25, 1896).

GULF QUARANTINE STATION, *August 18, 1896.*

SIR: As directed in Bureau letter (F I) of June 29, 1896, I have the honor to submit herewith an account of the transactions of the Service at this quarantine station for the fiscal year 1896.

The total number of vessels boarded and inspected was 140. Of these, 36 were under the United States flag and 104 were under foreign flags; 14 were from domestic ports and 126 from foreign ports. Only 1 vessel contained cargo, and that was lumber, taken on at a domestic port. Ninety-two vessels inspected were passed without sanitation; 48 were subjected to the routine sanitary procedures. Of these, 1 had yellow fever on board while in quarantine, and 9 others gave a history of having had it on board either at the port of departure or at sea. The remainder appeared to be free from infection. Thirty-seven vessels were without ballast; 18 had ballast of hard rock; 23 had water ballast; the remainder were ballasted with various kinds of earthy materials, usually clean sand or earth and stone. It is fortunate that two of the worst infected ports, Rio de Janeiro and Santos, Brazil, provide the vessels leaving them with the best ballast of hard rock that is seen here.

The medical and surgical work of the station consisted in the treatment in hospital of 3 cases of yellow fever, all of which recovered, and 5 cases of other disease or injury. Twenty outpatients, from vessels in quarantine or the neighboring harbor, were treated.

In the fall of 1895 the new hospital building, on the north side of the lagoon, was finished and accepted. It has not yet been used in the treatment of the sick, no cases of quarantinable disease having been received here since its completion and final acceptance. No other notable changes or improvements were made at the station, and the work was confined to the routine of quarantine practice.

During the winter the steamer *Welch* and the barge *Zamora*, after undergoing some repairs at Mosspoint, Miss., lay in fresh water in that vicinity, in care of a watchman. They were put in commission May 16 and brought to the station.

Very respectfully, yours,

A. C. SMITH,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

SAN DIEGO QUARANTINE, SAN DIEGO, CAL.

REPORT OF MEDICAL OFFICER IN CHARGE.

NATIONAL QUARANTINE STATION,
San Diego, Cal., August 18, 1896.

SIR: In accordance with instructions contained in yours (F. I.) of date June 29, 1896, I have the honor to submit herewith the following account of the transactions of the Service for the fiscal year ending June 30, 1896, relative to the national quarantine station at this port:

The number of vessels inspected and passed during the above-named period was 120; the number spoken and passed was 6; making a total of 126 vessels. None were detained. The vessels spoken and passed were generally naval vessels entering the harbor from foreign ports.

No cases of infectious disease were treated at this station during the year.

Repairs and improvements.—The additions, improvements, and repairs made to the station were as follows:

Repairs made to the wharf	$1,330.00
Construction of disinfecting plant	4,488.00
Painting outside porches of buildings (material)	48.00
Repairs to cooking ranges	10.00
Repairs to telephone line	35.08
Repairs to naphtha launch	62.00
Repairing and painting boats	24.38
Total	5,997.46

The repairs to the quarantine wharf were rendered necessary on account of the strong ebb tides washing the sand and mud bottom away from around the iron casing of the wooden piles, leaving the wood exposed to the destructive inroads of the teredo. These repairs were necessarily slow and expensive, as new fender piles had to be driven, the timbers for the purpose brought from Puget Sound, as this is a barren, treeless country. The services of a diver had to be employed to build up a cement base around each wooden pile which had become exposed below its iron casing. Large bowlders and coarse gravel had also to be hauled from a distance and placed about the base of the piling to prevent the current from again washing out the bottom. This action of the tides in finally exposing the wooden pile below the iron casing demonstrates the impracticability of this expensive form of wharf construction as a protection against destruction of the piling by the teredo where the tides are very swift, the bottom soft, sandy, and liable to shift and dig out by the rapid swirl of the current around the piling, so that the iron casing not only soon becomes useless as a protection to the wooden piling beneath but an actual menace to the safety of the whole structure itself, on account of its great weight swinging back and forth with every ebb and flow of the tide as soon as the wooden foundation is eaten off. The iron casing should be so constructed that it could be forced down beneath the surface of the ground to a sufficient depth of, say, no less than 5 feet, in order to insure complete and permanent protection to the wooden piling beneath. It is found, however, by experience here that wooden piling well creosoted from within outward before being driven, and provided with an opening where more creosote can be poured in from time to time, after they are driven, give the best results.

Disinfecting machinery.—In May, 1896, a disinfecting plant was completed under contract of Messrs. Whitehead & Lewis, of Detroit, Mich. The plant consists of a steam disinfecting chamber with cars and trucks complete, one 30-horsepower steam boiler and trimmings, a bichloride and fire pump, one vacuum pump, one steam trap, valves, piping, etc., all complete.

The disinfecting chamber is a jacketed, rectangular shell, constructed of five sixteenths-inch steel. The dimensions are 4 feet 4 inches by 5 feet 4 inches by 9 feet long inside. It has a door at each end. The doors are constructed of the same thickness and quality of steel as the disinfecting chamber. The doors are dished to avoid bracing, and are swung on large wooden cranes. Each door is fitted in the center with a high-grade angle thermometer having a V-shaped face, showing on one side the temperature in degrees, Centigrade scale, and on the other side the pressure of steam per square inch within the chamber. The portion of the warehouse occupied by the disinfecting chamber is divided by a partition, so that the disinfecting chamber extends from one room into the other. A door in the partition affords communication between these two rooms. This door when closed and locked effectually prevents any communication between the two sets of employees, the one handling infected clothing and the other the disinfected articles at the different ends of the steam chamber. The sulphur disinfecting

apparatus consists of a furnace, reservoir, exhaust fan, fan engine, connecting and discharge pipes, and 300 feet of long woven flax 6-inch hose, well paraffined, for carrying the sulphur fumes aboard vessels. There is also supplied a 2,200-gallon bichloride tank, a pump, and 300 feet of 2-inch mineralized rubber hose, sealed at the ends to prevent the destructive action of the acid bichloride of mercury solution on the materials of which the body of the hose is constructed. The bichloride and fire pump is also supplied with a 20-foot 4-inch rubber suction hose, the same as that ordinarily supplied to steam fire engines. This hose is so arranged that it can be raised and lowered as may become necessary. When not in use it is hauled up and flushed out with fresh water and allowed to dry.

Growing importance of the station.—As previously noted in the annual report for 1895, our rapidly increasing traffic with China and Japan is becoming an important factor in building up the commerce of the Pacific Coast ports, representatives of a large Japanese steamship company being at the present time in San Diego negotiating for dockage privileges and transcontinental railroad connections via the Santa Fe route. The Japanese officials claim that they will have 4,000 and 5,000 ton steamers running from Japan via Honolulu to San Diego within nine months from this date.

Recommendations.—This being the case, it behooves us to make suitable preparation at this station for any emergency that may arise necessitating the detention and disinfection of cabin and steerage passengers from these steamers.

Detention barracks, with suitable kitchen, lavatories, etc., ought to be provided for the accommodation of cabin and steerage passengers. If it is found impossible to obtain the transfer of sufficient ground from the military reservation surrounding the quarantine station for placing these buildings, the shallow portion of the water front of the quarantine grounds should be bulkheaded and filled in for a space of about 75 by 300 feet and the barracks buildings placed thereon and inclosed by a good, substantial picket fence.

There ought also to be provided and kept on hand a sufficient number of tents, and flooring for the same, together with a stove and kitchen utensils for the establishment of a small infectious hospital camp near the station, as the present cottage hospital, on account of its location so near the other buildings, should not be used for infectious cases.

On account of the construction of the jetties near the mouth of the harbor great changes have taken place in the direction and velocity of the tides at this point, the ebb tides especially being extremely rapid and running obliquely to the front line of the wharf, so that it would now prove a very difficult matter to handle one of these large steamers at a wharf so short and imperfectly braced without great danger to the structure; besides, the wharf and warehouse are so small as to be entirely occupied by the disinfecting machinery and appliances. In view of these facts, there ought to be 75 feet added to each end of the wharf, with a 25-foot ell at each end to brace and stiffen the structure. The warehouse room ought to be enlarged sufficiently to provide quarters, with kitchen and a suitable bathroom, for the crews of infected vessels, and shower baths should also be provided for bathing infected passengers while their clothing is being disinfected prior to their entering the detention barracks. The hot water for this purpose could be obtained from the steam boiler supplying the disinfecting plant.

There should also be a bathroom provided for use of the employees of the station, the hot water for which could be supplied from the steam heater in the laundry building. The bathroom could be built onto the laundry as an addition, and this portion of the work could be performed by the employees of the station. At present there is no place where they can take a bath, excepting in the bay, and there are no facilities of any kind at this station for bathing infected persons.

A small drawing of the proposed extension of the wharf and warehouse is

herewith submitted, and the following items are an estimate of the cost of the additions, improvements, and repairs recommended for the ensuing fiscal year, for which special appropriations must be made:

Estimated cost of improvements.

Extension of wharf and warehouse	$4,000
Providing quarters thereon with suitable kitchen and bathroom for crews of infected vessels, and for the construction of suitable shower baths for bathing infected cabin and steerage passengers	2,000
For bulkheading and filling in the shallow water front of the quarantine reservation in order to provide a location for the erection of detention barracks	2,000
For planking over the fill and covering front of bulkhead with cement	1,200
For detention barracks buildings, with suitable kitchen, lavatories, etc., all complete	5,000
Materials for fencing in the barracks	200
For lumber, bath tubs, plumbing work, etc., for the construction of a bath house for employees	475
For reconstructing old portion of telephone line	360
Total	15,235

Additional ground needed.—There is a small triangular piece of ground adjoining and just south of the quarantine buildings and reservation. Its transfer to the Treasury Department for quarantine purposes would obviate the necessity of bulkheading and filling in the water front of the quarantine reservation. The entire water front of this piece of ground is very shallow, and access to it from the bay can only be had in small boats over the quarantine wharf or grounds, consequently it can never be utilized for other than quarantine purposes as long as the quarantine station remains at this point. Therefore, it would seem that there could be no possible objection to its transference for quarantine purposes, as it could be effectually shut off from the balance of the military reservation by a good, high, tight board or picket fence.

A small drawing of the water front of the quarantine reservation and its relation to this triangular piece of ground is herewith inclosed.

The last item, for reconstruction of telephone line, is carried over from last year's recommendations, and the necessity therefor is fully set forth in my letter of date August 1, 1895. The old, rotten poles on a portion of the line are continually falling down, and some of them have been reset so often by the employees of the station that the poles are getting too short to keep the telephone wire at a safe height to prevent its being torn down by stock or passing teams, so that we are liable to find the telephone line down and out of working order just at a time we may need it most.

Very respectfully,

W. W. McKAY,
Acting Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

SAN FRANCISCO QUARANTINE, ANGEL ISLAND; CALIFORNIA, TELEGRAPHIC ADDRESS, VIA TIBURON, CAL.

REPORT OF THE MEDICAL OFFICER IN COMMAND, P. A. SURG. M. J. ROSENAU. (ASSUMED CHARGE, UNDER OFFICIAL ORDERS, MARCH 2, 1896.)

NATIONAL QUARANTINE STATION,
Angel Island, July 18, 1896.

SIR: Complying with Bureau letter of the 29th of June, I have the honor to present a detailed account of the transactions of the Service at this station for



U. S. QUARANTINE STATION, ANGEL ISLAND, SAN FRANCISCO BAY, CAL. ARRIVAL OF IMMIGRANTS IN QUARANTINE.

the fiscal year 1896, together with statistics and other pertinent matter relating to the quarantine service at this port.

Summary of transactions.—Vessels disinfected, 9; passengers quarantined, 1,034; passengers vaccinated, 43. The 1,034 quarantined passengers were bathed, and their clothing and all their baggage disinfected. In addition, a large amount of baggage was disinfected without the passengers themselves being detained in quarantine. Also several hundred bags of mail from the Orient were opened, each letter punctured, spread out, and fumigated.

The steamship *Rio de Janeiro*, from Hongkong, Nagasaki, Kobe, Yokohama, and Honolulu, was sent in quarantine September 16, 1895, on account of cholera in China and foul bill of health. The clothing of 18 cabin passengers and the clothing and baggage of 78 steerage passengers were disinfected. The bedding was boiled or steamed. Eighty-three bags of mail were fumigated. The ship was given a general disinfection.

The bark *S. N. Allen*, from Honolulu, was sent in quarantine September 14, 1895, on account of cholera on the islands. The vessel was disinfected.

The barkentine *N. S. Castle*, from Honolulu, with rice and sugar, was disinfected September 17, 1895.

The ship *Martha Davis*, from Honolulu, was sent to quarantine September 20, 1895. The vessel was disinfected.

The steamship *Gaelic* arrived September 20, 1895, from Hongkong, Japanese ports, and Honolulu. Disinfected on account of cholera at port of departure and intermediate ports. Baggage of steerage passengers also disinfected.

The barkentine *Ghehalis*, from Kobe (Hiogo), Japan, with a cargo of rice and matting, was fumigated September 20, 1895.

The steamship *City of Peking*, from China and Japan, arrived at quarantine October 1, 1895, and was disinfected. The steerage passengers were bathed and their baggage disinfected. The oriental mails were fumigated.

The steamship *China* arrived October 13, 1895, from the Orient. The ship, mails, and steerage passengers' effects were disinfected.

The steamship *Gaelic*, from Hongkong, Nagasaki, Kobe, Yokohama, and Honolulu, was sent to quarantine April 19, 1896. A case of plague occurred on board in one of the Chinese steerage passengers. The man concealed his illness from the ship's surgeon, left the vessel at Yokohama, and died there the next day. The diagnosis was established by a bacteriological examination. A case of smallpox broke out in one of the steerage passengers at sea. The patient was taken to quarantine at Honolulu with about 900 steerage passengers. The vessel arrived here with 51 cabin and 211 steerage passengers, and 109 in the crew, all well. The steerage passengers were transferred to the station, bathed, and all their clothing and baggage disinfected. All the bedding, including the dunnage of the crew, was steamed. Forty-three passengers were vaccinated. The ship was given a thorough disinfection in all its living compartments, including the forecastle, but excluding the cabin staterooms.

The steamship *China*, from Hongkong and way ports, arrived May 12, 1896. Fifty-seven Chinese steerage passengers were bathed and their clothing and baggage disinfected. (This and the following were done in compliance with Bureau telegram directing that the baggage of all Chinese immigrants arriving at this port be disinfected, on account of the prevalence of plague in southern China. The same order was issued to the other quarantines along the coast, the quarantines of British Columbia cooperating.)

The steamship *Belgic*, from Hongkong and way ports, arrived May 20, 1896. One hundred and eighty-three Chinese steerage passengers were quarantined in order to be bathed and have their clothing and baggage disinfected. The vessel not detained.

The steamship *Peru* arrived June 5, 1896, from Hongkong and Japanese ports. A case of plague developed in one of the firemen after leaving Hongkong, and the man was buried at sea. The vessel was quarantined nine days at Nagasaki. Upon arrival here the vessel was permitted to proceed. Sixty-three Chinese steerage passengers were sent to the station in order to disinfect their effects, and be bathed, etc.

The steamship *Coptic* arrived June 17, 1896, from Hongkong and way ports. A case of plague broke out on board in one of the Chinese steerage passengers soon after leaving Hongkong. The patient was taken ashore at Nagasaki where he died, and the ship and its tenants were put through a course of quarantine there. One hundred and eighty-nine steerage passengers were quarantined here. They were bathed and all their effects disinfected.

The steamship *Rio de Janeiro* arrived June 20, 1896, from Hongkong and Japanese ports. All well. Thirty-nine Chinese steerage passengers were quarantined. They were bathed and their effects disinfected.

The steamship *Gaelic*, from Hongkong and way ports, arrived June 27, 1896, with 196 Chinese steerage passengers. They were transferred to the island and appropriately treated.

Method of treating quarantined passengers—The bathing and disinfection of baggage.—The passengers are counted and inspected as they file upon the wharf. The baggage is then landed and spread out along the dock. With the aid of the attendants each piece of baggage is opened and the articles assorted. Clothing, bedding, fabrics, and all goods subject to steam disinfection are wrapped up in a blanket or sheet. All the articles injured by steam are left in the trunk or container.

The bundles for steam disinfection are then carried to the disinfecting house, where they are received by attendants, whose duty it is to open each bundle and again carefully look for furs, leather, or other articles injured by the steam, and then to spread the goods out in the disinfecting cylinders.

The trunks, valises, and all remaining articles are then taken to one of the barrack buildings, where two attendants are stationed, who receive them, examine each piece again in order to eliminate any article that should be steamed instead of fumigated. The trunks, hand bags, etc., are all opened and the goods properly spread out to the action of the sulphur.

The passengers are then bathed. Each one is required to take a rain bath, using soap liberally and friction vigorously. While being bathed each passenger is again inspected by me, thus affording an unexcelled opportunity to discover glandular swellings or eruptions.

During the bath the passenger's clothing, except a pair of shoes and one hat, are taken to the steam cylinders for disinfection and he is given a suit of jeans, 200 of which have been purchased for this purpose.

When all have been bathed, they are again mustered along the dock and counted. They stand in single file and attendants pass along the front and back of the line in order to see that no one has anything in his possession, or on his body, except the suit of jeans, a pair of shoes, and a hat.

In the meantime other attendants look for omitted or hidden articles under the wharf, and in out-of-the-way corners. This is quite necessary, for when the wily Chinaman finds out that everything must be disinfected, he resorts to ways that are peculiar in order to hide what he can.

By this method I can satisfy myself that everything in the possession of the passengers, except one hat and a pair of shoes apiece, is put either into the steam cylinders or the barracks building for disinfection. (Should it be necessary the hat and pair of shoes would be dipped in a carbolic acid solution.)

The articles for steam disinfection are exposed to dry heat at 212° F. for thirty minutes, and then to live steam for thirty minutes more, and again to dry heat.



U. S. QUARANTINE STATION, ANGEL ISLAND, SAN FRANCISCO, CAL. OPENING BAGGAGE FOR DISINFECTION.



U. S. QUARANTINE STATION, ANGEL ISLAND, SAN FRANCISCO BAY, CAL. INSPECTION OF IMMIGRANTS IN JEAN SUITS PROVIDED BY STATION WHILE BAGGAGE IS BEING INSPECTED.



U. S. QUARANTINE STATION, ANGEL ISLAND, SAN FRANCISCO BAY, CAL. BOARDING STEAMER GEO. M. STERNBERG.

Sulphur pots are lighted in the building where the trunks, etc., have been exposed and allowed to remain twenty-four hours before being liberated.

The quarantined passengers are not allowed to leave the dock until they are bathed and furnished with "clean" clothing. When sent to their quarters it is with disinfected baggage and bedding.

The cooks and watchmen sent along with the passengers by the steamship must pass through the same procedure.

The entire process for 200 passengers requires about thirty-six hours.

The passengers are mustered, counted, and inspected morning and evening of each day they are in quarantine, and are given a final count and inspection as they file off the dock to the boat to take their departure.

Each piece of baggage is labeled with the following tag:

[Face.]

Disinfected
July 14, 1896,
at the
National Quarantine Station,
Angel Island, Cal.
In accordance with the regulations of the Treasury Department,
U. S. Marine-Hospital Service.
M. J. ROSENAU,
Passed Asst. Surgeon, U. S. M. H. S.
[OVER]

[Back.]

Disinfected
at the
National Quarantine Station,
Angel Island, Cal.
[OVER]

Repairs and improvements to the station.—A new cistern 25 feet in diameter and 17 feet deep has been built of concrete and faced with cement, at a cost of $1,150. This cistern holds 70,000 gallons of water and is filled during the rainy months to tide over the dry season.

A new spring has been found in a ravine above the station. It has been boxed and piped to the cistern, at a cost of $300.

Three old rain-water tanks have been repaired and painted and placed upon the hillside, and are filled by gravity from this spring and used for storing and irrigating.

The new steam launch *Bacillus*, built by Twigg & Co. for $3,000, has been delivered to the station. The boat is 36 feet long, 8 feet beam, and 3 feet 9 inches deep in center. She has a double-expansion steam engine and Ward boiler, and can make, with crowding, about 10 miles an hour. The boat has a good model and is a staunch little craft.

The steamer *George M. Sternberg* has been docked, scraped, and calked, and minor repairs to machinery have been made on several occasions. The sulphur furnace, engine, and fan were removed and the boat remodeled for boarding service. A cabin and galley were constructed and equipped, the davits changed, and many minor alterations made, at a total cost of $1,050. The iron pump, rubber hose, and tank for bichloride solution remain on board.

A new float for the small boats has been built by the attendants, at a cost of $120.87 for the lumber and hardware.

The boathouse has been underpinned with new piles, in order to save it from collapse, at a cost of $452.

All the small boats have been beached, scraped, painted, and renovated.

A temporary bath house, 20 by 50 feet, has been built, at a total cost of $395. All the pipe fitting and much of the carpentry was done by the attendants. The bath house contains a row of 12 shower baths and a row of 12 dressing rooms. The water runs off through open latticework and is conducted by a wooden trough to the culvert at the end of the building. Each bath has hot and cold water. The water is heated by a steam jet. The building has been substantially built, near

the dock, and it is intended to use it for sulphur disinfection when the new bath house is finished.

A kitchen for cooking Chinese food has been built near the wharf, at a cost of $50 for material, the work being done by attendants. The building is a frame affair, with abundant light and ventilation. There is a 4-inch concrete base, upon which is spread the cement floor. The floor has a slope to one corner, from where the drain leads away to the bay. The cooking of "chow" and rice for the Chinese is done by steam in specially constructed boilers. The front of the building is arranged somewhat after the fashion of the box office at a theater. The Chinese file by and the food is passed out to them.

A laboratory sufficient for the purpose of diagnosing cholera, plague, or diphtheria, and the ordinary bacteriological investigations, has been fitted out. It contains an incubator, a steam sterilizer, dry-wall sterilizer, microscope, stains, and necessary glassware.

An office for the medical officer in command has been started in one of the rooms of the hospital for noncontagious diseases.

An old building known as the "white house" has been entirely renovated within and without by the attendants.

Two hundred jean suits (jumpers and overalls) have been purchased in order to clothe the quarantined passengers after their bath and while waiting for their own clothing to be disinfected; cost, $203.65.

The embankment back of one of the barracks buildings, which has been slipping and threatening the building with landslide since its construction, has been regraded and many hundred cubic yards of loose rock and surface soil removed. The rock has been used to grade the wagon road which runs from the dock to the various buildings on the reservation. The soil has been used to fill up holes and in terracing.

Much grading has been done by the attendants in front of the quarters, and new flower beds and lawns have been laid out. Forty fruit trees and several hundred shade trees have been planted; also grapevines and berry bushes. All have taken a good start.

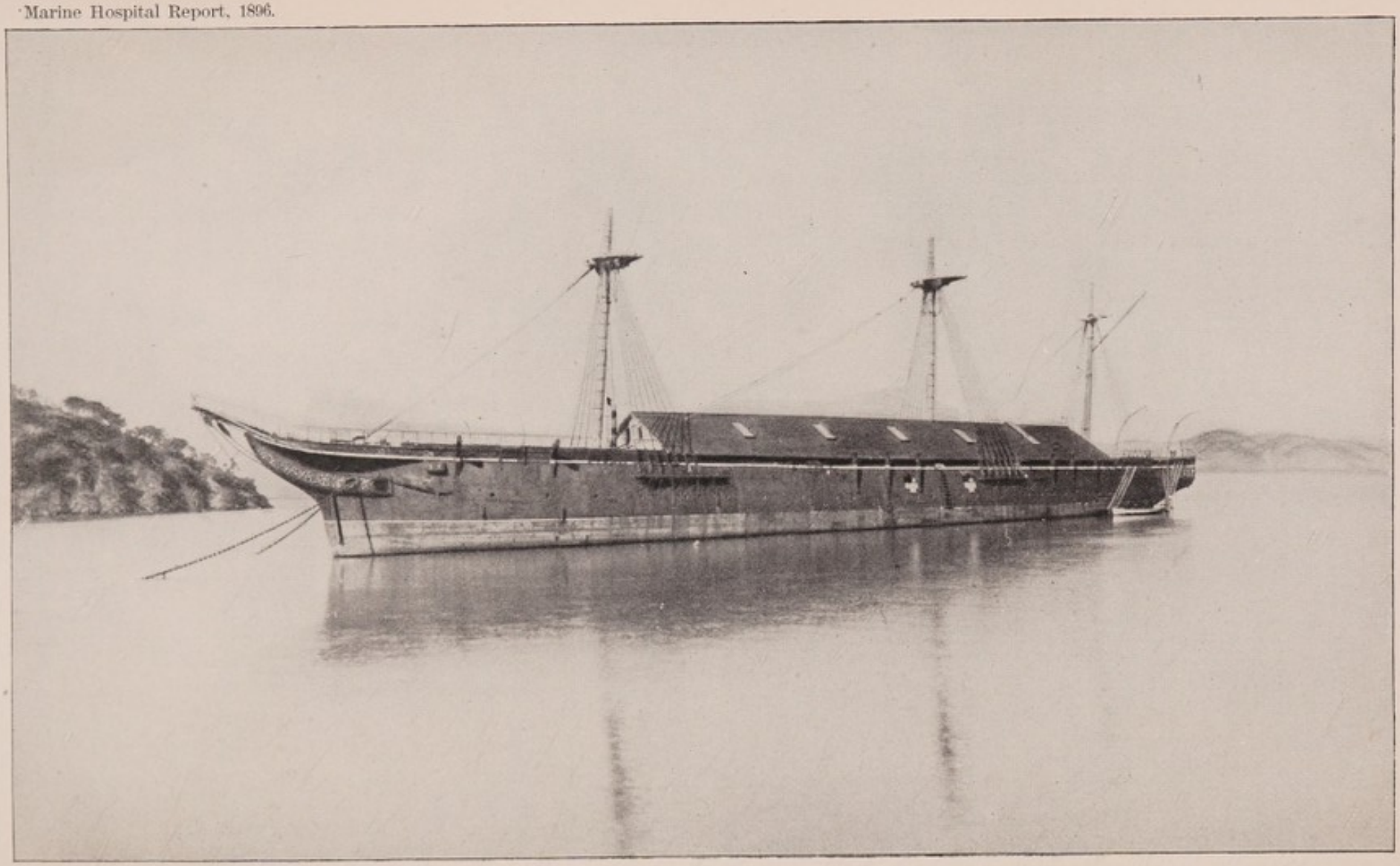
Over an acre of virgin soil has been cleared and broken up this spring in the ravine and planted with vegetables.

A new walk 3 feet wide has been built from the beach up the hill to the quarters. The hill was terraced and wooden steps laid at each rise. The landings consist of red rock laid 4 inches in a clay base and crushed and rolled.

The entire grounds were cleared of wild oats and brush in order to avoid the risk of fire. This is a recurring menace each summer. During the rainy season the wild oats and weeds grow 4 and 5 feet high and very thick. As the dry season advances they become dry as tinder and burn like wildfire.

Authorized improvements in progress.—Five thousand dollars was appropriated by Congress for a bath house and boiler for supplying same with hot water. The site has been selected, and plans are now being drawn up.

The honorable the Secretary of the Treasury has allotted $2,500 from the epidemic fund for mooring and equipping the *Omaha* for the purpose of disinfecting vessels. The work is now progressing. The ship will be moored with two anchors of over 6,500 pounds each and 120 fathoms of $2\frac{1}{16}$-inch chain, which have been obtained from the Navy Department (Mare Island Navy-Yard) for this purpose. The boat will be moored in the bay, off California City Point, in about 6 fathoms of water and about 3 miles from the station, this being the nearest available holding ground. The *Omaha* will be furnished with the necessary fenders, bits, etc., in order that vessels to be disinfected may tie up alongside of her. She will be furnished with a sulphur furnace, engine, and fan, with an iron pump and tanks for bichloride sulution, necessary piping and hose, and a still. The boat thus fitted



U. S. QUARANTINE STATION, ANGEL ISLAND, SAN FRANCISCO BAY, CAL. THE OMAHA.

up will be a floating wharf from which vessels may be fumigated with SO_2, or flushed with antiseptic solutions.

Authority has been obtained to regrade the embankment in the rear of the barracks building. This embankment has been sliding and causing damage to the building. The removal of the surface soil and loose rock to the ledge of solid rock will, it is believed, protect the building from further menace from this source.

Needs of the station.—One of the most serious problems of the station, as well as the whole section of this country, is water. The station depends for its water supply upon two springs, both of which run very low during the dry season, July to November. An artesian well would solve the difficulty. As wells have never been sunk upon the island, it would be somewhat of an experiment, but from what I am able to learn of the strata water would be found, with reasonable certainty, at no very great depth. The water-bearing stratum crops out at several places on the island, and it is probable that this same stratum dips under the bay to the mainland. The springs have a relation to the mountain rains. The curious fact has been noted that they begin an increase of flow several weeks before the local rains. Estimated cost of an artesian boring, $3,000.

Quarters for cabin passengers have never been built on shore, and the *Omaha*, originally intended for this purpose, is now being fitted out as a floating wharf from which to disinfect vessels. Besides, she is poorly adapted to live on. When cabin passengers are quarantined they are detained five or fourteen days, or longer, and comfortable quarters should be provided for them. A series of cottages or one large building subdivided with kitchen, dining room, lavatories, and conveniences, sufficient to accommodate 100 persons, may be built upon the eastern hill slope of the reservation for $10,000.

A telephone to the mainland and connecting the various buildings upon the reservation is necessary, particularly since the Service has begun the boarding of vessels. A telephone line to Tiburon, under Raccoon Straits, can be laid for $1,800. Its use is apparent—for ordering supplies, particularly during quarantine, for communicating with the boarding officer, for notification of the arrival of vessels of approaching quarantine, etc. With such communication the *Sternberg* could operate from the station, and thus save more than the cost of installation in one year. On account of the steep grades and the distances of one building from another, telephones connecting the various buildings upon the reservation would be a material help and save much time. And during quarantine a telephone to the lazaretto, in order to receive reports and to give orders and prevent unnecessary communication, is essential.

It is necessary with the present facilities to spread the articles requiring steam disinfection along the floor of the cylinders. There they are exposed to the drip from above and are apt to be wetted by the water of condensation that collects below. The cylinders should be provided with galvanized iron shields to protect the articles from rust-stained drip; and cars with trays should be provided in order to increase the useful capacity of the chambers and in order to permit the articles to be disinfected to be properly spread out and exposed to the action of the steam. Twelve cars, with undertrucks and tracks, and the galvanized iron shields will cost $3,020. The three disinfectors are air-tight cylinders. The contained air prevents penetration and even to a certain extent contact of the steam with the articles to be disinfected, thus defeating the object of steam disinfection. The cost of an air ejector, gauge, necessary piping, and valves, etc., to produce 10 inches of vacuum in three minutes is $900. Electric thermometers and annunciators for the steam cylinders would render the process more accurate and be a considerable help.

At present one of the Chinese barracks buildings is used for sulphur disinfection. The building is leaky and the fumes escape from many cracks. It is the

intention to use the temporary bath house for this purpose as soon as the new bath house is finished. It was substantially built, near the dock, and with this end in view. It will only be necessary to line the building with some material to prevent the gas escaping, and to build shelves to hold the trunks, etc. The alterations will cost about $100 for material; the work can be done by attendants.

The lazaretto is finished inside with plaster. In case of quarantinable disease the walls will probably have to be destroyed. The interior finish should be of some material that can be flushed, scrubbed, and painted—preferably wood.

The teredo has entirely eaten through some of the piling, and they swing loosely in the current. The wharf has buckled and is in danger of collapsing. Ninety-two new piles need replacing. The timber should be creosoted with 12 pounds of creosote to the cubic foot; cost, $3,150.

The salt-water suction pipe should be extended 166 feet into the cove, so that pumping could be done at any time. The present suction pipe is under water only at high tide, and much inconvenience is occasioned thereby. In case of fire occurring at low tide this would be a serious matter. Cost of pipe and lumber to support same, $70.

Tanks for salt water should be placed upon the hill, and the reservation piped with 2-inch galvanized-iron pipe, and plugs placed at convenient distances for coupling fire hose. Additional fire hose and two hose carts are also needed.

A coal shed to store and protect the coal should be built upon the wharf; cost, $500. Coal is brought to the island in 75 or 100 ton lots and is unloaded on the wharf, where it remains exposed and as an unsightly pile.

The grounds should be provided with lamp-posts. This is necessary for safety of limb at night, and during quarantine to guard the suspects, and at all times to aid the night watchman to protect property. Eighteen lamp-posts, complete, will cost $117.

Lamp and lanterns are also needed in the disinfecting house, kitchen, bath-house, and barracks building.

An office for the medical officer in command and an office for the steward should be fitted up with desks, safe, bookcase, carpet, etc.

A crematory for burning discharges and rubbish and incinerating the bodies of those dead from contagious disease is an essential feature of a well-equipped quarantine. Estimated cost, $2,000.

Very respectfully,

M. J. ROSENAU,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

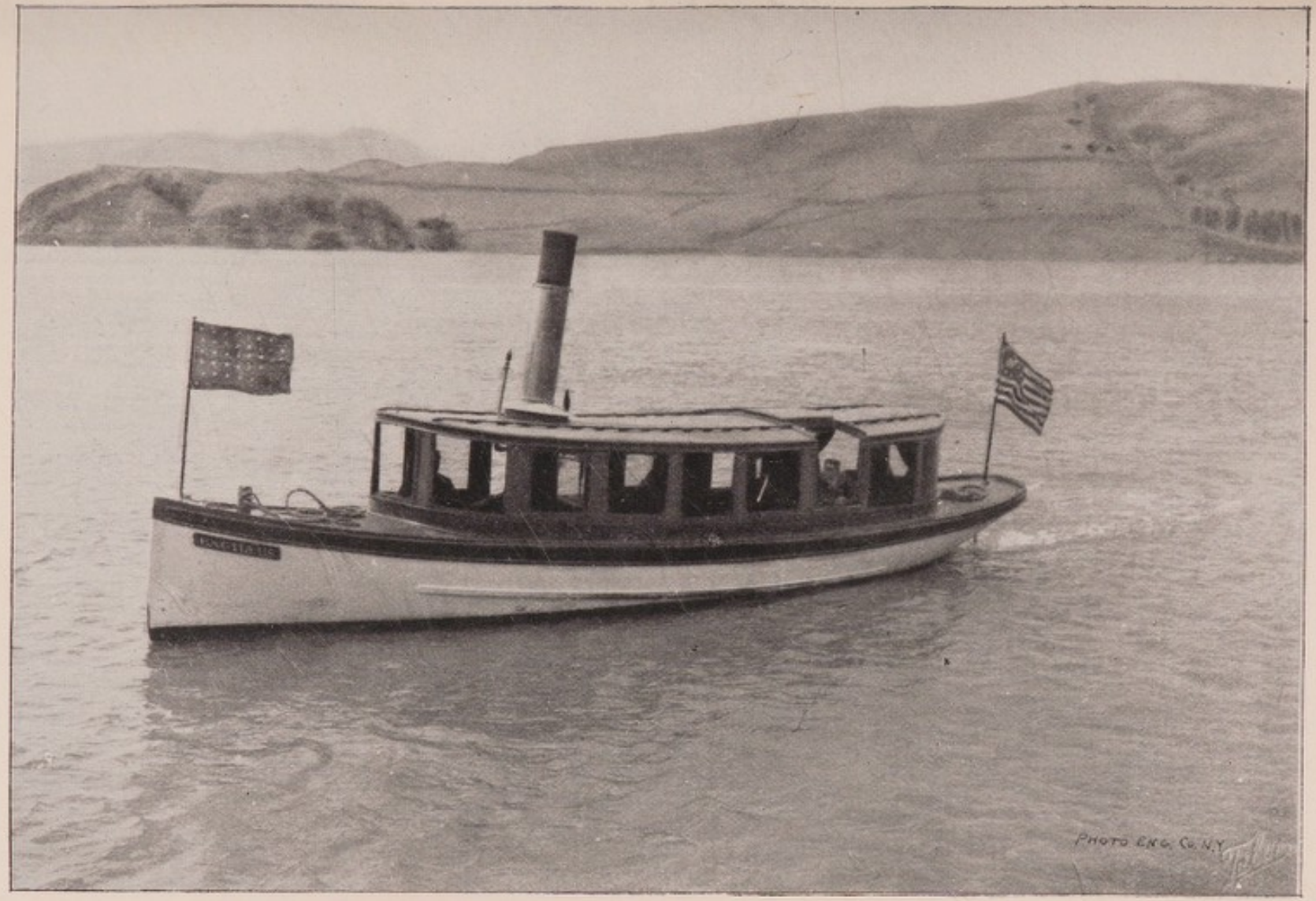
DESCRIPTION OF THE STEAM LAUNCH BACILLUS.

NATIONAL QUARANTINE STATION, *Angel Island, Cal., September 11, 1896.*

SIR: Complying with Bureau letter (F J) of the 29th ultimo, I have the honor to submit the following account of the new steam launch recently built for this station:

The *Bacillus* is an admirable example of her species. She has a good model, sufficient power, and is stanch and seaworthy. She is 37 feet over all, and 8 feet beam, and draws 42 inches. With crowding she can make about 11 miles an hour. Her frame is of oak and planking of white cedar copper-riveted to each rib. She is housed over with a substantial oak superstructure, molded plate-glass windows; the sashes raise and lower similar to those on a tramway.

The engine is compound and develops about 25 horsepower and makes, under 160 pounds pressure, 300 revolutions a minute. The high-pressure cylinder is 4 inches and low pressure 8 inches in diameter; stroke 6 inches. The Hord steam generator makes steam quickly. From a cold boiler, 80 pounds of steam can be obtained in twenty minutes.



U. S. QUARANTINE STATION, ANGEL ISLAND, SAN FRANCISCO BAY, CAL. STEAM LAUNCH BACILLUS.

The boat is divided by a bulkhead, which separates the boiler and machinery forward from the cockpit aft. Sliding glass-paneled doors connect the two compartments. The cockpit is fitted with seats and lockers, and is large enough to comfortably accommodate 12 persons.

The material used in the boat is all first class. The joiner work is accurately finished and securely fastened. The shaft is Tobin bronze and the rudder and propeller brass. There is a copper Keil condenser passing aft around the sternpost. The name is emblazoned in gold letters on each side of the bow.

Very respectfully,

M. J. ROSENAU,
Passed Assistant Surgeon, U. S. M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

PORT TOWNSEND QUARANTINE.

(Boarding station, Port Townsend; hospital, disinfecting chamber, etc., Diamond Point, Washington.)

REPORT OF THE MEDICAL OFFICER IN COMMAND.

PORT TOWNSEND QUARANTINE, *July 29, 1896.*

SIR: I have the honor to make the following report upon the transactions at this station for the fiscal year ending June 30, 1896, as directed by your letter of June 29, 1896:

One hundred and ninety-six vessels were inspected; 3 vessels disinfected—the British steamer *City of Antwerp*, the American barkentine *Retriever*, and the British ship *City of Hankow;* 271 pieces of baggage disinfected; 4,709 sailors inspected; 1,270 passengers—687 white, 504 Chinese, and 79 Japanese—inspected; and 4 patients treated—1 from the *City of Antwerp* and 3 from the *City of Hankow.* The man from the *City of Antwerp* was convalescent when the ship arrived at the station. He had had a severe attack of vomiting and purging on the voyage from Hiogo, Japan, and it was thought best to quarantine the vessel, as cholera was epidemic at the port of departure when the vessel left. The three patients from the *City of Hankow* had smallpox. All the patients recovered.

Additions and improvements.—The additions, improvements, and repairs during the fiscal year are as follows:

Galvanized iron pipe and canvas hose for sulphur disinfecting apparatus	$322.00
Sulphur compartment	200.20
Repairs to steam disinfecting plant	118.20
Repairs to launch	26.41
Repairs to fireplace, surgeon's office	35.00
Paints, oils, etc	137.06
Lumber	201.07
One 2,000-gallon iron tank	140.00
One 5,000-gallon wooden tank	40.00
One force pump with suction hose	61.75
One portable bath tub	68.00
One horse	75.00
Cart, harness, etc	95.10
Total	1,519.79

The walls of the surgeon's house, attendants' quarters, and hospital were given two coats of paint.

A board walk was laid from the wharf to the surgeon's house and from there to the other buildings.

The stumps and rubbish from 5 acres of land were cleared away and the ground sown in grass seed. The pine trees that remained on the 20 acres of cleared land were cut down and made into cord wood. The tallest and straightest of these trees was saved, the branches trimmed off, halyards attached, and used as a flag pole.

The iron and wooden tanks mentioned in the above list are used to collect and store rain water from the roof of the warehouse for the boiler of the disinfecting plant. The middle room of the warehouse was ceiled and painted. A rough wooden house 12 by 12 by 18 feet was built by the engineer for a tool house. Another house 12 by 12 by 20 feet was built for a storehouse. The house and the forward and after deck of the steamer *Iroquois* has been given a coat of tar. A canvas roof has been placed over the launch *Cascade*.

Recommendations.—The following repairs, alterations, and additions should be made at this station:

House for cabin passengers	$3,500
Bath house	1,200
Clearing of 20 acres of land	2,500
Telephone	800
Draining of swamp	600
Fence	500
Two cisterns	500
Clothing	200
Painting buildings (one coat)	125
Repairs to wharf	280
Hospital steward and two additional attendants	2,160
Total	12,365

The house for cabin passengers should be large enough to hold 70 persons. It should have a kitchen, cistern, dining room, male and female toilet rooms, and a ward divided by partitions into rooms 7 feet wide, each room having three berths. There is no place at present at the station to put cabin passengers or the officers of a vessel. When the steamship *City of Antwerp* and the ship *City of Hankow* were in quarantine, the hospital attendants were turned out of their quarters in the attendants' building and the officers of the vessel placed in there. This building, however, is not suited for cabin passengers, as there is no provision made for the accommodation of female passengers.

A bath house is very much needed at this station, as the only way at present to bathe the steerage passengers and the crew is by a hose attached to the end of a force pump. The bath house should be built next to the steerage passengers' barracks, so that as soon as these passengers have been bathed they can pass into their quarters in the barracks.

One hundred suits of clothing, consisting of undershirts, drawers, overalls, singlet, and stockings, are needed for the passengers to put on while their body clothing is being disinfected. Some of the crew of the *City of Hankow* did not have a "shift," and they had to wrap themselves up into anything they could get while their clothing was being steamed.

Twenty acres of land should be cleared to prevent the buildings from catching fire in case the woods on the reservation should become ignited from forest fires. The woods are not more than 200 feet from the nearest building.

A telephone line connecting the station with the main line of the Sunset Telephone Company at Junction City is one of the most necessary additions to the station. The length of this line would be about 10 miles. The station can only be reached by water, and in bad weather communication with the outside world is

entirely cut off. A great many times I have had to go to the station in the launch, where if there had been a telephone the journey around would have been unnecessary.

The swamp in front of the buildings should be drained, as it has a bad odor in summer time. This would not be difficult, as the water on the beach at low tide is below the level of the pond.

A wire fence should be built around the reservation to keep stray cattle away. There are sometimes a dozen of these cattle on the reservation at one time, as they come to eat the wild grass around the swamp.

Two cisterns of 10,000 gallons capacity each are required, one at the surgeon's house and another at the attendants' quarters. These cisterns should have a force pump to force the water into a 400-gallon tank, from which tank the water will flow to the different parts of the building. There is no rain in this country from May 1 to October 1, and as the spring water is very hard, there ought to be some way of storing the rain water for use during the summer.

The outside of the building should be given one coat of paint. The surface area of the buildings has been estimated to be 27,871 square feet.

Nearly all of the fender piles at the wharf have been broken off and should be replaced. Piles should also be driven on the other side to steady the wharf when a ship comes against it. Two mooring dolphins should be placed on each side, so that vessels could tie their lines to them instead of to the wharf. Three of the iron piles have been broken, so that wooden piles should be driven near them to help support the wharf.

A hospital steward should be detailed for duty at this station, as none of the attendants are qualified to act as an executive officer during my absence in Port Townsend, and the station is so far away it is not practicable for me to visit it very often. Besides the engineer and the keeper, there are two attendants employed temporarily at the station to disinfect baggage of Chinese passengers coming to this country from China. I would recommend that these attendants be employed permanently, as it requires four attendants to properly take care of the station. It is difficult to get men to work at a quarantine station when an infected ship arrives, and if I succeed in employing new men they are inefficient, as they have had no experience in disinfecting ships.

Very respectfully,

WM. G. STIMPSON,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

DESCRIPTION OF NAPHTHA LAUNCH CASCADE.

PORT TOWNSEND QUARANTINE, *August 14, 1896.*

SIR: I have the honor to forward by express to-day two photograph negatives—one of steamer *Iroquois* and one of launch *Cascade*—as directed by Bureau letter of the 31st ultimo.

The launch *Cascade* is 38 feet long. She has a beam of 8 feet and a depth of 3½ feet. She is built of oak and finished with the same material. There are two seats with lockers underneath running the whole length of the hatchway. She is covered with a canvas top, supported by galvanized-iron stanchions, with curtains on each side. She is run by a 12-horsepower naphtha engine with two injectors. The propeller is a true-screw 30-inch brass wheel of three blades. The naphtha tank holds about 250 gallons of naphtha. The launch consumes about 5 gallons of naphtha an hour, and her speed in good weather, with a favorable tide, is 9 knots an hour.

Very respectfully,

WM. G. STIMPSON,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE.

LIST OF VESSELS EMPLOYED IN THE MARINE-HOSPITAL SERVICE NOVEMBER 1, 1896.

The following is a descriptive list of the vessels belonging to the Marine-Hospital Service in use at the several United States quarantine stations:

Name of vessel.	Rig.	Tonnage.	Dimensions.			When built.	Where built.
			Length.	Breadth.	Depth.		
			Feet.	*Feet.*	*Feet.*		
Zamora [1]	Bge	120.44	84	26.7	8.6	1880	Quaco, New Brunswick.
William Welch	St. s.	88	122	16	6.5	1889	Wilmington, Del.
Louis Pasteur	St. s.	.....	87	16.6	6.1	1889	Do.
Robert Koch	St. s.	.....	87	16.6	6.1	1889	Do.
John M. Woodworth	St. s.	88.13	80	17	7.6	1880	Camden, N. J.
Dagmar [2]	St. s.	88.08	101.3	16.5	9	1886	Newburg, N. Y.
Jamestown [3]	Shp	888	163.6	36	.....	1845	Gosport, Va.
Charles Foster [4]	St. s.	85.89	81	19.7	9.5	1890	Brooklyn, N. Y.
Emil M. Montross	Sch.	30.41	54	20	4.5	1878	Biloxi, Miss.
George M. Sternberg	St. s.	.....	80	16.9	5.9	1892	San Francisco, Cal.
Omaha [5]	St. s.	1,122	250.6	38	16.6	1869	Philadelphia, Pa.
Bacillus	St. l.	.....	39	8	.....	.....	San Francisco, Cal.
Iroquois [5]	St. s.	695	198.1	33.1	15.3	1858	New York, N. Y.

Name of vessel.	Material.	Estimated cost.	Service.	Quarantine station.
Zamora [1]	Wood	.....	Disinfecting barge	Gulf, Ship Island, Miss.
William Welch	Iron	$27,000	Fumigating steamer	Do.
Louis Pasteur	do	22,500	Boarding steamer	Reedy Island, near Port Penn, Del.
Robert Koch	do	22,500	Fumigating steamer	Cape Charles, Va.
John M. Woodworth	Wood	30,000	Quarters	Southport, N. C.
Dagmar [2]	Steel	27,000	Boarding steamer	Cape Charles, near Fishermans Island, Va.
Jamestown [3]	do	.....	Detention of passengers and disinfecting vessel.	Do.
Charles Foster [4]	Wood	25,000	Boarding steamer	Key West, Dry Tortugas, Fla.
Emile M. Montross	do	2,300	Ballast lighter	
George M. Sternberg	Steel	28,900	do	San Francisco, Cal
Omaha [5]	Wood	.....	Detention of passengers and disinfecting vessel.	Do.
Bacillus	do	3,000	Transfer of mail and supplies.	Do.
Iroquois [5]	do	.....	Detention of passengers.	Port Townsend, Wash.

[1] Formerly No. 28113, schooner Zamora.
[2] Formerly No. 157178, purchased at New York, N. Y., in 1891.
[3] Transferred from United States Navy in 1892.
[4] Formerly No. 129667, C. K. Buckley, purchased at New York, N. Y., in 1892.
[5] Transferred from United States Navy in 1893.

NAPHTHA LAUNCHES.

Name of launch.	Horsepower.	Dimensions.			When built.	Where built.
		Length.	Breadth.	Depth.		
		Ft. In.	Ft. In.	Ft. In.		
Spray	12	38 0	8 0	4 0	1895	New York, N. Y.
Hygeia	10	30 0	7 0	.....	1893	Do.
Beta	2	21 0	5 6	.....	1895	Do.
Hermes	6	30 0	6 0	.....	1893	Do.
Mercury	10	35 0	7 0	.....	1893	Do.
Delta	4	25 0	6 0	.....	1895	Do.
Mary Lee	6	30 5	5 4	.....	.....	Do.
Alpha	2	21 0	5 6	.....	1895	Do.
Aimée	4	25 4	5 6	.....	1891	Do.
Nightingale	10	35 0	7 0	.....	1893	Do.
Cascade	12	38 0	8 0	3 6	1895	Do.
Gamma	4	25 0	6 0	.....	1895	Do.

Name of launch.	Material.	Estimated cost.	Service.	Quarantine station.
Spray	Wood	$3,800	Boarding boat	Delaware Breakwater.
Hygeia	....do	3,270	Boarding and supply boat.	Reedy Island.
Beta	....do	1,560	Boarding boat	Cape Charles, Va.
Hermes	....do	3,250	Boarding and supply boat.	Southport.
Mercury	....do	3,750	.....do	South Atlantic.
Delta	....do	2,100	Boarding boat	Do.
Mary Lee	....do	2,500	.....do	Tortugas.
Alpha	....do	1,560	Quarantine inspection.	Anclote, Fla.
Aimée	....do	2,100	Boarding boat	Gulf.
Nightingale	....do	3,750	.....do	San Diego.
Cascade	....do	4,200	.....do	Port Townsend.
Gamma	....do	2,100	Boarding boat U. S. sanitary inspector.	Habana, Cuba.

QUARANTINE STATION AT THE MOUTH OF THE COLUMBIA RIVER.

Attention is respectfully invited to the bill introduced in the Senate providing for the establishment of a quarantine station at or near Astoria, Oreg.

This station is a positive necessity, since there is no disinfecting plant at the mouth of the Columbia River nor at Portland, Oreg., and in the event of the arrival of an infected vessel, it would be necessary to send her to Port Townsend or San Francisco. In 1894 an effort was made to have an appropriation for a quarantine station near Astoria included in the sundry civil appropriation bill, and though it was acted upon favorably in the Senate it was stricken out in conference. A bill for this purpose was introduced by Mr. Mitchell, of Oregon, March 11, and this bill is still pending. It makes an appropriation of $30,000 for the quarantine plant and for the maintenance of the station during the fiscal year, and also provides that the Secretary of the Navy be authorized to transfer to the Secretary of the Treasury for the use of this quarantine any vessel which has been condemned as unfit for naval purposes.

REPORTS OF INSPECTIONS OF ALL NATIONAL, STATE, AND LOCAL QUARANTINE STATIONS AND PORTS OF ENTRY.

[Arranged in geographical order.]

By the provisions of the act of February 15, 1893, it is the duty of the Surgeon-General of the Marine-Hospital Service to perform all the duties in respect to quarantine and quarantine regulations which are provided for by the act, and he is also directed to examine the quarantine regulations of all State and municipal boards of health, and cooperate with and aid said boards in the execution and enforcement of their rules and regulations, and in the execution and enforcement of the rules and regulations made by the Secretary of the Treasury. To carry out the spirit and letter of this law the following regulation was promulgated by the Secretary of the Treasury:

TREASURY REGULATION.

* * * * * * *

In the performance of the duties imposed upon him by the act of February 15, 1893, the Supervising Surgeon-General of the Marine-Hospital Service shall from time to time, personally or through a duly detailed officer of the Marine-Hospital Service, inspect the maritime quarantines of the United States, State and local as well as national, for the purpose of ascertaining whether the quarantine regulations prescribed by the Secretary of the Treasury have been or are being complied with. The Supervising Surgeon-General, or the officer detailed by him as inspector, shall, at his discretion, visit any incoming vessel, or any vessel detained in quarantine, and all portions of the quarantine establishment for the above-named purpose and with a view to certifying, if need be, that the regulations have been or are being enforced.

J. G. CARLISLE, *Secretary.*

In accordance with the above regulation, regular inspections of all quarantine stations of the United States have been made in each of the past three years by officers of the Marine-Hospital Service, and reports have been received upon blank forms furnished by the Bureau. These inspections have been of undoubted value, because of the precise information they have conveyed, and because, too, the careful and systematic review of the work of the local quarantines has had a bracing effect upon their administration. Heretofore the reports have not been published, but it is deemed proper now to publish those received during this the third year in which the inspections have been made.

A great deal of valuable information is made available for reference by this publication, which, moreover, graphically displays the care exercised by the Service in maintaining a guard against pestilential disease around the coast from Maine to Washington.

In many of the reports which follow, to avoid repetition, the questions to which answers are made are omitted and referred to only by number. They may be read in full in the copy of special instructions inserted here for ready reference.

A list of the ports inspected and maps showing the location of all quarantine and inspection stations precede the inspection reports.

SPECIAL INSTRUCTIONS TO MEDICAL OFFICERS OF THE MARINE-HOSPITAL SERVICE DETAILED TO MAKE INSPECTIONS OF STATE AND LOCAL QUARANTINES.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

NOTE.—There are sometimes slight, but possibly important, variations from the letter of the local regulations in the administration of quarantine. Also, local regulations generally allow a wide latitude to the quarantine officer, and how this latitude is used, i. e., how the quarantine officer interprets the spirit of the regulations, is very important.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department.

It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

NOTE.—Many ports on the South Atlantic coast (e. g., Charleston, Savannah, and Fernandina) require certain ballasts to be discharged in quarantine without regard to season.

6. Are vessels from other United States ports inspected?

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

NOTE.—Quick or slow handling of a vessel is of more importance commercially than the question of fees. The time lost is the vessel's heaviest expense generally.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.) and how regulated? Is there any intercommunication allowed among vessels in quarantine?

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

17. What disposition is made of the consular bills of health?

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

List of national, State, and local quarantine stations and ports of entry included in the following reports, arranged in geographical order.

Maine:
- Eastport (see page 562).
- Ellsworth (see page 562).
- Bangor (see page 563).
- Waldoboro (see page 565).
- Belfast (see page 566).
- Rockland (see page 567).
- Wiscasset (see page 568).
- Bath (see page 569).
- Portland (see page 571).
- Kennebunkport (see page 573).
- York (see page 574).
- Castine (see page 575).

New Hampshire:
- Portsmouth (see page 576).

Massachusetts:
- Newburyport (see page 577).
- Gloucester (see page 579).
- Salem (see page 582).
- Marblehead (see page 584).
- Boston (see page 586).
- Plymouth (see page 591).
- Barnstable (see page 592).
- Provincetown (see page 593).
- Hyannisport (see page 596).

Massachusetts—Continued.
- Nantucket (see page 597).
- Edgartown (see page 598).
- Vineyard Haven (see page 598).
- New Bedford (see page 600).
- Fall River (see page 603).

Rhode Island:
- Newport (see page 604).
- Bristol (see page 606).
- Providence (see page 607).

Connecticut:
- Stonington (see page 611).
- New London (see page 612).
- Saybrook (see page 613).
- Hartford (see page 613).
- New Haven (see page 614).
- Bridgeport (see page 617).

New York:
- Sag Harbor (see page 618).
- New York City (see page 618).

New Jersey:
- Perth Amboy (see page 632.)
- Camp Low (see page 634).
- Tuckerton (see page 635).
- Somers Point (see page 635.)

New Jersey—Continued.
Bridgeton (see page 636).
Pennsylvania:
Marcus Hook (see page 637).
Delaware:
Wilmington (see page 637).
Reedy Island (see page 638).
Delaware Breakwater (see page 643).
Maryland:
Baltimore (see page 646).
District of Columbia (see page 658).
Virginia:
Cape Charles (see page 661).
Alexandria (see page 666).
West Point (see page 667).
Rappahannock (see page 667).
Petersburg (see page 668).
City Point (see page 668).
Newport News (see page 669).
Richmond (see page 672).
Norfolk (see page 673).
North Carolina
Elizabeth City (see page 688).
Edenton (see page 680).
Washington (see page 682).
Newbern (see page 684).
Beaufort (see page 686).
Southport (see page 690).
South Carolina:
Georgetown (see page 695).
Charleston (see page 704).
St. Helena Entrance (see page 710).
Port Royal (see page 714).
Georgia:
Savannah (see page 718).
South Atlantic Quarantine Station (see pages 723 and 725).
Darien (see page 731).
Sapelo and Doboy sounds (see page 733).
Brunswick (see page 734).
St. Marys (see page 743).
Florida:
Fernandina (see page 745).
Mayport (see page 750).
St. Augustine (see page 753).
New Smyrna (Port of Mosquito Inlet) (see page 755).
Jensen (Port of Santa Lucia Inlet, on Indian River) (see page 756).
Palm Beach (see page 757).
Key West (see page 759).
Florida—Continued.
Tortugas (see pages 768 and 770).
Punta Rassa (see page 774).
Charlotte Harbor (see page 775).
Mullet Key Quarantine Station (see page 779).
Anclote Key (see page 794).
Cedar Keys (see page 797).
St. Marks and Carrabelle (see page 799).
Apalachicola (see page 799).
Pensacola (see page 807).
Alabama:
Mobile Bay Quarantine (see page 825).
Mississippi:
Gulf Quarantine, Ship Island (see pages 845 and 852).
Pascagoula (Round Island) (see page 861).
Louisiana:
Rigolets Quarantine Station (see page 867).
Mississippi River (see page 872).
Atchafalaya River Quarantine Station (see page 879).
Texas:
Sabine Pass (see page 882).
Galveston (see page 885).
Quintana (see page 889).
Pass Cavallo (see page 891).
Aransas Pass (see page 894).
Brazos de Santiago (see page 896).
California:
San Diego (see page 900).
Los Angeles (see page 905).
San Francisco (see page 907).
Eureka (see page 912).
Oregon:
Coos Bay (see page 914).
Gardiner (see page 915).
Yaquina City (see page 916).
Astoria (see page 917).
Portland (see page 921).
Washington:
Port Townsend (see page 923).
Port Angeles (see page 927).
Seattle (see page 927).
Tacoma (see page 928).
Gray's Harbor, Aberdeen, Hoquiam (see page 928).
Blaine (see page 929).
Whatcom (see page 930).
South Bend (see page 930).

MAINE.

REPORT OF INSPECTION OF LOCAL QUARANTINE STATIONS.

By Surg. H. W. Austin, M. H. S.

EASTPORT.

There is no quarantine station at this port, nor apparatus for disinfection of vessels and of baggage.

The collector of the port, George M. Hanson, acts as quarantine officer.

City board of health act as local quarantine officers, under State law.

State authorities have not had occasion to act in recent years.

Vessels from United States ports are not inspected.

Number of vessels arriving from foreign ports during the year ending June 30, 1896, 758, almost entirely from Canadian ports. Number arriving from domestic ports, 208. Vessels arriving from Canadian ports come generally with cargo consisting principally of the products of Canada.

October 7, 1896.

ELLSWORTH.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Ellsworth is provided with no quarantine ground, buildings, or disinfecting plant. There is good anchorage for vessels, but no designated quarantine anchorage. Inspection of vessels could be made in a small boat.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Board of health: Dr. W. M. Haines, chairman; Dr. A. C. Haggerty; George A. Parcher, esq., secretary. Post-office address, Ellsworth, Me.

3. There are no local quarantine laws or regulations, and no quarantine customs.

4. There are no quarantine procedures, either under printed regulations or by custom.

5. No inspections of vessels made.

6. No vessels from other United States ports are inspected.

7. No inspections made. No vessels in quarantine for several years.

8. Communication with vessels in quarantine would not be allowed.

9. There being no facilities for the care of quarantinable diseases or the disinfection of vessels, infected vessels arriving at the port should be sent to the Portland or Boston quarantine.

10. No records are kept.

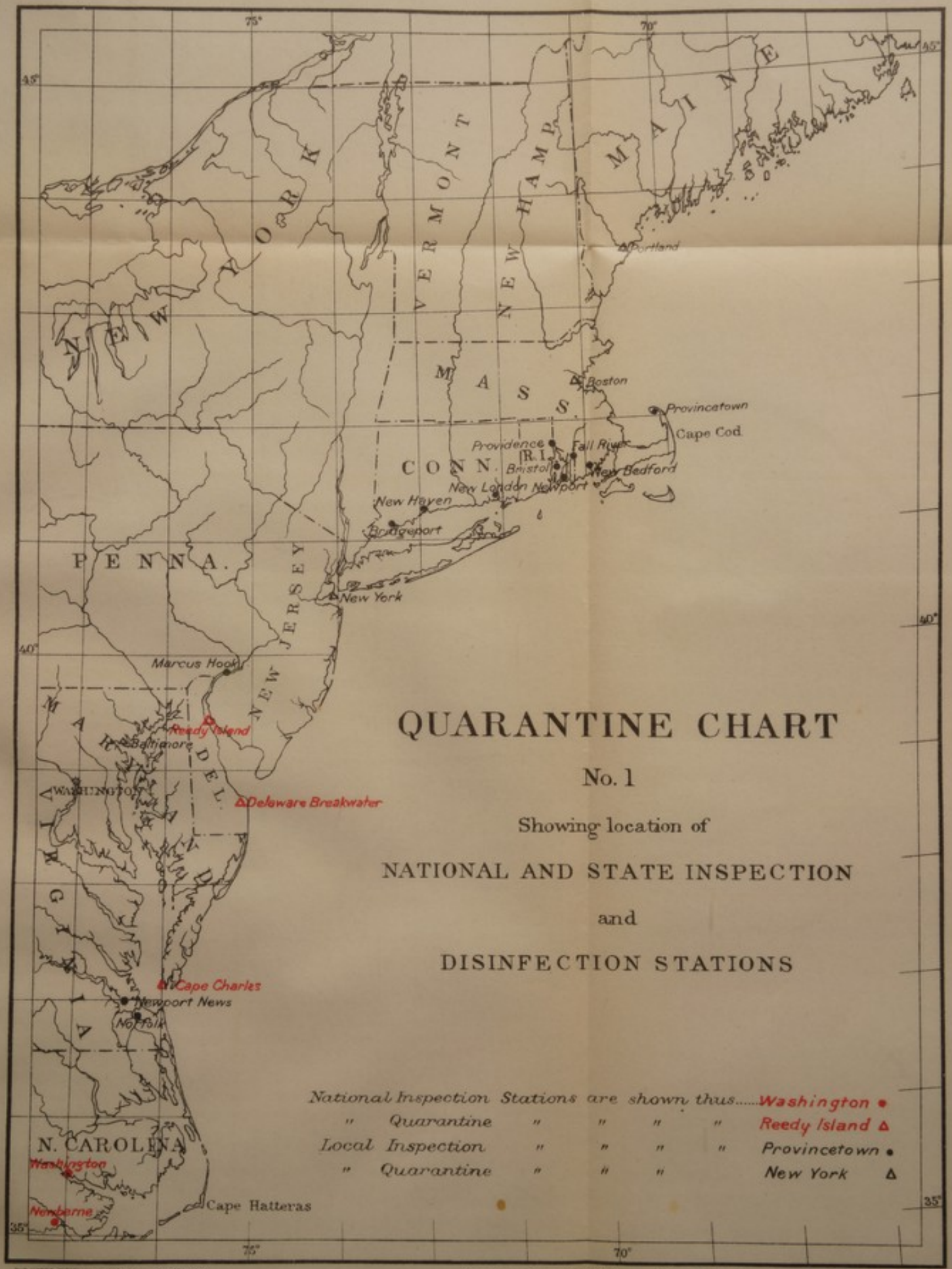
11. There are no prescribed fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports, (*b*) from foreign ports in yellow-fever latitudes via domestic ports, (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

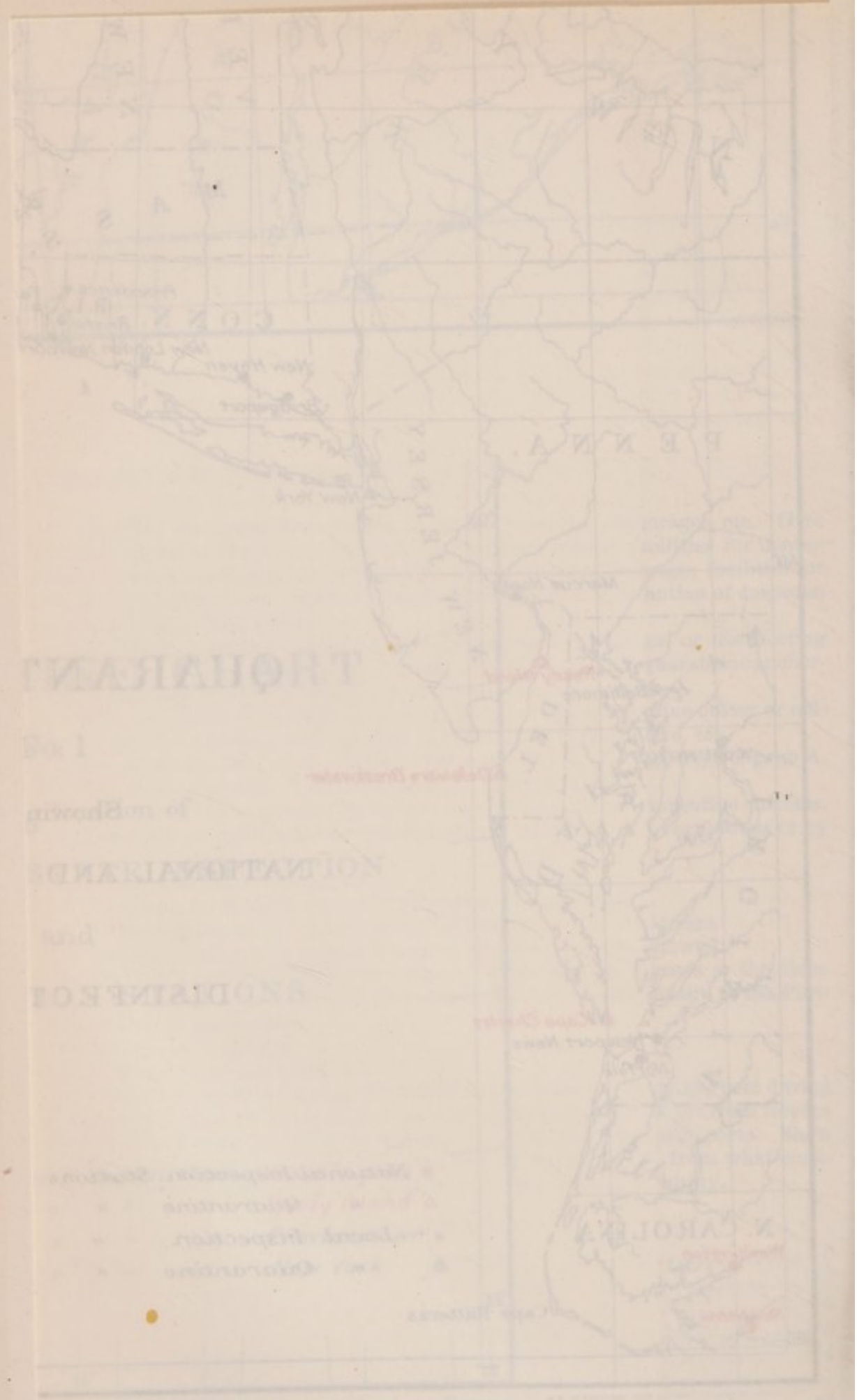
From foreign ports.

January	3	August	0
February	1	September	2
March	1	October	6
April	6	November	6
May	2	December	4
June	0		
July	1	Total	32

All the above vessels were from Canadian ports.



Prepared at the Office of the U. S. Coast and Geodetic Survey.



13. Consular bills of health are required and filed. No immigration to this port.
14. There are no quarantine facilities.
15. The United States Treasury regulations are observed so far as applicable.
SEPTEMBER 29, 1896.

BANGOR.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Bangor has no quarantine buildings or disinfecting plant. The quarantine anchorage is mentioned in the regulations, but the locality is not designated. It is understood to be in the river below the city. Anchorage in the river below the city is safe.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Board of health: Dr. Galen M. Woodcock, chairman; Dr. Daniel McCann; Mr. John Goldthwaite. Post-office address, Bangor, Me.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

Copy of the local quarantine regulations is inclosed, marked A. The regulations relate principally to the inspection of vessels. Vessels with quarantinable disease on board or having had the same on board during the voyage, vessels from foreign ports not having a clean bill of health from the consular officer, and vessels from European and Asiatic ports, with or without sickness on board, must anchor at quarantine until inspected by the health officer and pratique granted.

This regulation is practically the same as the United States quarantine regulation pertaining to the inspection of vessels, except inspection of foreign vessels without sickness on board is limited to European and Asiatic ports.

4. There are no quarantine procedures, either under printed regulations or by custom, enforced at the port, in addition to the requirements of the Treasury Department.

5. Regulation provides for inspection throughout the year.
6. No vessels from other United States ports are inspected.
7. No vessels in quarantine and no vessels inspected.
8. Communication with vessels in quarantine would not be permitted.
9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Dr. Woodcock, the chairman of the local board of health, who is also a member of the State board of health, informed me that arrangements could readily be made for the treatment of an infected vessel at the Bangor quarantine. He also indicated that the board of health were ready and willing to inspect any vessel from a foreign port, if the board were notified by the collector of customs of its arrival.

10. No records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.
11. No prescribed fees are mentioned in the regulations herewith transmitted.
12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

From foreign ports.

Month.	From—	Number.	Month.	From—	Number.
April	Canada	1	September	Spain	1
June	do	1		Turks Island	1
	Bermuda	1		France	1
July	do	1	October	Amsterdam	1
	Genoa, Italy	1	November	Canada	1
September	Scotland	1			

13. State results of your visit to (*a*) the custom-house; (*b*) to the immigration bureau.

Inspection of foreign vessels and certificate from health officer were not required prior to entry in any case. Consular bills of health are required and filed. There is practically no immigration to this port.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

No. I think Bangor should be provided with quarantine ground and isolation buildings, as there is considerable shipping coming to this port.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

Inspection of foreign vessels prior to entry.

16. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that the collector of customs be instructed to enforce the regulations of the Treasury Department relating to the inspection of foreign vessels prior to their entry at the custom-house.

SEPTEMBER 26, 1896.

A.

Rules and regulations of the local board of health relating to quarantine inspection at Bangor, Me.

[Adopted by the local board of health October, 1892.]

From and after this date the following rules and charges will be enforced at this port:

I. All vessels arriving at this port with plague, cholera, smallpox, yellow fever, typhus fever, or other contagious disease on board, or having had the same during the voyage, must be directed by the pilot or harbor master to anchor on quarantine ground and remain there until released by written order of the board.

II. Any vessel arriving from a foreign port with or without sickness on board, and not having a clean bill of health from consular officer at port of clearance, will be directed by the pilot or harbor master to anchor at quarantine and remain until released by written order of the board.

III. All vessels or steamships arriving from European or Asiatic ports will be compelled to anchor at quarantine and remain until inspected under the direction of and released by written order of the board, unless special permission shall be given in writing to allow any such vessel to come to its wharf for inspection there, in which case no person shall enter or leave the vessel until permitted by written order of the board.

IV. Inspection will be made promptly as soon as notice of arrival shall be received, but only during the hours of daylight, or from 8 a. m. to 6 p. m., and the charges shall be as follows, to wit:

For each sailing vessel	$5
For each steamship carrying freights only	10
For each steamship carrying passengers	15

In all cases the quarantine officers making the inspection shall collect the charges made against any vessel either in currency or captain's draft on consignee, and account for the same to the board.

The foregoing rules and regulations are hereby passed and ordained by us as the rules and regulations of the local board of health of Bangor.

GALEN M. WOODCOCK, M. D.,
DANIEL MCCANN, M. D.,
JOHN GOLDTHWAIT,
Local Board of Health.

Approved April 15, 1893.

THOMAS H. HASKELL,
Associate Justice of the Supreme Judicial Court.

WALDOBORO.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Waldoboro has no quarantine buildings, disinfecting plant, or ground for the isolation of patients suffering with contagious diseases. There is no designated quarantine anchorage.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Board of health: Dr. J. T. Sanborn; Dr. Eben Alden, secretary and acting health officer; E. V. Philbrook, esq. Post-office address, Waldoboro, Me.

3. There are no local quarantine laws or regulations and no quarantine customs.

4. There are no procedures.

5. No vessels were inspected during the calendar year 1895.

6. No vessels from other United States ports are inspected.

7. There are no quarantine procedures.

8. Communication with vessels in quarantine would not be permitted.

9. Vessels with quarantinable diseases on board should be sent to the Boston or Portland quarantine.

10. No records are kept at the station of the cases of diseases that have occurred during the voyage, on arrival, and during detention.

11. There are no prescribed fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port—i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Month.	Place of entry.				
	Waldoboro.	Rockland.	Thomaston.	St. George.	Damariscotta.
January		11		2	
March		8			
April		40			
May	9	38			1
June		46	1		1
July		49	9		
August		63	15		
September		76	8		
October		70	4	2	
November		46	6	2	
December		28	2	8	

All the above vessels were from the Canadian provinces and did not require inspection, there being no sickness aboard. Wood, lumber, and lobsters were the principal cargoes.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Bills of health required and properly filed. There is no immigration to the port.

14. Infected vessels could not be properly handled at Waldoboro with the present facilities.

15. The regulations of the Treasury Department are observed.

16. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

There are four subports in the Waldoboro district—Rockland, Thomaston, Damariscotta, and St. George—but nearly all enter at Rockland and Thomaston. St. George is a place where vessels enter for harbor principally.

Vessels entering any port in the Waldoboro district requiring quarantine procedures should be sent to the Portland or Boston quarantine.

SEPTEMBER 25, 1896.

BELFAST.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick and for the removal and detention of suspects; mail and telegraph facilities, etc.

Belfast has no quarantine station, no buildings for the isolation of contagious diseases, no disinfecting plant, and no designated quarantine anchorage. The anchorage in the bay in front of the town is good and ample for all vessels likely to arrive at Belfast.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. Luther Hammond, health officer; post-office address, Belfast, Me.

3. There are no quarantine laws or regulations and no quarantine customs.

4. No quarantine procedures. No vessel has been placed in quarantine for many years.

5. No inspection of vessels is maintained.

6. No vessels from other United States ports are inspected.

7. No quarantine procedures or inspections are had.

8. The health officer informs me that communication with a vessel in quarantine would not be permitted.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

The health officer will inspect any vessel requiring inspection under the United States quarantine regulations when notified by the collector of customs. Infected vessels with quarantinable diseases on board should be sent to the Portland or Boston quarantine for treatment.

10. No records are kept at the station of the cases of disease that have occurred during the voyage on arrival and during detention.

11. No prescribed fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

From foreign ports.

Month.	From—	Number.	Month.	From—	Number.
January	Canada	1	August	Canada	17
April	do	15	September	do	20
May	do	9	October	do	13
	St. Thomas	1	November	do	9
June	Canada	16	December	do	2
July	do	11			

All of the foreign vessels above enumerated were entered at Rockport, a subport of Belfast, 22 miles below Belfast. The cargoes were principally wood.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Only one vessel arrived in the district requiring inspection under the United States quarantine regulations, and this vessel was not inspected by the local health officer prior to entry. The vessel was from St. Thomas Island, West Indies, and was entered at Rockport. Three immigrants arrived at the port during the year. Consular bills of health are required and properly filed.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Infected vessels could not be properly treated with the present facilities.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The inspection of vessels from foreign ports (not Canadian) is not carried out.

16. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that the collector of customs be instructed to enforce the regulation relative to the inspection of vessels by the local quarantine or health officer prior to entry.

SEPTEMBER 26, 1896.

ROCKLAND.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick and for the removal and detention of suspects; mail and telegraphic facilities, etc.

There are no quarantine buildings, disinfecting apparatus, or isolation grounds at Rockland. There is no designated anchorage for infected vessels, but the anchorage in the bay is ample and safe for all vessels likely to come to the port.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Board of health: Dr. Benjamin Williams, chairman and health officer; Dr. Judkins; Fred S. Sweetland, esq. Post-office address, Rockland, Me.

3. There are no local quarantine regulations.

4. There are no quarantine procedures.

5. No inspections are made.

6. No vessels from other United States ports are inspected.

7. No inspections are made.

8. Communication with vessels in quarantine would not be permitted.

9. Vessels requiring quarantine procedures should be sent to the Portland or Boston quarantine.

10. No records are kept.

11. There are no prescribed fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

The foreign entries are included in the Waldoboro report. They were all from Canadian ports.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Bills of health are required. No immigration to this port.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

I believe Rockland should be provided with quarantine ground and buildings for the isolation of patients and suspects. There is considerable shipping coming to this port, and the city has no facilities for the treatment of infected vessels.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection of vessels, are observed.

Regulations of the Treasury Department are observed.

SEPTEMBER 25, 1896.

WISCASSET.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick and for the removal and detention of suspects; mail and telegraph facilities, etc.

Wiscasset is located on the Sheepscot River, about 12 miles above the mouth. Many of the vessels entering port within this district go to Boothbay, although all the official files are kept at Wiscasset. There is safe anchorage at Wiscasset and at Boothbay, but there is no quarantine plant of any kind at either port.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Board of health: Dr. S. A. Stephens, health officer; Lewellen Nule, post-office address, Wiscasset, Me.; Dr. Alvin Blossom, post-office address, Boothbay, Me.

3. There are no local quarantine rules. No quarantine customs at Wiscasset.

4. There are no quarantine procedures.

5. No inspections of vessels have been made.

6. No vessels from other United States ports are inspected.

7. No procedures are had.

8. Communication with infected vessels would not be permitted.

9. Vessels requiring quarantine procedures bound for Wiscasset or Boothbay should be remanded to either the Boston or Portland quarantine.

10. No records are kept at the station of the cases of disease that have occurred during the voyage on arrival and during detention.

11. There are no prescribed fees.

12. Make a statement showing the number of vessels arriving at the port during

the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

From foreign ports.

Month.	From—	Number.	Month.	From—	Number.
January	Canada	1	June	Canada	2
February	do	2	August	do	4
March	do	3	September	do	8
April	do	6	October	do	4
May	do	5	November	do	10
	Spain	1	December	do	8

Only 11 of the above vessels discharged cargo; the others put in for harbor and were required to enter, having remained in port over forty-eight hours. The cargoes of the above vessels were mostly coal, lumber, and salt.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Consular bills of health are required and filed at the custom-house.

One vessel from Spain was entered at the custom-house without inspection by the health officer as required by the regulations of the Treasury Department. No immigration to this port.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Infected vessels with contagious diseases aboard could not be properly treated at either Boothbay or Wiscasset with present facilities.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

Inspection of foreign vessels not required prior to entry.

16. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The collector of customs should be instructed to enforce the regulations of the Treasury Department regarding the inspection of vessels prior to entry.

The health officers at Wiscasset and Boothbay have indicated their willingness to comply with the United States quarantine regulations regarding inspection of vessels.

SEPTEMBER 24, 1896.

BATH.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The quarantine anchorage of the city of Bath is designated by city ordinance, as follows: "Quarantine ground opposite where the South Steam Mill formerly stood." It is about 1½ miles from the water front of the city and nearly opposite. The anchorage is considered safe and ample for the city. There are no buildings, no disinfecting appliances; no ground reserved for the isolation of patients suffering from contagious diseases, and no boarding steamer.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. Edwin M. Fuller is the secretary of the board of health. At present there is no health officer, but one will be appointed at an early date. The secretary of the board, Dr. Fuller, informed me that the board will inspect any vessel and furnish the collector a certificate whenever inspection is required by the United States quarantine regulations.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

The following is the city ordinance relating to quarantine:

A quarantine shall be had on all vessels, their officers and crews, passengers and cargoes, on their arrival from any port where contagious sickness prevailed at the time of their departure, and on all vessels on board of which any person shall have died or shall have been sick with any contagious disease during their homeward passage. No person shall be allowed to go on board of, or on shore from, any vessel when in quarantine without a permit from the boarding officer. Vessels subject to quarantine will anchor on the quarantine ground opposite where the South Steam Mill formerly stood. The boarding officer is directed to give notice to pilots and mariners of the foregoing regulations.

Boards of health in the State of Maine have authority to act under the State laws, a copy of which accompanies the report of inspection at Portland.

4. There have been no quarantine prccedures during the past year.

5. No vessels were inspected during the calendar year 1895, and no inspections made since that date.

6. No vessels from other United States ports are inspected.

7. No inspections or disinfection of vessels is had.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

Communication would not be permitted with vessels in quarantine.

9. Infected vessels with cases aboard should be remanded to the Boston or Portland quarantine for treatment.

10. No records are made.

11. No fees are prescribed.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

From foreign ports.

Month.	From—	Number.
May	Canada	3
	Cuba	1
July	Canada	2
September	do	1
	Italy	1
October	Canada	1
December	do	1

The foreign cargoes are principally lumber and coal.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Consular bills of health are required of vessels from foreign ports, but the United States quarantine regulations pertaining to the inspection of foreign vessels prior to entry were not complied with. Two vessels, one from Matanzas, Cuba, and one from Italy, were not inspected by the health officer prior to entry. There is no immigration to this port.

14. In my opinion the quarantine facilities are not sufficient to care for the shipping entering the port.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

No inspection of foreign vessels prior to entry.

16. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that the collector of customs be instructed to enforce the regulations of the Treasury Department regarding the inspection of vessels from foreign ports prior to entry.

SEPTEMBER 24, 1896.

PORTLAND.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The Portland quarantine station is located on the United States Government reservation on House Island, which is in the harbor about 2 miles from the water front of the city. The anchorage is safe and ample for all vessels that may require quarantine procedures. The city has a small steam tug intended for fire protection, which can be used in the inspection of vessels, but usually the boarding is made from a small boat.

As stated in the report of the board of health, "the quarantine plant consists of a building 36 by 78 feet, of one story, frame, with monitor roof and two cupolas for ventilation. In this building are two corridors, 10 by 48 feet, for unpacking and repacking baggage; six rooms 8 by 10 feet, with a bath tub with hot and cold water in each; opening from these are six other rooms of the same size for dressing rooms and waiting for disinfection of clothing after the bath. Attached to the other part of the building, 30 by 36 feet, is a coal shed, and a boiler house containing a 60-horsepower boiler. In the room 30 by 36 feet is a steel retort 7 feet in diameter and 8 feet long, with cast-iron doors 5 feet by 4 feet 3 inches in either end. Baggage and clothing is loosely packed in iron trays of open mesh, and 23 by 46 by 8 inches in size. Of these, 24 can be placed upon a carriage and run into the retort at once, when the doors are closed and live steam admitted until a pressure of 10 pounds to the square inch and a temperature of about 228° F. is obtained. This is shown by a steam gauge and thermometer attached, while a pressure-reducing valve prevents a higher pressure from endangering the retort, which was tested to 30 pounds per inch of cold-water pressure. After continuing the pressure and temperature for a sufficient time, the steam is shut off from retort and allowed to escape through a valve in bottom. When the pressure is sufficiently reduced, a current of air heated by being drawn through a 600-foot Sturtevant heater filled with steam at the boiler pressure, generally about 60 pounds, is forced into the top of the retort by an exhaust fan, thus driving out at the bottom the residual steam,

so that on opening the doors there is no condensation to wet the contents, which come out practically dry. The bathrooms, corridors, etc., are heated by the same method, hot air from the heater being forced into the rooms through galvanized-iron pipes which discharge near the floor and vertically downward, thus giving perfect ventilation as well as heat.

"There is also a sulphur furnace in which 50 to 100 pounds of brimstone can be burned at once, and the sulphur dioxide gas forced by another fan either into a closed room in the building, where trunks, hats, boots, etc., that do not stand the high temperature of the retort, are disinfected, or it can be forced through a wooden conduit down to the end of the wharf and, by means of hose, into the hold of a ship.

"A 12-horsepower engine furnishes the power to run the fans and feed pump for boiler and hot and cold water tanks in the chamber above to feed the bath tubs.

"Water is obtained from a small pond on the top of the hill, which has been connected by piping and supplies the entire system by gravity. A cistern also was built near the house, so that if pond failed it could be filled from the water boats.

"A wharf about 125 feet long was built on piles, and at its end four dolphins of 8 piles each were driven with a depth of water of 24 feet at low tide at their outer sides. Two mushroom anchors of 5,000 and 3,600 pounds weight, respectively, were also kindly loaned us by the Light-House Department of the United States Government and placed by them at a proper distance seaward with chains and buoys for safe anchorage at wharf.

"The old house and the ordnance building on the island were cleaned out, glass set, and stoves put in, to be used for the detention of passengers if needed."

None of the buildings are provided with beds or proper cooking utensils, but these could be supplied at short notice. The machinery for disinfecting is in fair order.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. Henry P. Merrell is chairman of the board of health and health officer. The board of health employs a watchman, who lives in one of the buildings on the island.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Copy of the annual report of the board of health, in which are a few quarantine rules, is inclosed. No vessels in quarantine during the year. United States quarantine regulations are observed in the inspection of vessels.

4. No quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department.

5. Inspection is maintained throughout the year.

6. No vessels from other United States ports are inspected.

7. United States quarantine regulations are complied with in inspection of vessels.

8. Communication with a vessel in quarantine would not be permitted.

9. Treated at the station according to the United States quarantine regulations.

10. No records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention, as there are no arrivals.

11. No schedule of quarantine fees was obtained.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports.

Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Month.	From—	Number.	Month.	From—	Number.
January	Canada	9	May	Italy	1
	Scotland	1	June	Canada	25
	England	4		Puerto Rico	2
February	Canada	2		Italy	1
	British West Indies.	1	July	Canada	14
				Puerto Rico	1
	Japan	1	August	Canada	10
	England	4		Puerto Rico	1
March	Canada	1		Italy	2
	England	4	September	Canada	16
April	Canada	31		Puerto Rico	1
	British West Indies.	3		Scotland	1
			October	Canada	19
	Puerto Rico	5		Puerto Rico	1
	England	4	November	Canada	26
May	Canada	21		Italy	1
	British West Indies.	2		England	2
			December	Canada	11
	Puerto Rico	2		England	8

The commerce of Portland is general.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Bills of health are required and properly filed. The total number of immigrants arriving at Portland during the calendar year 1895 was 415.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Yes. The station needs some improvements and should be put in order for immediate use for the reception of patients.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The United States quarantine regulations are observed so far as they apply to this station.

SEPTEMBER 23, 1896.

KENNEBUNKPORT.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick and for the removal and detention of suspects; mail and telegraph facilities, etc.

There is no quarantine station, buildings, disinfecting apparatus, or designated anchorage for infected vessels. There are mail and telegraph facilities at Kennebunkport.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. A. W. Langley is the health officer; post-office address, Kennebunkport.

3. There are no local quarantine regulations. Health officer could act under State law if occasion demanded.

There are no quarantine procedures, either under printed regulations or by custom, enforced at the port in addition to the requirements of the Treasury Department.

5. No inspection of vessels has been required.

6. No vessels from other United States ports are inspected.

7. No quarantine procedures are had.

8. Communication with vessels in quarantine would not be permitted.

9. Infected vessels should be remanded to the Boston or Portland quarantine.

10. No records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

11. There are no prescribed fees.

12. There have been no foreign entries at this port, and no arrivals with quarantinable diseases on board. There were seventeen domestic arrivals during the calendar year 1895, with cargoes principally of coal.

13. No immigration to the port.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

A quarantine station at Kennebunkport is unnecessary.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection of vessels, are observed.

No procedures. The health officer will inspect vessels when notified by the collector.

SEPTEMBER 23, 1896.

YORK.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick and for the removal and detention of suspects; mail and telegraph facilities, etc.

York has no quarantine station, no prescribed anchorage or disinfecting plant.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

W. L. Hawkes is the health officer; address, York Harbor, Me.

3. There are no local quarantine regulations and no customs.

4. No vessels arrive requiring quarantine procedures.

5. No quarantine inspections are had.

6. No vessels from other United States ports are inspected.

7. No quarantine procedures are had.

8. No vessels have been in quarantine.

9. Infected vessels would be remanded to Boston quarantine.

10. No records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

11. There are no prescribed fees.

12. No foreign arrivals at the port during the calendar year 1895.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

I did not visit the port, but obtained this information from the collector of customs by telephone and by mail.

14. In my opinion the quarantine facilities are sufficient to care for the shipping entering the port.

15. No foreign arrivals or vessels arriving with sickness on board during the year.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that the collector of customs be instructed to wire the Supervising Surgeon-General the arrival of any infected vessel, and that upon such notice the Department instruct him to remand such vessels to the Boston quarantine for treatment.

SEPTEMBER 21, 1896.

CASTINE.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Castine is not provided with any quarantine buildings, ground, or disinfecting plant of any character. There is no prescribed anchorage, but the anchorage in the harbor is good and ample for all shipping likely to enter the port. There are mail and telegraph facilities at Castine.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. S. J. Wallace, health officer; post-office address, Castine.

3. There are no local quarantine laws or regulations.

4. There have been no quarantine procedures of any character for several years.

5. There has been no inspection of vessels for several years.

6. No vessels from other United States ports are inspected.

7. No inspections have been made.

8. Communication with vessels in quarantine would not be permitted.

9. Infected vessels with contagious diseases aboard should be sent to the Boston or Portland quarantine.

10. No records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during retention.

11. No fees are prescribed.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

From foreign ports.

May	1
June	1

The above vessels were from Sicily, laden with salt.

The domestic vessels entering the port are not recorded, but the number is small with the exception of passenger steamers touching there during the summer months.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Consular bills of health are required and filed, but the two vessels from Italy that were entered at the custom-house were not inspected by the health officer prior to their entry.

14. Vessels with quarantinable diseases aboard could not be properly treated at this port.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection of vessels are observed.

The inspection of foreign vessels prior to entry is not required.

16. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that the collector of customs be instructed to enforce the Treasury Department regulations regarding the inspection of vessels prior to their entry at the custom-house.

SEPTEMBER 28, 1896.

NEW HAMPSHIRE.

REPORT OF THE INSPECTION OF THE LOCAL QUARANTINE AT PORTSMOUTH.

By Surg. H. W. AUSTIN, M. H. S.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Portsmouth is not provided with quarantine buildings, disinfecting plant, or quarantine ground. The collector of customs informs me that there is a safe anchorage for infected vessels just outside of Whaleback Light, off Newcastle, about 3 miles below the city.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. F. S. Towle, chairman of the board of health and acting health officer; post-office address, Portsmouth, N. H.

3. Unable to obtain a copy of the quarantine regulations from the health officer. There are no quarantine customs, as no vessels have arrived requiring inspection or disinfection.

4. There are no quarantine procedures, either under printed regulations or by custom, enforced at the port, in addition to the requirements of the Treasury Department.

5. No inspection of vessels is required or necessary.

6. No vessels from other United States ports are inspected.

7. No quarantine inspections are had.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.) and how regularly? Is there any intercommunication allowed among vessels in quarantine?

No vessels in quarantine.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case?

Health officer recommends that all infected vessels entering the port requiring isolation and disinfection be remanded to the Boston quarantine.

10. No records are kept at the station of the cases of disease that have occurred during the voyage on arrival and during detention.

11. There are no prescribed fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

During the calendar year ended December 31, 1895, there were 29 foreign vessels entered at the port, all from the Canadian provinces. The total number of

domestic arrivals during the same period was 1,076. The principal commerce is coal, lumber, and general merchandise.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Consular bills of health are required of all foreign vessels, and they are on file at the custom-house. No immigration to the port.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

I believe Portsmouth should have a quarantine, where persons suffering with quarantinable diseases could be isolated. The health officer will inspect any vessel requiring inspection under the United States quarantine regulations if notified by the collector of customs.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection of vessels, are observed.

No vessels arrived requiring any quarantine procedures.

16. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that infected vessels entering the port requiring isolation and disinfection be remanded to the Boston quarantine.

SEPTEMBER 21, 1896.

MASSACHUSETTS.

REPORT OF INSPECTION OF LOCAL QUARANTINES.

By Surg. H. W. AUSTIN, M. H. S.

NEWBURYPORT.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick and for the removal and detention of suspects; mail and telegraph facilities, etc.

Newburyport has no quarantine plant. There is no prescribed anchorage for infected or noninfected vessels. No buildings of any kind or disinfecting apparatus that are available for quarantine purposes. Vessels could safely anchor in the river about 2 miles below the city, where they could be isolated from other vessels.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

The board of health is organized as follows: John E. Bailey, chairman; Clarence C. Day, M. D.; Arthur Wishington; Amos H. Geary, clerk. Post-office address, Newburyport, Mass.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

Copy of regulations of the board of health is herewith transmitted. These regulations do not, however, pertain to maritime quarantine. There have been no quarantine procedures for several years. Also copy of the quarantine laws of the State of Massachusetts is transmitted.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

No quarantine procedures.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

There has been no inspection of vessels. During the past year there have been no arrivals of vessels from foreign ports and no arrivals with sickness on board. Hence inspection under the United States quarantine regulations not required.

6. No vessels from other United States ports inspected.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharged.

Dr. Clarence C. Day would act as health officer for the board and inspect vessels when such procedure is necessary under the United States quarantine regulations. The board would recommend that vessels arriving with quarantinable diseases aboard be remanded to the Boston quarantine for treatment.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No procedures.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

The collector of customs would notify the Department and recommend that vessels arriving at the port infected with cholera, yellow fever, smallpox, or typhus fever be remanded to the Boston quarantine.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

No records kept.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

No prescribed fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

No foreign arrivals, and no record kept of domestic arrivals. There are only a few coal schooners arriving from New York and Philadelphia; also a few pleasure yachts.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

No immigration.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

The marine commerce of the port is very small and would not warrant the establishment of a quarantine plant. The present arrangement, if carried out, would be sufficient.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

No procedures.

16. Mention any facts which in your opinion should be known to the Department

bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that all infected vessels arriving at the port which require quarantine procedures under the United States quarantine regulations be remanded to the Boston quarantine for treatment, and that the collector of customs be instructed to notify the Department by telegraph of such arrivals.[1]

Quarantine laws of the State of Massachusetts.

[Public health—Public statutes.]

CHAPTER 80.

SEC. 62. A town may establish a quarantine ground in a suitable place within or without its own limits; but if such place is without its limits, the assent of the town within whose limits it may be established shall be first obtained.

SEC. 63. Two or more towns may, at their joint expense, establish a quarantine ground for their common use in any suitable place either within or without their own limits; but if such place is without their limits, they shall first obtain the assent of the town within whose limits it may be.

SEC. 64. The board of health in each seaport town may from time to time establish the quarantine to be performed by vessels arriving within its harbor; and may make such quarantine regulations as it judges necessary for the health and safety of the inhabitants.

SEC. 65. Such regulations shall extend to all persons, goods, and effects arriving in such vessels, and to all persons who may visit or go on board of the same.

SEC. 66. Whoever violates any such regulation after notice thereof has been given in the manner before provided in this chapter shall forfeit a sum not less than five nor more than five hundred dollars.

SEC. 67. The board in each seaport town may at all times cause a vessel arriving in such port, when such vessel or the cargo thereof is in its opinion foul or infected so as to endanger the public health, to be removed to the quarantine ground and thoroughly purified at the expense of the owners, consignees, or persons in possession of the same; and may cause all persons arriving in or going on board of such vessel, or handling the cargo, to be removed to any hospital under the care of the board, there to remain under their orders.

SEC. 68. If a master, seaman, or passenger, belonging to a vessel on board of which any infection there is or has lately been, or is suspected to have been, or which has been at or has come from a port where any infectious distemper prevails that may endanger the public health, refuses to make answer on oath to such questions as may be asked him relating to such infection or distemper by the board of health of the town to which such vessel may come (which oath any member of the board may administer), such master, seaman, or passenger shall forfeit a sum not exceeding two hundred dollars; and if not able to pay the said sum he shall suffer six months' imprisonment.

SEC. 69. All expenses incurred on account of any person, vessel, or goods, under quarantine regulations, shall be paid by such person or the owner of such vessel or goods, respectively.

GLOUCESTER.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The quarantine anchorage is that part of the harbor between Ten Pound Island and Eastern Point. No subdivision of the grounds has been made for infected and noninfected vessels. No quarantine buildings. No disinfecting apparatus or reserved ground for the detention of sick or suspects. Inspection of vessels is

[1]The collector of customs has been directed by the Department to notify the Supervising Surgeon-General of the Marine-Hospital Service by telegraph upon the arrival of any vessel from an infected port or having contagious disease on board, and to permit no communication with the shore.

made by the inspector of the board of health in a small boat. The city has a hospital building located upon the poor farm intended for the reception of smallpox cases occurring in the city. This building might be utilized for the reception of smallpox cases occurring upon vessels, as the location is convenient of access from the harbor. This building will accommodate about ten or twelve patients, and is occupied by an attendant.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

The personnel of the board of health is as follows: Edward B. Hallett, M. D., chairman and physician; Samuel S. Thurston, health officer; William H. Dennen, health officer; Alfred F. Stickney, clerk; Charles Anderson, inspector. The inspection of vessels is made by Inspector Charles Anderson, and when there is sickness aboard, or there has been sickness during the voyage, of a contagious or doubtful character, the physician, Dr. Edward B. Hallett, is notified and makes the inspection. Post-office address, Gloucester, Mass.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

The local quarantine regulations (copy inclosed) provide for the inspection of all vessels arriving from foreign ports; from any sickly port, or having or having had any contagious or doubtful disease on board during the voyage; the care of the sick aboard vessels; and the placing of vessels in quarantine at the anchorage grounds. The necessary disinfection is left to the discretion of the physician to the board of health.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

No inspection of vessels from Canada when the port of departure is healthy. There is no unnecessary detention of vessels in the inspection of the same.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

Inspection of vessels is maintained throughout the year.

6. Are vessels from other United States ports inspected?

Domestic vessels having had sickness on board during the voyage are inspected. The local regulation requires them to anchor at quarantine and display the quarantine flag.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The United States quarantine regulations are observed in the inspection of vessels. No infected vessels have arrived at this port for several years.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

Communication would not be permitted with an infected vessel.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Infected vessels with cholera, yellow fever, or smallpox would be placed in quarantine at the anchorage, and the Surgeon-General of the Marine-Hospital Service notified by the physician to the board of health, who would recommend that they be remanded to the quarantine station at Boston for treatment.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

There has been nothing in recent years to record.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, and tonnage, ballast, wharfage charges, etc.

The fee for inspection of vessels is $2. When necessary to call upon the physician to make the inspection, the fee is $3.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Statement of vessels arriving at port of Gloucester, year ending December 31, 1895.

Month.	Foreign ports.	Domestic (north of Key West).	Month.	Foreign ports.	Domestic (north of Key West).
January	22	11	August	12	21
February	42	9	September	12	43
March	9	29	October	7	30
April	10	42	November	8	82
May	11	50	December	9	53
June	9	49			
July	8	62	Total	159	481

Twenty-two of these vessels arrived from Trapani with salt, the others were from ports in Nova Scotia, New Brunswick, and Newfoundland, loaded with lumber, wood, fish, etc.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Bills of health are received and filed together with the health officer's pratique from all vessels arriving from foreign ports. There is no immigration at the port except an occasional person from Canada.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shiping entering the port.

The facilities for inspection appear to be sufficient. No facilities for the treatment of an infected vessel. It would be preferable to have all inspections made by a physician.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding the inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The quarantine regulations of the Treasury Department are observed.

16. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that any infected vessels arriving at this port be remanded to the quarantine at the port of Boston for treatment, and that the collector of customs be instructed to notify the Department of such arrivals, giving full particulars.[1]

JUNE 11, 1896.

[1] The collector of customs was directed by the Department to notify the Supervising Surgeon-General of the Marine-Hospital Service by telegraph upon the arrival of any vessel from an infected port or having contagious disease on board, and to permit no communication with the shore.

QUARANTINE REGULATIONS.

REG. 26. Every vessel entering the harbor of Gloucester from any sickly port, or having any case of contagious or doubtful disease on board, or on board of which any person shall have died of any contagious or doubtful disease, shall be brought to anchor in that part of the harbor between Ten Pound Island and Eastern Point, and shall immediately display a yellow flag at the head of the foremast, which shall be kept flying so long as said vessel shall be at anchor in said place.

REG. 27. It shall be the duty of the physician of the board of health to visit every vessel mentioned in the preceding article as soon as he shall receive notice of her arrival, and to give information forthwith to the board of health, if, in his opinion, any action on their part may be necessary. He shall attend the sick on board any such vessel, or at the hospital, and shall also direct in what manner all vessels that have had on board cases of contagious disease are to be cleansed, what articles may be landed, cleansed, buried, or destroyed. No person shall be permitted to go on board or to leave any such vessel while lying at anchorage aforesaid without a written permit from the physician of the board of health, and such vessel shall not be allowed to leave said anchorage until the consent of the board shall be obtained.

REG. 28. The board of health shall annually appoint a suitable person, whose duty it shall be to visit all vessels arriving from foreign ports and make such inquiries as he shall consider necessary to satisfy himself that the vessel, cargo, crew, or passengers are not liable to communicate any contagious disease; and after so satisfying himself he shall present to the master of said vessel a clean bill of health for presentation to the custom-house officers, and no person shall visit such vessel until the master has been given such bill of health.

SALEM.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Strictly speaking, there is no quarantine station or quarantine officer in the city of Salem. An old board-of-health regulation designated the quarantine anchorage as follows: "Beginning at Eagle Island and running northwesterly to Coney Island; thence from Coney Island in a more northerly direction to the Great Haste; thence easterly to Bowditch Ledge; thence southwesterly to Eagle Island." Distant from this anchorage ground about 1¼ miles, and located on the poor farm, is a building which might be used for the isolation of patients. It would accommodate about twenty, and has a bath tub in which patients could be bathed. This building is located on Salem Neck, and can be approached from the anchorage with a small boat. The board of health have no boat for boarding vessels, and in case a vessel arrives requiring inspection, which, I am informed, has not been done during the past ten years, the custom-house boat would be used for this purpose. There are no facilities for the disinfection of vessels, cargo, or baggage. Sulphur fumigation might be practiced at the poorhouse hospital.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

The following are members of the board of health: William H. Gove, David P. Waters, William H. Fullam, Jesse Robbins, Richard Connolly; R. L. Newcomb, clerk and inspector. Under the city ordinances the city physician can be called upon to furnish advice and assistance to the board of health. None of the members of the board of health are physicians.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

There are no local quarantine regulations in force at this time. A recent city ordinance authorizes the board of health to make quarantine regulations. I was unable to obtain a copy of the same. The clerk and inspector of the board of

health informed me that the United States quarantine regulations regarding inspection of vessels and the isolation of the same would be observed by the board.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

No quarantine procedures of any character practiced or required during the past year.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

No vessels inspected during the past year, and no arrivals requiring inspection under the United States regulations.

6. Are vessels from other United States ports inspected?

No.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The United States quarantine regulations would be observed in the inspection of a vessel. Infected vessels would not be treated at this port.

8. What communication is held with vessels in quarantine (and before quarantine, by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No vessel has been placed in quarantine at this port during the past ten years.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

I would recommend that vessels infected with smallpox, cholera, or yellow fever be remanded to the Boston quarantine.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

No cases have arrived.

11. Transmit schedule of quarantine fees and give other fees and expenses necessarily and usually attendant upon quarantine, as tonnage, ballast, wharfage charges, etc.

No prescribed fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

There have been 244 vessels entered at the port during the calendar year 1895, all from St. John, New Brunswick. The cargoes of the above vessels were coal and lumber. The number of arrivals from domestic ports during the same period was 1,613. The domestic vessels brought coal, lumber, and fish.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

No immigration through this port. The collector of customs would require an inspection of all vessels subject to inspection under the United States quarantine regulations, prior to entry.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

Vessels requiring disinfection under the United States quarantine regulations would be remanded to the quarantine station at Boston.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

No quarantine procedures necessary during the year.

16. Mention any facts which, in your opinion, should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

Consular bills of health are required and properly filed. I would suggest that owing to the rather imperfect organization of the Salem board of health the collector of customs be requested to notify the Surgeon-General, Marine-Hospital Service, of the arrival of any vessel with quarantinable disease aboard, reporting such facts in the case as he may be able to obtain.[1]

JUNE 5, 1896.

Extract from the general statutes of Massachusetts, chapter 80.

SEC. 78. When a householder knows that a person within his family is sick o smallpox or any other disease dangerous to the public health, he shall immediately give notice thereof to the selectmen or board of health of the town in which he dwells. If he refuses or neglects to give such notice, he shall forfeit a sum not exceeding one hundred dollars.

SEC. 79. When a physician knows that a person whom he is called to visit is infected with smallpox or any other disease dangerous to the public health, he shall immediately give notice thereof to the selectmen or board of health of the town; and if he refuses or neglects to give such notice, he shall forfeit for each offense not less than fifty nor more than one hundred dollars.

[Acts of 1891 require physicians to give all notices in writing over their signatures.]

MARBLEHEAD.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick and for the removal and detention of suspects; mail and telegraph facilities, etc.

Marblehead has no quarantine plant nor any designated anchorage for infected vessels. There are no buildings for the reception of the sick nor for the isolation of the suspects. No vessels have been inspected prior to entry, and no vessels have arrived at the port for many years requiring inspection. There is an excellent harbor in which there is sufficient room for a quarantine anchorage if properly marked, and an infected vessel could safely lie inside if guarded.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Board of health: Franklin Millet, chairman; Dr. F. L. Marshall; Girdler Stacy, secretary and executive officer. Post-office address, Marblehead, Mass. There is no quarantine officer designated as such.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

The board of health have no formulated quarantine regulations. There have been no arrivals for many years requiring quarantine procedures.

4. No quarantine procedures.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

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[1]The collector of customs has been directed by the Department to notify the Supervising Surgeon-General of the Marine-Hospital Service by telegraph upon the arrival of any vesssel from an infected port, or having contagious disease on board, and to permit no communication with the shore.

No inspections have been made, no vessels have arrived with sickness aboard, and there have been no foreign arrivals except from healthy Canadian ports.

6. Are vessels from other United States ports inspected?

No.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The board of health would designate a physician to make an inspection of a vessel, if called upon to do so by the collector of customs.

8. No rules and no procedures of any kind.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessel carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Infected vessels should be remanded to the Boston quarantine station. The collector of customs would require an inspection by a physician designated by the board of health of any vessel with sickness aboard, or of any vessel from a foreign port (not Canadian) or from an infected port. I suggested to the collector of customs that it would be proper to inform the Department by wire of the arrival of an infected vessel requiring procedures.

10. No records kept.

11. No prescribed fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

There have arrived 63 vessels from Canadian ports during the calendar year 1895, with cargoes of lumber, coal, and vegetables. Number of domestic arrivals not known. They are principally fishing vessels and vessels engaged in the coal trade.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Bills of health are required and properly filed at the custom-house. No immigration.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

An infected vessel could not be safely treated at this port.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

No quarantine procedures of any character have been necessary.

16. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that any vessel arriving at this port with quarantinable disease on board be remanded to the Boston quarantine for treatment, and that the collector of customs be instructed to notify the Department by telegraph of such arrivals.[1]

JUNE 5, 1896.

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[1] The collector of customs has been directed by the Department to notify the Supervising Surgeon-General of the Marine-Hospital Service by telegraph upon the arrival of any vessel from an infected port or having contagious disease on board, and to permit no communication with the shore.

BOSTON.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

No changes of any importance have been made in the Boston quarantine since the report furnished the Bureau by Surg. H. W. Sawtelle, dated May 3, 1894. A brief description of the plant may, however, be convenient to have in this report for reference.

The quarantine station is located on Gallops Island, an island within Boston Harbor, 6 miles from the water front of the city, containing 16 acres of fine, high land. There are two wharves extending out to deep water, one for the landing of rags and other freight of like character requiring disinfection; the other, which is distant several hundred feet, for the landing of persons and baggage, and upon which is located the steam sterilizer, bathrooms, and frame coal house and storerooms. A small, tight frame building is located on the wharf where rags are landed, which can be used for sulphur fumigation. There is also a small room for sulphur fumigation on the landing wharf.

The steam sterilizer is a double-shell iron cylinder 6 by 20 feet, inside measurements, with car, and a track for the same, extending from the chamber to the bath house. The steam is furnished from boilers of boarding steamer. The bath house, 20½ by 80 feet, is furnished with 28 porcelain lined bathtubs, which are provided with hot and cold water from the city waterworks. The water is heated by small furnaces in the building. The bathroom is well finished, warm, and conveniently arranged. The clothing of suspects who are being bathed can be put into the car and be sterilized in the steam chamber while the bathing is in progress. The boarding steamer is a stanch, seaworthy tug of 73 tons burden. Her complement of officers and men is seven. This does not include the boarding officer, who is the assistant port physician.

There is a residence on the island for the overseer and his family, where food is provided in case but one or two patients are in hospital. It is a two-story frame building, 30 by 40 feet, with an L 18½ by 32 feet. Near the landing wharf are two buildings erected for detention barracks, each 30 by 100 feet; neatly finished floors, walls, and ceilings of Georgia pine, and having a capacity of about fifty beds.

The buildings are provided with beds and bedding and have a kitchen attachment. The building holding the steam sterilizer is 12½ by 80 feet.

The storehouse on the wharf is 10 by 30 feet. The coal shed on the wharf has a capacity of 300 tons. Isolated from the other buildings are two hospitals, separated several hundred feet from each other—the smallpox hospital and the fever hospital. The former is a two-story frame building, 27 by 78 feet, with an L 15 by 20 feet. The latter is also a two-story frame building, 27 by 74 feet, with an L 17 by 16 feet.

There is an ice house 15½ by 21 feet, a small coal shed for the coal supply of the island 11 by 36 feet, a blacksmith shop 18½ by 35½ feet, a carpenter shop 18½ by 24½ feet, a barn 40 by 60 feet, a hennery 15 by 25 feet, a storehouse on front of the island 40 by 100 feet. Located near the water front, some distance from the wharf, are 12 frame buildings, 18½ by 24½ feet, intended for the segregation of detained suspects. A new building 27½ by 38 feet has been built for laboratory purposes in connection with the work of producing antitoxin.

The anchorage for infected vessels is in Nantasket Roads, and for noninfected vessels in Presidents Roads. I am informed that the anchorage is good and there is a sufficient depth of water.

The island is supplied with water from the city waterworks.

There are at present six horses undergoing immunization to the toxine of diphtheria at the stable on the island. This work is under the supervision of Dr. H. C. Ernst. All the buildings on the island are well built, well cared for, and in a good state of preservation. Telephone service to Deer Island.

2. Give personnel of the station or port, name of the quarantine officer or officers, post-office address, total number of officers and subordinates, etc.

Health department of the city of Boston: Samuel H. Durgin, chairman; George F. Babbitt, Edwin L. Pilsbury. Quarantine station, Boston Harbor: Dr. D. D. Brough, port physician; Dr. B. H. Metcalf, assistant port physician and boarding officer. Post-office address, Deer Island, port of Boston. Total number of officers and subordinates at the station, 13.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

The quarantine regulations of the Treasury Department pertaining to the inspection of vessels, the detention of persons exposed to contagion, the isolation of the sick, the disinfection of vessels, of baggage, and of merchandise are, I am informed by the port physician, observed. From June 1 to October 31, inclusive, all vessels from ports south of Virginia have been inspected. Cases of measles, typhoid fever, diphtheria, and scarlet fever arriving on vessels would be removed to the hospital at quarantine, and vessels held for the necessary disinfection.

I transmit herewith a copy of the annual report of the port physician, taken from the board of health report for the year 1895, as follows:

The vessels inspected during the year were from the following ports:

West Indies	358	Glasgow	27
Liverpool	184	Hamburg	27
Coastwise	145	Hull	23
London	83	Egypt	2
Antwerp	22	Cebu	2
Mediterranean ports	22	Danzig	2
Mexico	20	South Africa	2
Manila	14	Chitagong	1
Java	8	Penarth	1
Swansea	7	Harburg	1
Australia	5	Plymouth	1
West coast of Africa	5	Marseilles	1
Calcutta	4	Archangel	1
Nicaragua	4	Southampton	1
Singapore	3		
Azores	3	Total	1,038
South America	59		

Classified as follows:

Steamers	637
Schooners	234
Barks	106
Brigs	48
Ships	13
Total	1,038

Number of vessels disinfected (one of which was a schooner, all the rest steamers)	5
Removed from vessels for sickness	3
Removed for refusing vaccination	1
Number of persons vaccinated	1,014

In addition to the list of vessels boarded there were 9 steamers, 3 barks, and 1 brig, all from foreign ports, via a United States port, but not having discharged their cargoes, which were boarded and inspected. As their bills showed that they

had already paid their quarantine fees at some other United States port, the usual dues of this quarantine were not collected.

Of those vessels whose fees were remitted 7 paid quarantine fees at New York, 3 at Newport News, 2 at Norfolk, and 1 at Baltimore.

The receipts of the department have been as follows:

Vessels of 500 tons and over, 757, at $8	$6,056.00
Vessels under 500 tons, 281, at $5	1,405.00
Disinfection of 1 vessel, at $25	25.00
Disinfection of 1 vessel, at $20	20.00
Disinfection of 2 vessels, at $15	30.00
Disinfection of 1 vessel, at $10	10.00
Vaccinating 1,014 persons, at 25 cents	253.50
Total	7,799.50
Paid city collector	7,799.50

In addition to the above amount of cash, bills for board to the amount of $60.01 was turned over to the city collector for collection.

Total number of persons inspected during the year, 65,240. Of these, 4,213 were cattlemen, 30,526 seamen, and 30,501 passengers.

The following vessels ran by quarantine during this year: January 8, schooner *Molega*, from Turks Island; cargo, salt. February 20, brig *George*, from Haiti; cargo, logwood. February 20, schooner *Sierra*, from Haiti; cargo, logwood. March 21, schooner *John A. Matheson*, from Cienfuegos; cargo, molasses. June 2, steamship *City of Macon*, from Savannah; cargo, general. July 5, schooner *Ida L. Latham*, from Brunswick; cargo, lumber. July 19, bark *Bessie Markham*, from Cienfuegos; cargo, sugar. October 11, steamship *Cornal*, from Galveston; cargo, cotton. October 19, schooner *Frank W. Howe*, from Brunswick; cargo lumber. All of these vessels were required to receive the usual quarantine permit before entering at the custom-house.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

The inspection of vessels arriving from healthy domestic Southern ports, and the quarantining of vessels with contagious diseases other than cholera, smallpox, yellow fever, typhus fever, and leprosy, mentioned under answer to No. 3. There is no unnecessary detention in the inspection or disinfection of vessels.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

Inspection maintained throughout the year.

6. Are vessels from other United States ports inspected?

Yes; as above noted.

7. Describe quarantine procedures in the inspection of vessels, and if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

That required by the United States quarantine regulations. No vessel has arrived at the port during the past year infected with cholera, yellow fever, smallpox, typhus fever, or leprosy.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.) and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No communication is allowed with vessels in quarantine or between vessels which are in quarantine. (United States regulations observed.)

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Vessel placed in quarantine and vessel and all aboard treated as required by the United States quarantine regulations.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Records are kept.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Examination of vessel of 500 tons and upward (registration tonnage), $8; examination of vessel under 500 tons (registration tonnage), $5; disinfecting vessels, $10 to $50; baths and disinfecting personal clothing and baggage, $1 for each person; vaccination, 25 cents for each person; board of patients in hospital, $10 per week.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months, (*a*) from foreign ports, (*b*) from foreign ports in yellow-fever latitudes via domestic ports, and (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Vessels entered at the port of Boston during the year 1895.

Month.	(*a*) From foreign ports.	(*b'*) From foreign ports in yellow-fever latitudes.	(*b''*) From foreign ports in yellow-fever latitudes via domestic ports.
January	91	16	1
February	84	21	2
March	116	27	3
April	199	65	1
May	251	66	1
June	257	47	2
July	251	55	0
August	242	42	1
September	204	29	0
October	206	31	0
November	174	26	1
December	141	15	1
Total	2,216	440	13

NOTE.—Vessels in columns (*b'*) and (*b''*) are included in column (*a*). Vessels in column (*b''*) are included in column (*b'*).

The number of vessels from foreign ports entered during the year 1895 is as follows:

Canada	1,312	Central America	5
Great Britain	320	Mexico	26
West Indies	351	East Indies	17
Germany	31	Africa	11
Italy	24	Philippine Islands	13
Belgium	22	Australia	5
France	1	Miquelon	15
Russia	1		
South America	62	Total	2,216

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Bills of health and health officer's certificate are required and filed. The number of immigrants arriving at this port during the fiscal year 1896 is 41,790. The medical inspection of immigrants arriving at this port is made by an officer of the

Marine-Hospital Service attached to the marine hospital at the port of Boston. I inclose herewith report of the immigrants arriving at this port during the past fiscal year.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Yes. Additional room might be necessary in the detention barracks, but this could easily be constructed or tents used during the summer.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The United States quarantine regulations are observed.

16. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The quarantine station at the port of Boston is well equipped and the service is efficient.

JUNE 13, 1896.

QUARANTINE REGULATIONS.

Ordered, That any vessel arriving at this port which has on board at the time of her arrival, or has had during her passage to this port, any sickness of a contagious, infectious, or doubtful character which may be dangerous to the public health, or which has come from or has been in any port or place which has been epidemically infected with any contagious or infectious disease within the six months next preceding such arrival, or has on board any merchandise which has come by transshipment from any such infected port or place within the six months next preceding, or has on board any immigrants (except from British America), shall be anchored at quarantine.

Infected persons found on such vessels shall be removed to the hospital on Gallop's Island and there detained until all power to infect others shall have ceased. Cargoes and personal baggage which, in the opinion of the port physician or the board of health, may be infected shall be removed to Gallop's Island and there disinfected, when such disinfection can not be properly done on board the vessel or on lighters.

All immigrants, on arrival at quarantine, shall be subjected to examination as regards their freedom from contagious or infectious disease and their protection from smallpox.

All persons under ten years of age who have not been successfully vaccinated, and all persons over ten years of age who have not recently been successfully vaccinated or revaccinated, shall be considered as unprotected from the effect of the contagion of smallpox, persons having had an attack of smallpox excepted.

All persons not so protected shall be vaccinated or subjected to a quarantine of fifteen days' observation.

All old rags, paper stock, hair, feathers, hides, skins, wool, and similar materials which are liable to convey disease germs must be accompanied by satisfactory certificates as to their place of collection and packing for shipment.

No article of clothing or bedding in use shall be thrown overboard from any vessel in Boston Harbor without the written consent of the board of health or the quarantine physician, nor shall any such article be removed from any vessel at her dock without such permission; all such articles which are to be destroyed shall be burned in the harbor, under the supervision of the quarantine physician, in the furnaces of the steamers.

No vessel shall leave quarantine, or shall her cargo, or any part thereof, be discharged, nor any person be allowed to go on board or to leave her while in quarantine, without the written permit of the port physician, who is hereby authorized and instructed to take such measures with regard to said vessel, cargo, and persons as in his judgment the public health may require.

It is also hereby ordered that during June, July, August, September, and October of each year, subject to such changes as circumstances may from time to time require, all vessels arriving in this harbor from the following ports shall stop at

the quarantine station, viz: All vessels from any port in Europe, from the Western, Madeira, Canary, or Cape de Verde islands; from the Mediterranean or straits thereof; from the west coast of Africa or around the Cape of Good Hope; from the West India, Bahama, or Bermuda islands; from any American port south of Virginia, including Central and South America, and vessels arriving from any place in the United States or British America where they may have touched on their way from any foreign port or place above named.

No such vessel shall leave quarantine or unload her cargo, or any part thereof, nor shall any person go on board or leave the vessel while in quarantine without the written permit of the port physician, who is hereby authorized and instructed to take any measures in regard to such vessels as in his judgment the public health may require.

The port physician is hereby authorized and instructed to demand and receive the quarantine fees which are hereby made and established by this board.

PLYMOUTH.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick and for the removal and detention of suspects; mail and telegraph facilities, etc.

There is no quarantine plant; no anchorage marked; no facilities provided for the inspection of vessels, for the care of the sick, or for the disinfection of vessels or of cargo. Post and telegraph office, Plymouth.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Selectmen and board of health: James Millar, chairman; H. M. Saunders, D. H. Craig, T. A. Bagnell, J. B. Collingwood. Joseph W. Hunting, constable, has been designated by the board as health officer. There is no physician connected with the board.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

No quarantine regulations have been formulated by the board of health or other city authority. A copy of the rules of the board is herewith transmitted, which, however, do not relate to quarantine.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

No vessels have entered for many years past requiring quarantine procedures. Bills of health are required from vessels hailing from foreign ports. No detention.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

No inspection has been required, as vessels from foreign ports come only from New Brunswick, and coasters have not arrived from infected ports.

6. No.

7. No quarantine procedures or inspections.

8. No vessels have been placed in quarantine for many years.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Any vessels requiring quarantine procedures would be remanded to the Boston quarantine.

10. No records are kept of cases of disease during the voyage.

11. No quarantine prescribed fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Arrivals from foreign ports during the calendar year 1895.

Month.	From—	Vessels.
March	New Brunswick	1
May	do	1
June	do	1
August	do	1
September	do	1
November	Cape Breton	1
December	New Brunswick	1

Domestic arrivals are not recorded at the custom-house. There are a few coasters engaged in lumber and coal, and a few fishing vessels. During the summer there is a small packet plying between this port and Boston.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Bills of health are required of vessels arriving from foreign ports. No immigration to the port.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

When notified by the collector of customs, the board of health will designate a physician to inspect vessels, when an inspection is required by the United States regulations. Vessels arriving with quarantinable diseases aboard could not be properly treated at the port with the present facilities, and the commerce of the place would not warrant the construction of a quarantine plant.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

No vessels arrive requiring inspection under the United States quarantine regulations.

16. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

Infected vessels which may arrive at this port should be remanded to the Boston quarantine for treatment.

JUNE 15, 1896.

Regulation of board of health relative to smallpox.

ART. 12. All cases of smallpox, diphtheria, scarlet fever, typhoid fever, measles, or any other diseases dangerous to public health shall be immediately reported to the board of health by the physician in charge of such cases.

BARNSTABLE.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Barnstable is not provided with quarantine equipment of any character. There is no designated quarantine anchorage, no buildings, no vessels for boarding, no quarantine rules. It is a very small place, with almost no marine commerce. Two or three domestic vessels enter each year with lumber from Maine ports.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. E. E. Hawes is the health officer of the town of Barnstable, which includes Hyannis and Hyannisport. He resides in Hyannis, which is several miles from Barnstable. I was unable to see him on the day I made the inspection at Barnstable.

3. No quarantine rules or customs.

4. No quarantine procedures.

5. No inspections.

6. No vessels from other United States ports inspected.

7. No inspections made.

8. No procedures.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Infected vessels would be sent to the Boston quarantine.

10. No records kept.

11. No prescribed fees.

12. One vessel arrived from Canada in December, 1895, with a cargo of wood pulp. No other foreign vessels during the year. No records kept of domestic arrivals.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Bills of health received from foreign vessels. The collector informs me that Dr. Hawes, the health officer at Hyannis, would inspect any vessel if called upon to do so, and would furnish a certificate. No immigration to the port.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Yes. If an infected vessel should arrive (which is not probable), the vessel should be sent to the Boston quarantine for treatment.

JUNE 28, 1896.

PROVINCETOWN.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

There are no quarantine buildings or disinfection apparatus at the port of Provincetown. There are no facilities for the detention of suspects or the care of those suffering from contagious diseases. The so-called anchorage ground is about 1 mile from the town and outside of a line drawn northeast from Long Point and eastwardly three-fourths of a mile from the Provincetown shore. The boarding is done by the health officer with the custom-house boat.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Board of health: R. M. Lavender, B. A. Lewis; Dr. W. S. Birge, secretary and health officer. Post-office address, Provincetown, Mass.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

A copy of the local quarantine rules is herewith transmitted. Vessels arriving from the Canadian provinces from May 1 to November 1 are inspected, and all vessels arriving from other foreign ports are inspected throughout the year. All domestic vessels arriving with sickness on board are inspected. No vessel has been placed in quarantine during the past year.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

Vessels are inspected coming from healthy Canadian ports. No complaint of detention of vessels on account of inspection.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

Answered under heading No. 3.

6. Are vessels from other United States ports inspected?

No.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine—(*a*) between arrival and commencement of disinfection, (*b*) time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The United States quarantine regulations are observed in the inspection of a vessel.

8. What communication is held with vessels in quarantine (and before quarantine, by pilots, etc.) and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No vessels have been placed in quarantine.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Health officer would recommend that vessels infected with cholera, yellow fever, or smallpox be sent to the Boston quarantine.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

No records are kept.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

The fee for inspecting a vessel is $5.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

There were 13 foreign arrivals during the calendar year 1895, all from the Canadian provinces except 2 which came from the Azores. Domestic vessels not recorded. They are mostly fishing vessels and vessels bringing lumber and coal. There is a daily packet plying between Boston and Provincetown which carries general merchandise.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Bills of health have been required of all foreign vessels except one, upon which a fine of $80 was imposed for not obtaining the same. There were 48 immigrants from the Azores during the year. These were inspected by the immigration officer and also by the health officer.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

No facilities for the treatment of an infected vessel.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The United States quarantine regulations are observed.

16. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that all vessels arriving at this port requiring disinfection under the United States quarantine regulations be remanded to the Boston quarantine for treatment.

JUNE 19, 1896.

QUARANTINE REGULATIONS.

1. Quarantine ground of Provincetown: That portion of the harbor lying without a line drawn due northeast from the eastern extremity of Long Point and eastwardly three-fourths of a mile from Provincetown shore shall be known as Quarantine Grounds.

2. All vessels arriving from or having on board any persons or goods of any description from any foreign port or from any port where smallpox, cholera, typhus or ship fever, or yellow fever, or any contagious disease is known to be prevailing or has lately been known to have prevailed, are hereby forbidden to cross quarantine line to come into harbor, or to land, within the harbor or limits of this town, any person whether of crew or passengers, or any goods, personal effects, or merchandise as aforenamed, until so permitted by the board of health after due inspection or approval of the bill of health by said board. Such vessels may, however, put to sea in preference to going into quarantine, provided there be no infection aboard, in which latter condition they will be subject to regulation 3.

3. Any vessel having on board a case of any of the above-named diseases shall immediately take a position upon Quarantine Grounds, and shall there remain under the special supervision of the board of health until discharged by them, which will not be until after proper disinfection of the said vessel, crew, and cargo. No persons, nor any goods, personal effects, or merchandise, shall be landed from any vessel in quarantine; nor shall any person visiting such vessel again land until the vessel's quarantine is finished, except by a permit from the board of health. Filthy or unclean vessels shall be subject to quarantine for purposes of purification. All vessels liable to quarantine shall discharge in quarantine and be detained thereafter for necessary purification.

4. A quarantine hospital may be established by and shall be subject to the regulations of the board of health.

All persons sick or infected with any of the above diseases, or any person who has been exposed to such infection by traveling in or coming from regions where such diseases are prevalent, or by handling merchandise arriving from such regions, or by going on board of or by handling the cargo of infected vessels, will be subject to examination by the board, as hereinafter provided, and may be removed to the quarantine hospital, unless his condition will not admit of his removal without danger to his health, in which case the house, vessel, or place where he remains shall be considered as a hospital, and all persons in any way concerned within the same shall be subject to the regulations of the board, as before provided.

5. The bodies of persons dying on board vessels in quarantine, or of such as have died at sea on board vessels under quarantine regulations (except the same be subject to inspection by a medical examiner, as provided by law), shall be taken in charge by the board of health and suitably interred in a proper burial ground. The effects of such persons shall be taken in charge by said board, and, if not claimed by the rightful heirs within three months, shall be delivered to the selectmen of Provincetown.

6. Penalties for violations: Whoever violates the above regulations after such notice as is herein given shall forfeit not less than five nor more than five hundred dollars.

Whoever obstructs the board of health or its agent in using such means (as are

provided) to prevent the spreading of the infection, or willfully removes, obliterates, defaces, or handles the signals so displayed (as provided), shall forfeit for each offence not less than ten nor more than one hundred dollars.

A master, seaman, or passenger belonging to a vessel under quarantine regulations who refuses to make answer on oath to such questions as may be asked him relating to such infection or distemper (as referred to in Reg. 2) by the board of health (which oath any member of the board may administer) shall forfeit a sum not exceeding $200, and if not able to pay said sum he shall suffer six months' imprisonment.

7. All expenses incurred on account of any person, vessel, or goods under quarantine regulations shall be paid by such person or owners, consignees, or persons in possession of such vessel or goods. All passengers on board of a vessel in quarantine must be provided for by the master of said vessel.

The foregoing is respectfully submitted.

These regulations will remain in force until new regulations are published another year, unless changed by board of health, of which due notice will be given.

R. M. LAVENDER,
B. A. LEWIS,
W. S. BIRGE, M. D., *Secretary,*
Board of Health.

HYANNISPORT.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Hyannisport is a small village on Nantucket Sound, and a subport of Barnstable. The port has no marine commerce; no vessels enter here, except an occasional pleasure yacht and lumber schooner from New York or Philadelphia put in on account of heavy weather, for safety. There are no quarantine buildings or disinfecting plant. No quarantine anchorage is designated. Anchorage within the breakwater is considered safe.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. E. E. Hawes is the health officer of the town of Barnstable, of which town Hyannisport is a part. He resides in Hyannis, which is about 3 miles distant. I was unable to see him on the day I made the inspection.

3. I was informed that there are no quarantine rules. No inspection of vessels or other quarantine procedures during the past year.

4. No quarantine procedures or customs.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

No inspections made. The collector of customs informs me that Dr. E. E. Hawes, the health officer, would inspect vessels where an inspection is required under the United States quarantine regulations.

6. No vessels from other United States ports inspected.

7. No procedures.

8. No procedures.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Infected vessels would be sent to the Boston quarantine.

10. No records kept of cases of disease during the voyage.

11. No prescribed fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign

ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

The following vessels from foreign ports entered during the calendar year 1895:

Month.	From—	Vessels.
May	Canada	1
June	do	2
	Porto Rico (wrecked)	1
July	Canada	1
August	do	1

The above vessels were laden with lumber, except the vessel which was stranded from Porto Rico. Domestic vessels not recorded at the custom-house. They are very few in number.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The collector requires consular bills of health from all foreign entries. No immigration at the port.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Yes. If an infected vessel should arrive it could be remanded to the Boston quarantine, and I would recommend that such action be taken.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

Not any.

JUNE 26, 1896.

NANTUCKET.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessel and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Nantucket, formerly one of the great whaling ports of the United States, at present has registered and enrolled very few vessels of any kind, and little marine commerce of any character. There is a daily packet from New Bedford which carries passengers and general merchandise, and a few coastwise schooners which bring lumber and coal from New York and Philadelphia. There are also a few pleasure yachts which arrive at the port during the summer. There is no designated quarantine anchorage, quarantine buildings, or disinfecting plant. The harbor is shallow, and an infected vessel would have to lie outside, and it would not be considered safe in bad weather.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Board of health: Dr. John S. Gronard, Frank A. Mitchell, Alexander C. Swan. Post-office address, Nantucket, Mass.

3. There are no local quarantine regulations in force at this time. The local board of health have authority to establish quarantine, but I am informed that no vessel has entered the port during the past forty years with quarantinable disease on board.

4. No quarantine procedures.

5. No inspection of vessels. No arrivals from foreign ports.

6. Are vessels from other United States ports inspected?

The board of health would inspect any vessel with sickness on board, or inspect vessels from foreign ports, if called upon by the collector of customs.

7. No procedures.

8. No vessel in quarantine.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Board of health would recommend that all infected vessels arriving at this port be sent to the Boston quarantine for treatment.

10. No records kept of disease during the voyage, etc.

11. No prescribed fees.

12. No record of arrivals of domestic vessels, and no arrivals from foreign ports.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The collector would notify the Department of the arrival of any infected vessel, and recommend that it be remanded to the Boston quarantine for treatment. No immigration.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Yes. A quarantine station at this port is not necessary.

15. No transactions.

16. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that all infected vessels requiring quarantine treatment be remanded to the Boston quarantine.[1]

JUNE 25, 1896.

EDGARTOWN AND VINEYARD HAVEN.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects, mail and telegraph facilities, etc.

There is no local regulation designating the quarantine anchorage at either Vineyard Haven or Edgartown. Edgartown is the port of entry and Vineyard Haven, which is distant about 7 miles, is a subport, in which the larger number of the vessels arriving enter.

The selectmen in each village constitute the board of health, but in neither port have they formulated any quarantine rules or appointed a health officer.

There are no quarantine buildings, disinfecting apparatus, or boarding vessels. The deputy collector of customs at Vineyard Haven has been acting as inspector of vessels when an inspection is required by the United States quarantine regulations.

There have been no foreign arrivals of vessels entered at the port for the purpose of discharging cargo. Those that have entered have been compelled to do so on account of heavy seas, and the entry at the custom-house was made under the

[1] The collector of customs has been directed by the Department to notify the Supervising Surgeon-General of the Marine-Hospital Service by telegraph upon the arrival of any vessel from an infected port or having contagious disease on board, and to permit no communication with the shore.

United States customs regulations requiring all foreign vessels lying in port over forty-eight hours to make a formal entry at the custom-house. The bills of health of such vessels are not taken up by the collector, as there is no discharge of cargo or landing of passengers.

There would be no very safe anchorage for an infected vessel.

2. No quarantine officers at either port.

3. No rules.

4. No procedures.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

Inspection would be required of any vessel with sickness, or of a vessel from a foreign port which made a real entry.

6. No vessels from other United States ports inspected.

7. No procedures.

8. No vessels in quarantine.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Vessels should be sent to the Boston quarantine, and the collector of customs would so recommend.

State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

10. No records of disease occurring during the voyage are kept.

11. No fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come and whether in cargo, ballast, or empty.

The following are the arrivals from foreign ports making entry at the custom-house in the calendar year 1895:

Month.	From—	Vessels.	Month.	From—	Vessels.
January	Canada	3	April	West Indies	1
	Turks Island, West Indies.	1	May	Canada	2
				Porto Rico	1
February	Canada	2	June	do	1
	Porto Rico	1		Canada	6
March	West Indies	4	July	do	1
	Canada	3	August	do	8
April	do	2	October	do	2

No record is kept of domestic vessels entering the port. There is a daily packet from New Bedford, and there are quite a number of pleasure yachts and coastwise schooners entering the harbor with coal and lumber as cargoes.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The collector informs me that all vessels from foreign ports making formal entry have had bills of health, and no vessel entered with sickness of a contagious character on board. No immigration to the port.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Infected vessels entering this port should be remanded to the Boston quarantine.

JUNE 25, 1896.

CERTIFICATE OF HEALTH.

VINEYARD HAVEN, MASS., ——, *189—*.

This will certify that ——, —— ——, master, from ——, bound for ——, now laying at this port, has no contagious disease, leprosy, or leper on board said vessel.

—— ——,
Health Officer.

NEW BEDFORD.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

New Bedford has no quarantine buildings of any kind; no disinfecting plant; no quarantine wharf or grounds for the landing of persons from infected vessels.

In connection with the poorhouse, and located on the poor farm, near Clarks Point, is a small building which has been used as a smallpox hospital. This building is about 2 miles from the anchorage, and it could be used, I am informed, to receive a patient from a vessel. A patient could be taken from the anchorage to this building in a small boat. For making the inspection of vessels the city employs a tug. The anchorage ground is designated as "south of the 11-foot bank."

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Board of health: Dr. William N. Swift, health officer; Mr. Nathaniel Hathaway, chairman; Mr. F. W. Cook. Post-office address, New Bedford.

3. Copy of the local quarantine regulations is herewith inclosed (marked A). The inspection of vessels is in accordance with the United States quarantine regulations.

4. No quarantine procedures. No unnecessary detention in the inspection of vessels.

5. Inspections of foreign vessels (Canadian vessels excepted), and vessels with sickness on board would be inspected during all seasons of the year.

6. No. Whaling vessels are inspected.

7. Inspections as above noted.

8. No communication would be permitted with vessels in quarantine.

9. Infected vessels would be remanded to some port where there are facilities for the disinfection of the same, either New York or Boston.

10. No records of cases of disease during the voyage have been made recently.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

See quarantine regulations inclosed.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Foreign vessels entering the port during the calendar year 1895 are as follows:

Atlantic Ocean (whaling vessels)	15
Canada	35
Cape Verde Islands	7
Azores	2
St. Helena	2

Vessels from Canada with cargoes of lumber; from Cape Verde with salt; from Azores with oil; from St. Helena with oil. There were about 2,000 domestic arrivals during the year 1895.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The collector is informed of the requirements of the United States quarantine regulations and will enforce them so far as he is authorized to do so. There were 215 immigrants from the Azores, and 173 from Cape Verde Islands. All inspected upon arrival.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

I do not think the quarantine facilities are sufficient. The inspection of vessels is undoubtedly carried out, but it would be difficult, if not impossible, to properly care for an infected vessel at this port.

15. The inspection of vessels is in accordance with the quarantine regulations of the Treasury Department.

16. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that the collector of customs be instructed to notify the Department by wire of the arrival of any infected vessel, and, if the circumstances are such as to warrant, the vessel should be remanded to either New York or Boston for treatment.[1]

JUNE 24, 1896.

EXHIBIT A.—*Quarantine rules and regulations of the city of New Bedford.*

Every vessel arriving from a foreign port shall immediately proceed to the quarantine grounds, and shall be visited by the quarantine officer between sunrise and sunset as soon as possible after such arrival. Such officer shall examine the bill of health, and shall inspect the vessel, and shall require of the captain or master answers, in duplicate under oath, to the following questions:

City and port of ———. Quarantine questions put to the master of ———. Name of vessel ———. Date ———:

1. From whence is the vessel you command?
2. How many days have you been on the passage?
3. Have you touched anywhere?
4. If so, where?
5. At what date?
6. For how long?
7. Did you take in cargo or passengers there?
8. Have you any bills of health? If so, produce them.
9. Have you communicated with any vessel in the course of your cruise or passage?
10. If so, at what date?
11. Name of vessel?
12. From what ports were they?
13. Was any sickness existing on such vessels?
14. If so, what?
15. During the course of your cruise or passage, what cases of disease have occurred on board?
16. At what dates?
17. Has any death occurred on board your vessel since you left the last port?
18. If so, what date, and from what cause, to the best of your knowledge?
19. Has yellow fever, typhus fever, cholera, or any other contagious disease ever existed on the ship? If so, when?

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[1] The collector of customs has been directed by the Department to notify the Supervising Surgeon-General of the Marine-Hospital Service, by telegraph, upon the arrival of any vessel from an infected port or having contagious disease on board, and to permit no communication with the shore.

20. What is the number of officers, crew, and passengers?
21. Are the officers and crew the same as when you started?
22. How many passengers in first cabin, second cabin, steerage?
23. Have you any reason to think that yellow fever, cholera, typhus fever, or any other contagious disease exist in the vicinity of the port from whence you sailed, or near any others at which you have touched, or any vessel with which you have communicated during the present cruise or voyage?
24. What is your cargo?
25. To whom consigned?
26. What is the present sanitary condition of the vessel, cargo, crew, and passengers, to the best of your knowledge and belief?
27. Have you a medical officer? Give his name and produce his report.

Signature of master or captain: ——— ———.

Sworn to and subscribed before me, an officer empowered to administer oaths, etc.

(Official title): ——— ———

QUARANTINE STATION, ———, 18—

This vessel has permission to proceed [or is detained for observation].

———, *Health Officer.*

The department of the quarantine shall be placed under the superintendence of the board of health, and they shall have the sole and entire control of any hospital or hospitals which may be established within the limits of the city by competent authority for the reception of persons having a disease dangerous to the public health, and of all vessels lying at quarantine as hereafter directed, and of all persons employed at said hospitals or on board said vessels. It shall be their duty to cause all the ordinances of the city, all the regulations they may institute, and all the laws of the Commonwealth relating to the quarantine of vessels to be duly executed and enforced.

And it shall be the duty of the board of health to provide a suitable number of yellow flags, and whenever any vessel or vessels shall be ordered to the quarantine grounds for purification the master of said vessel shall hoist one of said flags at the head of the mainmast, there to be kept during the daytime, so long as said vessels shall remain at quarantine.

The board of health shall appoint, to hold office at the pleasure of that body, a quarantine physician, whose duty it shall be, at such times as they shall direct, to visit every vessel arriving, liable to quarantine; to direct in what manner she shall be cleansed, if necessary, and what articles from her shall be landed, washed, buried, or destroyed, and what articles of cargo may be unladen; to direct the care and attendance of the sick, for whom he shall prescribe and supply medicine according to his best skill; to report every day to the board of health the condition of every sick person; to direct the pilots where and in what particular place vessels shall be anchored; and to grant a certificate to any passenger by him discharged from quarantine, at any time before the discharge of the vessel in which such passenger arrived, and to give a certificate to the master of each vessel when, in his discretion, he shall think proper that such vessel be discharged from quarantine.

The quarantine physician, whenever required by the board of health, or whenever he may consider it his duty so to do, shall report to them the state and condition of the hospitals and of the vessels at quarantine; and it shall be his duty to recommend from time to time such measures as he may deem expedient relative to all matters connected with the quarantine regulations and operations of the city.

The quarantine physician shall receive such compensation as the city council shall authorize, but such compensation shall not preclude him, in extraordinary cases, from charging to the sick under his care, for medicine and medical attendance, such sums as the board of health may approve.

In case no provision is made for the compensation of the quarantine physician, he shall receive such fees as the board of health may approve.

The board of health may appoint a keeper to each hospital which may be established, and all such attendants and assistants as may be required to carry them on, or to carry into operation the laws, by-laws, and regulations connected with the quarantine, which persons, so appointed and employed, shall be subject to all directions given them by the board of health, and receive such compensation as the board shall allow.

A quarantine shall be had of all vessels, their officers and crews, passengers and cargoes, that come within the harbor of New Bedford, on board of which any person shall have died or been sick of any contagious or infectious disease during

the passage to New Bedford, or which are foul or infected after their arrival, or which are from, or have brought their present cargo or any part thereof from, any port or place where any infectious or contagious disease prevails or recently has prevailed: *Provided, however*, That in the latter case public notice shall first be given by the board of health of such fact of the prevalence of infectious or contagious disease.

The quarantine shall be had and performed at an anchorage ground south of the Eleven Foot Bank, under the direction of the quarantine physician, and shall continue on every such vessel until the master shall receive a certificate from the said physician that he may be discharged: *Provided, however*, That in case of unreasonable delay by the quarantine physician to grant such certificate, the owner, agent, or consignee of such vessel or any part of her cargo may apply to the board of health, who may, on being satisfied of the propriety of discharging such vessel from quarantine, issue such certificate.

The master of every vessel discharged from quarantine shall, within twenty-four hours after such discharge, deliver at the board of health office the certificate and flag he shall have received of the quarantine physician, and pay into the city treasury the sum of $5, for which he shall be entitled to a certificate from the city clerk to authorize his entry at the custom-house.

During the time that such vessel is performing quarantine no person, without a permit from the quarantine physician, shall go on board thereof, except those employed by or under the quarantine physician, and no person without a permit as aforesaid shall go within a line upon the land adjoining any public hospital, to be designated by the quarantine physician, except as aforesaid; and every person who shall transgress in either of these cases shall be liable to be considered as contaminated with infection, and held to undergo purification in the same manner and under the same regulations and restrictions as those performing quarantine, and shall there remain until discharged by the quarantine physician, and the said physician, or anyone empowered by him for the purpose, may forcibly detain him for the purposes aforesaid.

The board of health shall have the right, at any time, to examine the bill of health issued to any vessel arriving from any port where such documents are usually granted, to enable them to decide what measures it may be necessary to take with regard to the situation and purification of such vessel and cargo.

Any person offending against any of these regulations, from the first to the ninth, both inclusive, shall pay a sum not less than three, nor more than twenty dollars; and in addition he shall be liable to all the penalties provided by the laws of the Commonwealth in relation to quarantine.

FALL RIVER.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels, facilities for inspection of vessels, apparatus for disinfection of vessels and of baggage, facilities for removal and treatment of the sick and for the removal and detention of suspects, mail and telegraph facilities, etc.

Fall River is not possessed of any quarantine buildings, wharves, disinfecting apparatus, vessels, or other quarantine equipment.

The designated quarantine anchorage is southerly from light-house on Borden Flats. This anchorage is considered safe, and the water is of sufficient depth for vessels entering the port.

2. Give personnel of the station or port, name of the quarantine officer or officers, post-office address, total number of officers and subordinates, etc.

Board of health: Dr. M. A. Cummings, chairman and port physician, Fall River, Mass., Dr. L. P. De Grandpre, and Samuel D. Morriss.

3. Regulations of board of health inclosed. No vessel in quarantine for many years.

4. No quarantine procedures and no vessels entering the port during the past year requiring inspection under the United States quarantine regulations.

5. No procedures.

6. No vessels from United States ports inspected.

7. No procedures.

8. No procedures. Communication with an infected vessel would not be allowed.

9. Infected vessels should be remanded to New York for treatment. The collector of customs would notify the Department of the arrival of such vessel.

10. No records of disease during the voyage kept.

11. No prescribed fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Foreign vessels arrived during calendar year 1895 from foreign ports.

March	2	September	7
April	2	October	4
May	2	November	4
June	8	December	2
July	3		
August	3	Total	37

One vessel from the Azores, *Alinda*, 147 immigrants, all inspected; 36 vessels from Nova Scotia, New Brunswick, etc., with lumber. Domestic vessels not recorded at the custom-house.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The collector of customs will enforce the quarantine regulations in regard to inspection of vessels prior to entry, and would recommend that infected vessels be remanded to the New York quarantine. Consular bills of health required and filed.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

No. There should be a quarantine station in the vicinity of Fall River where infected vessels might be treated. The inspection of vessels is well performed, I believe.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

Not any.

JUNE 23, 1896.

QUARANTINE REGULATIONS.

All vessels arriving at this port from any port where cholera, yellow fever, or any other contagious disease prevailed at the time of said vessel's sailing therefrom, or having on its arrival, or having had during its voyage, either of said diseases on board, shall anchor southerly from the "light-house on Borden Flats," and not less than 2,000 feet westerly from the easterly shore of Mount Hope Bay, at quarantine, and there be examined by the city physician. Such vessels shall only be allowed to come up to the city after such examination, and upon the certificate of said physician that in his opinion the health of the city would not be endangered thereby.

RHODE ISLAND.

REPORT OF THE INSPECTION OF THE LOCAL QUARANTINES.

By Surg. H. W. AUSTIN, M. H. S.

NEWPORT.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for

removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraphic facilities, etc.

Newport is not provided with a quarantine station. The city has no quarantine buildings of any kind; no disinfecting plant; no quarantine wharf or grounds; no quarantine vessels except a small catboat, which the health officer or sentinel uses in boarding vessels.

The quarantine anchorage is northward of the light-house on the breakwater of Goat Island, and to the southward of Coasters Harbor Island, and west of a straight line drawn from said light-house to the western part of Coasters Island. The anchorage is in the outer harbor and is believed to be a sufficient distance from passing vessels. It is located about 2 miles from the city.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Board of health: Dr. Christopher F. Baker, president; Dr. Francis H. Rankin, secretary; Dr. Henry E. Turner, Robert S. Franklin, Ezra J. Barker; George C. Shaw, executive officer; Henry Gladding, health officer and boarding officer. Post-office address, Newport, R. I.

It will be observed in reading the city ordinances (a copy of which was sent with last report), chapter 18, quarantine, that the mayor and the board of aldermen make the quarantine regulations as occasion requires, and that the board of health have no authority whatever in this matter. The health officer, a non-professional man, does the boarding of vessels. A port physician has not been appointed.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

In the inspection of vessels the United States quarantine regulations are observed. In addition thereto, the health officer speaks all domestic vessels from ports south of Virginia from June 1 to September 1.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

No vessel has been placed in quarantine for many years. No unnecessary detention or disinfection of vessels.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

Inspection of vessels maintained throughout the year, i. e., vessels from foreign ports (Canadian ports excepted) and vessels with sickness on board.

6. Are vessels from other United States ports inspected?

As above noted.

7. Describe quarantine procedures in the inspection of vessels, and if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection; (*b*) time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharged.

The United States quarantine regulations are observed in the inspection of vessels.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.) and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No procedures. Communication with vessels in quarantine would not be allowed.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels

carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Infected vessels would be remanded to the New York quarantine station for treatment.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

No records.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

According to the city ordinances the expense of the disinfection of vessels and the care of the sick must be paid by the owner of the vessel. The fees are not prescribed. No fees for the inspection of vessels.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

The following vessels (from Canada) arrived during the calendar year 1895:

January	2	July	1
April	3	August	4
May	4	October	3
June	1		

All of the above vessels were inspected by the health officer and a verbal report made to the collector of customs. The vessels came laden with lumber and coal. The domestic arrivals are not recorded at the custom-house. There are many pleasure yachts arriving during the summer months and a few coastwise schooners.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The collector requires bills of health from all vessels from foreign ports, which bills are properly filed. There is no immigration to this port.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

I believe there should be a fully equipped quarantine plant somewhere on the southern coast of Rhode Island where infected vessels could go and be treated. The inspection is probably as thorough as possible with a health officer who is not a physician.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

United States inspection rules observed. No vessels have been placed in quarantine.

JUNE 23, 1896.

BRISTOL.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The quarantine anchorage is about 1½ miles below the city, in the bay. It is designated as follows:

The quarantine anchorage shall comprise that portion of the harbor lying and being within the following bounds, viz: Beginning at Middle Ground buoy; thence

running westerly to Ushers Rocks; thence southwesterly to Popasquash Point; thence northwesterly to beacon on Castle Island; thence north by east to Middle Ground buoy.

There are no quarantine buildings, wharves, or disinfecting appliances, or boats. The anchorage, I am informed, is a safe one.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

The city council is the board of health. Mr. George H. Peck is the health officer. Post-office address, Bristol, R. I.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Practically the quarantine regulations are obsolete and not in force.

4. There are no quarantine procedures, either under printed regulations or by custom.

5. There is no inspection of vessels. No vessel with sickness aboard and no vessel from a foreign port has arrived during the past year.

6. No vessels from other United States ports are inspected.

7. There are no procedures.

8. No vessels in quarantine.

9. The health officer would recommend that infected vessels arriving with cholera, smallpox, yellow fever, or typhus fever be sent to the New York Quarantine Station for treatment.

10. No records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

11. There are no prescribed fees.

12. No foreign vessels have arrived at this port, and very few domestic vessels except pleasure yachts.

13. No immigration.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

I believe there should be a quarantine station somewhere on the Rhode Island coast where an infected vessel could be treated.

15. No quarantine procedures of any kind have been required during the year.

16. Mention any facts which in your opinion should be known to the Treasury Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The collector of customs should be instructed to notify the Department by wire of the arrival of any infected vessel, and, if the circumstances warrant, the vessel should be remanded to New York or some other station where proper treatment can be given the vessel.[1]

JUNE 22, 1896.

PROVIDENCE.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

About 2¾ miles below the city, at Kettels Point, on the Providence River, is the residence of a sentinel, who boards vessels arriving at Providence, and notifies

[1] The collector of customs has been directed by the Department to notify the Supervising Surgeon-General of the Marine-Hospital Service by telegraph upon the arrival of any vessel from an infected port or having contagious disease on board, and not to permit any communication with the shore.

the health officer when his services are needed. Opposite this point is the quarantine anchorage, and on the opposite shore, located on the city farm, is the smallpox hospital. This building was built for the reception of smallpox cases that might occur in the city, and not as a hospital for the reception of infectious diseases taken from vessels. However, it could properly be used for such cases, and is located conveniently to the anchorage. The building is a frame building and would accommodate about fifteen patients. It has a bath tub, water-closet, kitchen appliances, etc., and is in fair condition.

The city has also a steam disinfecting cylinder 6 by 14 located near a hospital used as a city hospital, and also near the water front. It is not intended for quarantine purposes, but in an emergency could be used in the disinfection of baggage of persons coming from infected vessels.

The quarantine sentinel has a rowboat at Locust Point, in which he boards vessels. There are no buildings for the detention of suspects. No means provided for bringing patients ashore. This would require a small boat, which could not be obtained without much delay.

The quarantine anchorage ground is designated in the regulations as follows: "The quarantine ground of the port of Providence shall be that portion of the bay lying below a line drawn from Conimicut Point to Nagatt Point and north of Providence and Patience islands." The anchorage is considered safe.

The steam disinfecting plant at the city hospital has been used for the disinfection of school-books taken from the city schools where diphtheria has occurred, and it works satisfactorily.

2. Give personnel of the station or port, name of the quarantine officer or officers, post-office address, total number of officers and subordinates, etc.

Dr. Charles V. Chapin, superintendent of health and health officer. He has telephone connection with the boarding officer (who is not a physician) located at Kettels Point.

3. Copy of the local quarantine regulations is herewith transmitted. All foreign vessels (Canadian provinces excepted) and all vessels with sickness on board, or having had any quarantinable disease on board during the voyage, are inspected.

4. No quarantine procedures, either under printed regulations or by customs, are enforced at the port, in addition to the requirements of the Treasury Department. No unnecessary detention.

5. Inspections are maintained throughout the year.

6. No vessels from other United States ports are inspected.

7. Inspection is made as provided in the United States quarantine regulations. No vessels have been placed in quarantine.

8. No vessels in quarantine. Communication would not be allowed between vessels in quarantine and the shore or with other vessels.

9. Health officer would recommend that vessels infected with smallpox, yellow fever, cholera, or typhus fever be sent to the New York quarantine.

10. Records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

11. Fee for inspection is $3.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Vessels arriving at Providence from foreign ports during the calendar year 1895.

Month.	From—	Vessels.	Month.	From—	Vessels.
January	Canada	4	July	Canada	13
	Haiti, West Indies	1		Jamaica, West Indies	1
	Jamaica, West Indies	1	August	Canada	11
February	St. Martin, West Indies.	1		Turks Island	1
				Haiti	1
March	Bon Air, West Indies	2	September	Canada	6
	Canada	2		Haiti	2
	Jamaica, West Indies	1	October	Canada	8
April	Canada	5		Jamaica	2
May	do	12		Turks Island	2
	Jamaica, West Indies	1	November	Canada	8
June	Canada	10		Turks Island	1
	Haiti, West Indies	1	December	Canada	3
	Sicily	2		Jamaica	2

No records of domestic arrivals are kept at the custom-house.

The cargoes of vessels from Haiti are logwood; from Turks Island, salt; from Italy, salt and sulphur; from Canada, coal and lumber. Domestic vessels bring general merchandise and coal and lumber. There is a line of daily steamers plying between this port and New York; also a line of steamers plying between Providence and Philadelphia and Providence and Baltimore; also a line of steamers between Providence and Newport and Providence and Fall River.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Bills of health and health officer's certificates have been required according to United States quarantine regulations. No immigration.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

The quarantine facilities are sufficient for inspection, but not for the treatment of an infected vessel. A small vessel without many persons aboard, if infected with smallpox, might be treated at this station.

15. United States quarantine regulations are observed.

18. Mention any facts which, in your opinion, should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

A refuge quarantine station where infected vessels could be treated should be provided somewhere along this coast for the accommodation of infected vessels arriving at Providence, Newport, Bristol, Fall River, New Bedford, and Hyannis. Infected vessels from the above ports must be sent to either New York or Boston to undergo their quarantine.

JUNE 22, 1896.

QUARANTINE REGULATIONS.

1. The quarantine ground of the port of Providence shall be that portion of the bay lying below a line drawn from Conimicut Point to Nayatt Point and north of Prudence and Patience islands.

2. Every vessel arriving in the harbor of Providence that shall have on board, or that shall have had on board during the passage, any person sick with fever of any description, with cholera, smallpox, or other contagious or infectious disease, and every vessel that shall be subject to quarantine under any order or rule that may be established from time to time by the board of aldermen, shall anchor at the quarantine ground; and the person in command of such vessel shall place in the main shrouds thereof a flag as a signal, and such vessel shall remain at anchor at said ground, with the flag in the shrouds, until written permission shall have been given for such vessel to leave by the health officer.

3. If any vessel subject to quarantine under the next preceding rule shall pass the quarantine grounds, or shall leave the same without the written permission of the health officer, the owner or owners, agent or agents, or the person or persons who shall move the same, shall pay a fine of not less than twenty-five nor more

than two hundred dollars for each offence, and such vessel shall be liable to be moved to the quarantine ground at the expense of the owner, owners, agent, or agents of the same.

4. All vessels arriving at the port of Providence, and subject to quarantine under the preceding rules and regulations, shall anchor at the quarantine ground and be subject to examination and quarantine, though they may have called at or discharged their cargoes at any other port in the United States.

5. The health officer may demand such information and ask such questions as he shall deem necessary or proper of the captain or commanding officer or other person on board of any vessel arriving at this port and subject to quarantine, respecting the condition of such vessel and the health of the persons on board the same, and if such captain, commanding officer, or other person shall refuse to answer any such inquiries, or shall evade them, or shall in any way or manner make or cause to be made any false or equivocal statement relative to the state of health of any person on board such vessel, or shall neglect to report to the health officer any sickness or death that may have occurred on board the same, or shall refuse to sign his written examination taken at the time by the health officer when requested so to do by said health officer, such captain, commanding officer, or other person shall pay a fine of not less than twenty-five nor more than two hundred dollars for each offence.

6. If any vessel in the harbor of the city, whether subject to quarantine or not, shall have any sickness on board, or if such vessel or the cargo thereof is in a condition dangerous to the public health, in the opinion of the health officer, said health officer may subject such vessel to the regulations of quarantine, so far as in his opinion may be necessary to prevent all such danger.

7. Every vessel during her quarantine shall wear colors in her main shrouds.

8. No provisions, spirituous liquors, or other articles shall be permitted to be brought on board any vessel at quarantine without the written permission of the health officer.

9. No portion of the cargo, personal baggage, clothing, or other goods shall be delivered from on board any vessel at quarantine except in such manner and at such places as the health officer shall in writing direct.

10. No person in any boat or vessel shall go alongside of any vessel at quarantine, nor be at anchor or remain within one hundred yards of such vessel at quarantine, without written permission from the health officer.

11. Every vessel at quarantine shall be stationed at such place as the health officer shall direct.

12. The directions of the health officer in regard to cleansing and disinfecting any vessel at quarantine, and the bedding, clothing, personal baggage, cargo, and other things on board thereof, and in relation to pumping out the bilge water, shall be strictly complied with by the officers, crew, and all other persons on board thereof.

13. The captain or other commanding officer of any vessel at quarantine shall be answerable for all violations of the foregoing regulations concerning quarantine by any person on board thereof.

14. If any officer of the customs or any person shall go on board of any inward-bound vessel that shall be subject to quarantine, such officer or person shall remain on board such vessel, and shall not land in the city until the time of quarantine of such vessel shall have expired, without the written permission of the health officer.

15. Every person violating any of the preceding regulations respecting quarantine shall, except as hereinbefore provided, pay a fine of not less than ten nor more than twenty dollars.

16. The board of aldermen shall annually, in the month of January, and whenever there shall be a vacancy, appoint a health officer at quarantine, who shall execute the orders of said board, and perform the duties designated in chapter seventy-five of the general statutes, and such other duties as said board may from time to time prescribe relating to quarantine.

17. The health officer shall receive the sum of three dollars for each visit made by him to any vessel subject to quarantine, together with his necessary expenses in making such visit, to be paid by the owners, agents, or commanders of the vessels visited by him.

IN BOARD OF ALDERMEN, *September 6, 1892.*

Resolved, That all vessels sailing from European, Asiatic, or cholera-infected ports shall be subject to quarantine, and such vessels shall anchor below a line drawn from Conimicut Point to Nayatt Point until inspected by the superintendent of health.

True copies.

Witness:

WM. E. CLARKE, *City Clerk.*

CONNECTICUT.

REPORT OF INSPECTION OF LOCAL QUARANTINES.

By Surg. PRESTON H. BAILHACHE, M. H. S.

STONINGTON.

1. No quarantine station, buildings, or anchorage.
2. No quarantine officer or officers.
3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

The State health laws govern the management of local quarantine. "The warden and burgess within the limits of the borough have, use, possess, and enjoy all powers and privileges relative to sickness and infectious diseases granted selectmen and justices of the peace in the several towns." The judge of the supreme court appoints a health officer for each county, who shall be an attorney at law, and said attorney appoints a medical man as health officer for each town. The county health officer makes his report in June of each year to the State board of health.

4. There are no quarantine procedures.
5. No inspections are maintained.
6. No vessels from other United States ports are inspected.
7. No quarantine procedures or inspections.
8. No vessels in quarantine.
9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

All vessels infected with contagious disease would be refused admission and the fact telegraphed to the Bureau.

10. No records of disease during the voyage.
11. No quarantine fees.
12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

From foreign ports, 17; foreign ports in yellow-fever latitudes via domestic ports, 2; from domestic ports, 1. All vessels from foreign ports came from Nova Scotia, and the freight has been lumber; all had cargoes.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Satisfactory. No immigration.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

In present condition of the country a quarantine establishment is not needed.

15. No quarantine established.
16. No quarantine established.
17. What disposition is made of the consular bills of health?

Filed in custom-house.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

None other than above stated.

SEPTEMBER 9, 1896.

NEW LONDON.

1. No quarantine station or buildings. The anchorage grounds for infected vessels is located upon a line drawn east from light-house at the entrance of the harbor, and flags are set upon opposite sides of harbor to indicate location. No facilities for inspection of vessels; no apparatus for disinfection of vessels and baggage other than sulphur in pots; no facilities for removal and treatment of the sick and removal and detention of suspects.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Capt. H. S. Bartlett, harbor master, makes inspection of foreign vessels, and, if infected or disease on board, reports the same to board of health. Dr. Hiram B. Thomson is city physician, but has no authority in quarantine matters outside of the city.

3. The local quarantine is governed by State laws, copies of which I was unable to obtain.

4. Foreign vessels are inspected; no detention unless infected.

5. Inspections from May until October only.

6. No vessels from other United States ports are inspected.

7. No quarantine procedures have been had in recent years.

8. No communication with vessels in quarantine is had until inspected.

9. Infected vessels will be detained and the Bureau notified.

10. No records are kept at the station of the cases of diseases that have occurred during the voyage, on arrival, and during detention.

11. Quarantine fee is $5 for each foreign vessel inspected; no other vessels inspected.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries, chiefly, the vessels come, and whether in cargo, ballast, or empty.

Seven foreign and three American vessels arrived, as follows: New Brunswick, 6; Haiti, 4. From domestic ports, 11—7 from Fernandina, Fla.; 1 from Philadelphia; 2 from New York; 1 from New Haven; all arrive in cargo. The commerce of the port consists of lumber from New Brunswick and logwood from Haiti. The collector says: "It is impossible for me to give you an account of the number of vessels which arrive in the lower harbor and stay there at anchor for a short time only, as this custom-house is at present without a boat fit to be used for the purpose of boarding."

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Answered above.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Not sufficient for the safety of the country in case a cholera-infected vessel arrived in the harbor.

15. No quarantine establishment exists.

16. No certificate of inspection is given.

17. Consular bills of health are filed in custom-house.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

Nothing further than above stated. The inspection of vessels by a harbor master instead of by a medical man does not seem to comply with the regulations of the Department, and should be corrected.

SEPTEMBER 8, 1896.

SAYBROOK.

There is no quarantine station or anything provided for the disinfection of vessels or the care of the sick with contagious or infectious diseases at Saybrook. Saybrook Point, some 2 miles below Saybrook, is located at the mouth of the Connecticut River, and is the proper place for protecting by quarantine facilities all the cities and villages upon the river, including Hartford. An island opposite Saybrook Light, known as Poverty Island, is well adapted for such a station if it ever becomes necessary to have one located on the river.

Mr. D. W. Pratt, agent for the New York Transportation Company at Saybrook Point, informed me that a few years ago he received a telegram from the company's headquarters in Hartford to hold a vessel consigned to them which had no bill of health, and that he went aboard with the health officer and fumigated the vessel, although there was no sickness aboard. It appeared that the captain took advantage of a favorable wind to leave New Brunswick without waiting for his bill of health, and the agent fearing trouble at Hartford, ordered the vessel fumigated, and it was then furnished with a health officer's certificate from Saybrook. He says no foreign vessels are allowed to pass without a proper bill of health. Dr. John H. Grannis, whom I saw subsequently at Saybrook, corroborated the agent's statement.

SEPTEMBER 10, 1896.

HARTFORD.

1. No quarantine station, buildings, or anchorage.
2. No quarantine officer or officers.
3. The local quarantine is governed by State laws.
4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department.

In case an infected vessel is bound for Hartford, it will be held at Saybrook Point, at the mouth of the Connecticut River, and the Bureau notified.

5. No inspection is maintained throughout the year.
6. No vessels from other United States ports inspected.
7. No quarantine procedures other than stated above.
8. No communication is held with vessels in quarantine.
9. All infected vessels will be reported to the Bureau.
10. No records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.
11. There is no schedule of quarantine fees.
12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

The British schooner *Pefetta*, from St. Johns, New Brunswick, lumber laden, and the British schooner *Vera*, lumber laden; no other foreign entries; none from yellow-fever latitudes, and only local packets from domestic ports.

13. State results of your visits to (*a*) the custom-house; (*b*) the immigration bureau.

See above. No immigration.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

There being no quarantine, there are no facilities, and, judging from the entries given above, none seem to be necessary.

15. No quarantine established.

16. No certificate of inspection given.

17. Consular bills of health are filed in custom-house.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

Nothing further than above stated.

SEPTEMBER 9, 1896.

NEW HAVEN.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

No quarantine station or buildings. Anchorage grounds located on an imaginary line from watchhouse to Beacon Hill, at entrance of harbor; no facilities for inspecting vessels except by different harbor tugs; disinfection is had by means of pots and kettles with sulphur; no facilities for removal of sick or removal and detention of suspects.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. Frank W. Wright is quarantine and health officer of the port; he is assisted by three inspectors.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

The local quarantine laws have been amended since my last inspection to conform to the regulations of the Department (copy inclosed).

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

None. There is no undue or unnecessary detention of vessels.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

For foreign vessels throughout the year and domestic vessels from May to November.

6. Are vessels from other United States ports inspected?

Yes.

7. Quarantine procedures consist simply in fumigation by sulphur in pots or by chlorine gas, if infected.

8. No communication is held with vessels in quarantine. There is no intercommunication allowed among vessels in quarantine.

9. A vessel infected with any contagious disease would be detained and facts reported to Bureau, except in cases of smallpox, which would be removed to pesthouse, vessel disinfected, and all hands vaccinated.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

No cases of disease have arrived on board ship.

11. Quarantine-inspection fee, $5; no other charges.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Month.	From foreign ports.	From domestic ports.	Month.	From foreign ports.	From domestic ports.
January	2	62	August	10	63
February	1	61	September	5	64
March	1	67	October	5	66
April	6	63	November	4	64
May	4	62	December	3	66
June	8	65			
July	10	62	Total	59	765

No arrivals from yellow-fever latitudes.

Lumber, grindstones, and plaster from provinces; molasses, sugar, and salt from West Indies; rags from Egypt; all vessels in cargo. Consular bills of health are filed with entries.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Given above. No immigration.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Not sufficient in case a cholera-infected ship entered the harbor.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced. and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

Inspections only appear to be necessary at this port, as nearly all foreign vessels enter via New York quarantine.

16. Does the certificate of inspection or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893?

Yes; no foreign vessel can enter without such certificate.

17. Consular bills of health are filed in custom-house.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

No additional facts obtained, and no recommendations apparently necessary at this time.

SEPTEMBER 10, 1896.

QUARANTINE LAWS.

[Chapter 155, title 43, general statutes, public health and safety, as amended, 1895.]

SEC. 2594. The board of health, in any town contiguous to navigable waters, may assign, within the town or the waters contiguous thereto, the port or place in any harbor, road, river, or bay, where vessels coming into the limits of such town or into such contiguous waters shall, if need be, perform quarantine; and every vessel which shall come from any foreign port or place, or, between the first day of June and the first day of November, come from any port or place in the United States south of the capes of Delaware Bay, or in the British provinces, and come to anchor in any such harbor, road, river, bay, or contiguous waters, if any place for quarantine shall have been assigned as aforesaid, shall come to anchor and lie at such place so assigned, and at no other place, until discharged in manner as is hereinafter provided; and the master of every vessel coming to anchor as aforesaid shall forthwith make signal for a health officer by hoisting colors in the shrouds, or, if need be, may send a person on shore, who shall notify immediately the health officer of the port, or, if there be no health officer, a member of the board of health, of the arrival of such vessel, and forthwith return on board; but the provisions of this section shall not apply to any such vessel which shall have entered any port or place north of said capes, where there are quarantine regulations, and been visited by a health officer, received a clean bill of health, and been permitted to go, and has actually gone, to the wharves and unloaded thereat; and

such clean bill of health, or a certified copy thereof, shall be left with or filed at the office of the board of health of the town or city having jurisdiction over said port within twenty-four hours after the arrival of such vessel.

SEC. 2595. When the board of health in any town shall deem it expedient that vessels arriving in its town or in the waters contiguous thereto from any port or place in the United States north of the capes of the Delaware, should perform quarantine, such board may by an order, published or posted as aforesaid, subject such vessels to quarantine in the same manner as if they arrived from a foreign port or place.

SEC. 2596. Any vessel subject to quarantine, arriving in the harbor of New Haven, on board of which there shall be no sickness at the time of such arrival, or on board of which, during the passage, there shall have been no case of malignant or contagious disease, may come to and make fast at the end of any public wharf in said harbor without incurring any penalty for violation of the quarantine laws; but no person shall be allowed to leave said vessel, except to make fast to the wharf, until said vessel shall have been visited by a health officer, and by him discharged from quarantine; and if the health officer, on visiting any such vessel, shall find any such sickness on board as, in his opinion, shall make it proper for him to cause such vessel to continue subject to quarantine, he shall order it to be removed to such place as shall be assigned as a place of quarantine. But this section shall not apply to any vessels coming from any foreign port or ports, except a port in Canada and the British provinces.

Any vessel from any port or place having sickness of any kind on board shall be subject to inspection and quarantine before making fast to any wharf.

Any master of any tugboat who shall violate, or assist any other person to violate, the quarantine regulations of any port shall be fined not more than one hundred dollars, or imprisoned not more than three months, or both.

SEC. 2597. On notice given to a health officer or member of the board of health of the arrival of any vessel as aforesaid, he shall visit it without delay, and may, on examination, give a certificate of health, discharging it from quarantine, or cause it to continue subject to quarantine; and every vessel so subjected to quarantine shall perform quarantine under the regulations of such board of health.

SEC. 2598. The board of health may establish the fees, not exceeding five dollars, which the health officer shall be entitled to receive for visiting a vessel as aforesaid, and the master or owner of such vessel shall pay the same to such health officer.

SEC. 2599. No master of any vessel, liable to perform quarantine as aforesaid, shall fraudulently attempt to elude a quarantine by false declarations of the port or place from whence he came, or land, or suffer to be landed from his vessel any person or thing except in the manner hereinbefore provided, or permit any person to board such vessel, before it shall have been visited as aforesaid.

SEC. 2600. When a health officer or member of the board of health shall, on visiting any vessel as aforesaid, think it necessary that it should be cleansed or purified, he shall direct its master to hoist a white flag on the head of the mainmast, there to be kept during the daytime; and shall apply without delay to the board of health to direct the time and manner in which the cargo on board such vessel shall be, in part or in whole, cleansed or purified; and such vessel, or such part thereof as may be infected, shall be cleansed in such other method as such board shall direct. And when such vessel shall contain any person ill of a contagious or infectious disease he shall be removed on shore to such place as said board may direct, and nursed and provided for, in the manner prescribed by law. And such board may also cause any passenger on board, and such of the mariners as the master shall not require to continue on board, to be removed on shore and secluded for fourteen days, in such place as the board shall direct; and if any person shall, without such permission, visit any person so confined, he shall be deemed to be contaminated with infection, and be liable to the same confinement and penalty as are imposed upon the person visited.

SEC. 2601. If the board of health shall find that any certificate of health granted by them was obtained by fraud or false representation, or be of opinion that any vessel, person, or cargo should perform further quarantine for the purpose of being cleansed or purified, on notice thereof being given by the board to such person, or the owner, master, supercargo, or consignee of such vessel or cargo, as the case may be, the same shall in all respects be liable to be proceeded with in the same manner as if no certificate of health had been given.

BRIDGEPORT.

1. No quarantine station, buildings, or anchorage.
2. No quarantine officer or officers.
3. No quarantine laws except State laws.
4. No quarantine procedures had.
5. No inspections maintained.
6. No vessels from other United States ports are inspected.
7. No quarantine procedures or inspections.
8. No vessels are held in quarantine.
9. All infected vessels would be reported to the Bureau.
10. No records are kept at the station of the cases of diseases that have occurred during the voyage, on arrival, and during detention.
11. No quarantine fees charged.
12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Month.	From foreign ports.	From domestic ports.	Month.	From foreign ports.	From domestic ports.
January	1	58	August	1	58
February	0	39	September	5	59
March	0	40	October	4	57
April	2	57	November	2	57
May	1	58	December	0	58
June	3	57			
July	1	56	Total	20	654

No arrivals from yellow-fever latitudes.

Foreign entrances at Stamford, Conn.

March	1	October	2
April	3	November	4
June	3	December	6
July	2		
August	4	Total	27
September	2		

No arrivals from yellow-fever latitudes or domestic ports.

From St. John, New Brunswick, for Norwalk, 7 vessels; to Greenwich, 3. Character of commerce, lumber from Northern ports and logwood from Haiti and Jamaica.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

See above.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

As all vessels arrive through New York quarantine, no further inspection would seem necessary.

15. There are no quarantine regulations.

16. Does the certificate of inspection or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893?

Yes. Certificate is signed by New York health officer, copy of which is filed with New York report.

17. Consular bills of health are filed in custom-house.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

No other facts obtained.

SEPTEMBER 10, 1896.

NEW YORK.

REPORT OF INSPECTION OF LOCAL QUARANTINE.

By Surg. PRESTON H. BAILHACHE, M. H. S.

SAG HARBOR.

1. There is no quarantine station, buildings, or anchorages; no facilities for inspection of vessels; no apparatus for disinfection of vessels and of baggage; no facilities for removal and treatment of the sick or for the removal and detention of suspects.

2. William R. Reimann is president of the board of health, but there is no health officer.

3. No quarantine is maintained.

4. No quarantine procedures, either under printed regulations or by custom, are enforced at the port.

5. No inspection is maintained at any time throughout the year.

6. No vessels from any United States ports are inspected.

7. No quarantine procedures are had.

8. No vessels arrive except daily packets from New York and New London.

9. All infected vessels will be detained by the collector of customs until communication is had with the Marine-Hospital Bureau.

10. No records are kept.

11. There being no quarantine, no fees are collected.

12. No vessels arrive other than noted above at No. 8.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Learned that no foreign vessel has entered the port since 1894.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

As the collector of the port, Cornelius R. Sleight, stated that he would assume charge of any vessel entering the port with contagious disease on board and communicate with the Bureau before permitting it to enter, I am of opinion that his action will be sufficient protection in the present condition of the country.

15. No regulations and no procedures.

16. No inspections.

17. What disposition is made of the consular bills of health?

Would be filed in custom-house.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

It might be of advantage to direct the collector of the port to perform the duty of informing the Bureau in the circumstances as stated above.

SEPTEMBER 11, 1896.

NEW YORK.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The quarantine station at the port of New York may, for convenience in making this report, be divided into the "boarding station," "detention and disinfecting station," and "hospital station."

BOARDING STATION.

The boarding station is situated upon the eastern bank of Staten Island, in the village of Edgewater; post-office address, Rosebank, N. Y.

The large executive building, referred to in my report of 1895 as having been destroyed by fire on May 19 of that year, has not yet been replaced, but work was begun a few days ago laying the foundation for a new structure, and it is proposed to make it even more complete than the one destroyed. It will be two stories in height and contain on the first floor the general business offices, press and telegraph offices, private office, and laboratory for the health officer; and the second floor with necessary modern conveniences. The upper floor of the old building will be fitted up for the accommodation of the captains and crews of the station boats. At present the offices, etc., are located in an old building upon the grounds known as the carpenter and machine shop. The residences of the health officer and his deputies are beautifully located upon the bluff overlooking the bay, the docks, and the site of the executive building. A description of these residences and their gardens of flowers, grass terraces, etc., would be well worth reading, but out of place in this report. The grounds occupied by the station comprise about 8 acres.

The anchorages are convenient to the boarding station, and the "holding ground" excellent. The quarantine boundaries extend from Sandy Hook on the south to Long Island on the north, and are described as follows: All the waters of New York Bay and Harbor to low-water mark from Sandy Hook to Mattewan Creek on the shores of New Jersey; thence along an imaginary line to the lighthouse at Seguines Point; thence along the shores of Staten Island to a point in the Kill von Kull opposite the western end of Shooters Island; thence along an imaginary line due north, passing westward of said island; thence along the shore line of New Jersey to the Hudson River as far as vessels may proceed. These boundaries may be divided into lower, middle, and upper quarantine grounds. The lower grounds, south of Hoffman and Swinburne Islands, are marked by the placing of four spar buoys, painted yellow and marked "Q," indicating the anchorage grounds for infected vessels in quarantine (which is directly west of said buoys), and no other vessels are allowed within half a mile of these buoys, or to communicate with vessels in quarantine. Hoffman and Swinburne islands are located in the middle division, and the upper quarantine grounds are directly opposite the boarding station above described.

The station is amply supplied with boarding facilities for the inspection of incoming vessels, comprising the steam tugs *Governor Flower* and the *Charles F. Allen*, both large and powerful vessels of their class. In addition to the above is a launch and several small boats. The dockage is also ample, consisting of a bulkhead wharf 150 feet long, connected by a flying bridge with the shore. The depth of water on the outside is 20 feet, and on the inside, where the vessels are sheltered, 10 to 12 feet. The shore line of the grounds is fully protected by a well-constructed granite wall.

The apparatus for the disinfection of vessels and of baggage is most complete. The steamer *James W. Wadsworth*, formerly the *Ripple*, has been fitted up with the most modern machinery for the use of both sulphur and bichloride disinfection. In addition to disinfecting vessels and baggage, the *Wadsworth* is provided with the necessary equipment for bathing the immigrants while their clothing is being disinfected, separate compartments being provided for the sexes. The great advantage of this equipment is the facility with which disinfection, etc.,

can be accomplished by the *Wadsworth* steaming alongside the suspected or infected vessel, removing the immigrants to her own decks, and disinfecting the former while bathing the latter.

DETENTION AND DISINFECTING STATION.

The detention and disinfecting station is located on Hoffman Island, about 2 miles east of the south bank of Staten Island and 2 miles below the boarding station. It is an artificial island of at present about 3 acres, but is being rapidly enlarged, and when completed will be 8 acres in extent. A heavy, solid granite sea wall, protected by riprap, is in course of construction, and will entirely surround the island. There are five principal buildings upon the island—four brick and one frame. The latter, constructed about two years ago, is 270 by 60 feet, three stories high, and fitted with double-twin iron cots, with wire bottoms, so arranged with pulleys and weights that they can be raised from the floor when not in use, thus preventing their occupancy during the day and leaving the floors clear for cleaning. This building, which is finished in North Carolina pine, will accommodate 1,100 persons very comfortably.

Galleries on the east side of the building, with long porcelain enameled-iron sinks or wash basins, furnish ample room for morning and evening ablutions, besides giving a pleasant outdoor view of the bay. Near the building is the new bath house, 125 by 50 feet, finished in North Carolina pine and fitted with 36 bathing stalls on each side (72 in all), and separated by a partition for the accommodation of the two sexes. The disinfecting building, with plant and transfer tracks and trucks complete, contains three improved disinfecting steam chambers, 18 by 5 by 4 each—Blake & Williams type. This room is divided by a partition across the middle, so arranged that articles put in at one end of the disinfecting chamber can be taken out at the other end thoroughly disinfected, and without danger of becoming again contaminated or the employees coming in contact with each other. Cement floors complete this building.

The boiler house contains three 180-horsepower boilers, supplying steam for heating, disinfecting, electric lighting, etc.

Another building containing two wards, 12 by 20 feet (one for each sex), has been added for the purpose of isolating suspects while awaiting transfer to Swinburne Island. These wards contain bathrooms, latrines, etc. The old buildings, four in number, are all brick, two stories high; two of them, known as the north and south dormitories, 142 by 65 feet, will accommodate 450 persons each, and are fitted with cots and hoisting apparatus similar to those in the new barracks, except that they have canvas instead of wire bottoms. The others are the executive building, 40 by 50 feet, for the accommodation of the superintendent and employees, and is well furnished; and a building 109 by 51 feet, in which are located the boilers, the laundry, with 36 tubs and 10 drying frames, the lavatories, the dining rooms, storerooms, baggage rooms, etc. There are, in all, four kitchens with ranges, jacketed kettles, boilers, etc., having a capacity for supplying 3,000 persons with cooked food. Each building, new and old, used for detention purposes, is supplied with latrines consisting of lead-lined boxes of suitable depth, arranged for effective disinfection before emptying and flushing. The water supply is obtained from nine cisterns of 50,000 gallons capacity, collected from the roofs of the various buildings and distributed from elevated tanks. It is proposed to have in the near future either an artesian well or pipes laid from Staten Island to this station, in order that an abundant supply of water may be had at all times. Boats now furnish water when the cisterns are empty, and seawater is used for flushing latrines and sewer pipes. Heating is by steam; the pipes and radiators are hung from the ceiling to prevent accident or being tampered with by unauthorized persons. Lighting is done by both a gasoline and an electric-

light plant, the latter by 250 incandescent 16-candlepower lamps, and the former by a Springfield gas machine. Precautions against fire are provided by six lines of fire hose of 1,200 feet each, a large steam fire pump, with working pressure of steam kept up while buildings are occupied, and the floors and barracks are rendered fireproof by asphaltum (except the new barracks, which have not yet been covered). Fire escapes are provided from the upper stories of the frame building by outside stairways. The mail facilities are by boat from the boarding station, and telephonic communication between all the stations is soon to be put in.

The only building in use at present is one of the old brick barracks, which accommodates the detained passengers of the Ward Line of steamers each week. It, with the corresponding building, also of brick, are regarded by the health officer as the best on the island, as he fears to use the new frame (Georgia pine) building on account of its inflammable character. He contemplates reducing the latter building to one story on that account.

As soon as the enlargement of the island is completed, the health officer intends to erect additional brick buildings upon the new part (appropriations for which have been made by the State legislature), thus more than doubling the capacity of the island for the detention of suspects.

Although there is a depth of water of from 14 to 15 feet around the island, there is but one landing place, which is at the north end and is reached by a channel across the bar, or "west bank," as it is called. Both Hoffman and Swinburne islands are located upon this bar, which is southwest by northeast. Mooring buoys are located at convenient distances all around the island, where fully equipped barges may be secured in case of emergency for the detention and segregation of suspects.

At present there are two Whitehall boats at this station, but a steam launch is soon to be supplied for the accommodation of the superintendent and employees in case of an emergency arising from any cause.

HOSPITAL STATION.

The hospital station is located on Swinburne Island, 1 mile south of Hoffman Island, and about the same distance as the latter from Staten Island. It also is an artificial island, 3 acres in extent, and protecfed by extensive riprap. The hospital building consists of 10 pavilion wards (80 by 24 feet, with 12 feet ceilings), 5 on each side, of 16 beds capacity, and opening on a central corridor 9 feet wide. This corridor extends from the executive building to the engine house, which latter is 160 by 23 feet in dimensions. There is ample room in these wards to care for 200 patients. The beds in use are of iron, with wire spring and excelsior mattresses. It is the intention of the health officer to have these beds enameled and use only blankets upon them instead of mattresses, which can be disinfected by dry heat each time after using. The nurses' rooms are located at the corridor end of the wards. The wards, which are of wood, with slate roofs, are heated by steam throughout and equipped with fire hose for protection in the event of fire.

In the rear of the wards is the boiler house. This is equipped with three boilers of the Blake & Williams pattern, with an estimated 375 horsepower. These furnish heat for buildings and power for steam laundry. In the rear of the boiler house is located the morgue and crematory. The latter, called the "American incinerator," is a coal burner. For complete incineration in this type of furnace seven or eight hours is required. In connection with the crematory is a vault room for receiving 32 bodies. The steam laundry is sufficient for doing the washing for 500 people, and there is another laundry for use of officials. An ice house has recently been erected on the northwest side of the island.

The administration building is two stories high, with attic, and contains ample

room for officers and employees. All the rooms are fairly well furnished. Suitable buildings are provided for boathouses, blacksmith shop, storerooms, etc.

The wards are separated from the administration building by a heavy iron grating, which extends across the island, and the space between each of the wards, which are of the pavilion style, are likewise inclosed to prevent the possible mingling of convalescent patients with each other.

The water at this island is derived from 22 cisterns, which have a total capacity of 500,000 gallons. Extending around the island is a 15-foot concrete walk, and outside of this riprap bulkheads. There are two approaches or landings at this island, one on the south end and the other at the northwest side. At the last-named the riprap work is being rebuilt, having been greatly displaced by the winter's storms.

The island lies nearly southeast by north-northwest, and has at low water at the southern extremity about 11 feet, while at the northwest side there is barely 5 feet. Placed at suitable distances around the island are mooring buoys for barges, etc. The buildings upon the island are lighted by gasoline furnished by a Springfield machine.

The means of communication is by boat (steamer *Flower* or *Allen*), though it is intended to have telephone connection with both the detention and boarding station at an early day. At present there is only a Whitehall boat at the island, but a steam launch is to be placed there very soon.

The health officer contemplates overhauling the wards and improving their sanitary condition, as much of the woodwork inside needs repairing, and the walls and ceilings are to be made aseptic.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

The personnel of the station is as follows: Dr. Alva H. Doty, health officer (ex-officio member of State and municipal boards of health); Dr. E. B. Sanborn, deputy health officer; Dr. J. B. Hommedieu, deputy health officer; post-office address, Rosebank, Staten Island, New York; a secretary, 2 clerks, one who acts as telegraph operator; 1 messenger, 1 carpenter, 2 watchmen, who are sworn policemen; 2 engineers, 2 captains, 4 deck hands, 3 fumigators, 2 firemen. Employees are interchangeable in performing their duties.

The personnel of the detention station comprises 1 superintendent, 1 engineer, 2 boatmen, 1 matron—cooks to be supplied by the steamship companies.

The personnel of the hospital station comprises 1 superintendent, 2 engineers, 1 boatman, 1 carpenter, 1 matron, 1 laundress, 1 cook, 1 laborer, and nurses and attendants as needed.

Additional help will be employed, including physicians, at both the detention and hospital stations, when the islands are occupied by large numbers of suspects or patients.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Extracts from the quarantine laws of the State of New York have been furnished me by Health Officer Doty. (Exhibit A.)

In addition to the copious extracts from the laws of the State of New York governing quarantines I inclose copies of the quarantine regulations governing pilots and others. (Exhibits B and C.)

A slight change in the quarantine customs of the port is the permission to land passengers after dark. This is done by means of an electric light while making inspection and appears to be quite as safe as when done by daylight, for the reason that those undergoing the ordeal are required to pass directly toward a powerful electric light, which shines upon their faces and brings their entire person under

the eye of the inspector, whose back is toward the light. Only "liners" are thus inspected, and in case any suspicion is aroused the vessel is detained until morning.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

Extracts from a letter from the health officer showing his procedure in addition to the requirements of the Treasury regulations and the changes necessary to meet the different contingencies that may arise is given as follows:

The principal change has been in the mode of disinfection, and from the great variety of vessels which arrive here under different circumstances it is necessary that each one should be treated as the occasion demands. In a general way, I may say that I depend mainly on heat as a disinfectant; sulphur dioxide is also used, in conjunction always with steam; a solution of bichloride is also employed. Vessels coming from Rio de Janeiro and Santos and other infected ports of this character are held for disinfection on their arrival. The passengers and crews of said vessels, also their clothing, bedding, cushions, curtains, and other dressings, are removed to Hoffman Island, where the crew and passengers are bathed, and the clothing, bedding, etc., subjected to heat. While this is being done at the island, the forecastle and cabins are washed with soap and water and a solution of bichloride, 1:800, and the said apartments subjected to a fumigation by sulphur dioxide with steam. They are sealed by the disinfector in charge, who indicates on said seal the time at which these apartments can be opened. (Exhibit D.) At the present time all vessels coming from Naples, Genoa, Marseilles, and other Mediterranean ports are held for fumigation of steerage, in consequence of the epidemic of smallpox which now exists at those ports. The masters of vessels who are subject to this rule have been instructed to see that the immigrants open their baggage and place the articles contained about their bunks in the steerage. This is to be done before they reach the station. On their arrival they are ordered to the decks, and the disinfectors of this Department, after having admitted some steam, fumigate the steerage with sulphur, about 4 pounds to the 1,000 cubic feet. The hatches are then sealed as above described. As this means a closure of about seven or eight hours, with no place for the immigrants to sleep, vessels reaching here late in the afternoon or evening can not be fumigated until the following morning. Fortunately, vessels from these ports carry a very few if any cabin passengers. Arrangements have been made with the North German Lloyd Steamship Company, which is about the only line which carries cabin passengers from these ports, that in case of the late arrival of one of their vessels the cabin passengers are to be released at once and the vessel remain in quarantine until fumigation is performed the following morning. Vessels arriving with smallpox on board are treated as follows: The case is removed to hospital, the clothing, bedding, and contents of hospital apartment washed with soap and water and a solution of bichloride and fumigated with sulphur. The passengers who are members of the patient's family, and those who have been in any way exposed, are removed to Hoffman Island for observation. All who are not properly protected by vaccination are subjected to this operation. The steerage is then subjected to fumigation by sulphur and steam. As a rule, the cheap mattresses in the apartment occupied by the patient are destroyed. Frequently cases of illness ar found among the crew of vessels; there are no marked symptoms, simply an elevation of temperature, etc. These cases are removed, with their clothing, bedding, etc. the patient being taken to Swinburne Island, the clothing, bedding, etc., to Hoffman Island, for disinfection. In the recent case of the *Mozambique*, where five deaths occurred during the voyage, in addition to the disinfection, bathing, etc , above spoken of, the vessel and crew were held for a period of five days after disinfection was performed. In regard to the Ward Line steamers which come from Habana, you are already aware of the rules which are followed in this particular instance. I have endeavored to give you a general idea or outline of the work as it is now performed here. As you will see, it is necessary to treat each case in a little different manner. For this reason there can be no regular rules which are to be followed in all cases.

I inclose a sample of the seal used after closing the hatches of a vessel undergoing disinfection (Exhibit D); also a sample of the adhesive strips used in closing up cracks and apertures about open seams, windows, etc.

There is no unnecessary detention or disinfection of vessels at this port; in fact,

the inauguration of the disinfecting steamer *Wadsworth* is intended to further facilitate the work of disinfection and release of the vessel.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

All foreign vessels are inspected throughout the year and disinfection performed if from an infected or suspected port. Ballast is used for filling in at Hoffman Island.

6. Are vessels from other United States ports inspected?

Yes, from May to November.

7. Describe quarantine procedures in the inspection of vessels, and if infected, the treatment. Give time in quarantine—(*a*) between arrival and commencement of disinfection, (*b*) time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

Fully described under question No. 4.

8. What communication is held with vessels in quarantine (and before quarantine, by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

None. (See copy of regulations governing pilots and others, marked A and B.)

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

A vessel infected with cholera would be ordered to lower quarantine, the sick removed to Swinburne Island, the suspects to Hoffman Island, where they would be segregated, bathed, and their clothing, baggage, etc., disinfected; the cabin passengers would be removed from the vessel, and, if the disease were confined to the steerage, probably discharged, or segregated and placed on board fully equipped barges moored in the vicinity of Hoffman Island. The vessel would be subjected to steam disinfection by the vessel's own boilers and pipes leading into the compartment, or by employing the disinfecting steamer *Wadsworth*, or by both, as seemed best, and be subjected to thorough mechanical cleansing with soap and water, followed with a bichloride solution. The vessel would be held five to seven days and disinfection repeated if deemed necessary. About the same procedure would be had in case of yellow-fever infection. In case of smallpox, the sick would be removed to North Brother Island, all persons vaccinated, and those exposed to the contagion held under observation fourteen days. The vessel would be subjected to thorough disinfection, as in the former instances.

A vessel having had cholera, yellow fever, or smallpox on board during the voyage or at the time of arrival at quarantine would be conclusive evidence of infection; a vessel having had a quarantinable disease on board within thirty days next preceding arrival would be a "suspect," and a vessel sailing from an infected port would also be a "suspect," and both would be held for disinfection.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Yes; also the ship surgeon's record and ship's log are examined and contents noted.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

The quarantine fees are as follows: $5 for inspection of foreign vessels between sunrise and sunset; after sunset, $5 extra; $2 in addition to the above for any vessel carrying immigrants, this rate per 100 or fraction thereof; $1 to $3 for sailing vessels and "tramps" engaged in coasting trade, between sunrise and sunset, subject to an additional charge of $5 after sunset; $5 to $50 for disinfecting a vessel,

dependent upon the labor involved; $2 to $3 for transfer of passengers from steamer to Hoffman or Swinburne islands and return of same to New York.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

I give herewith an extract from a letter from the collector of customs covering these questions:

In reply to your verbal request for information concerning the commerce of this port, to enable you to complete your annual report to the Supervising Surgeon-General Marine-Hospital Service, I transmit herewith a statement covering the entrance of vessels from foreign ports and from domestic ports during 1895. Relative to the inquiry concerning vessels arriving from foreign ports in yellow-fever latitudes, via domestic ports (presumably Central and South America, Cuba, Mexico, and West Indies), I would state that the records of this office do not show such arrivals separately, and it would involve considerable labor and time to compile such a statement. The number is doubtless approximately the same as reported in response to your previous request under date July 2, 1895, to which you are respectfully referred.[1] Relative to the character of commerce carried on by this port and the disposition of consular bills of health, I would refer you to the letter above quoted, wherein these questions are fully answered.

Number of vessels entered from foreign ports during 1895.

January	333	August	421
February	249	September	423
March	359	October	414
April	444	November	361
May	470	December	317
June	433		
July	465	Total	4,688

Number of vessels entered from domestic ports during 1895.

January	208	August	220
February	144	September	207
March	180	October	221
April	196	November	226
May	202	December	198
June	208		
July	248	Total	2,458

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

My visit to the custom-house this year was quite satisfactory, as may be seen from the letters quoted. I herewith furnish a table showing the number of steerage passengers landed at Ellis Island during the year 1895, also cabin passengers landed at the port of New York:

Steamship line.	Where from.	Cabin.	Steerage.
North German Lloyd	Bremen	10,805	44,326
White Star	Liverpool	11,805	30,725
Hamburg-American	Hamburg	10,543	30,141
Cunard	Liverpool	18,844	21,724
American	Southampton	16,146	19,580
General Transatlantique Co.	Havre	7,587	16,469
Red Star	Antwerp	4,890	12,554
North German Lloyd	Mediterranean	2,065	11,691
Netherlands-American Steam Navigation Co.	Rotterdam	2,855	11,416

[1]Extract from letter above referred to: "The commerce of this port, as you doubtless know, is of the most general character, and is chiefly carried on with Europe and the West Indies, and most of the vessels arriving bring cargo.

"The consular bills of health required by act February 15, 1893, are filed in this office and are carefully preserved."

Steamship line.	Where from.	Cabin.	Steerage.
Anchor	Glasgow	6,604	10,011
Anchor	Mediterranean	41	9,837
Fabre	do	20	7,477
Thingvalla	Copenhagen	747	6,889
Union	Hamburg		6,404
Scandia	Gothenburg	47	6,398
Hamburg-American	Mediterranean	535	3,972
Allen State	Glasgow	2,509	3,512
Netherlands-American Steam Navigation Co.	Amsterdam	291	2,286
Cunard	Mediterranean	12	920
Baltic	Stettin		347
Florio Rubatino	Mediterranean		44
Miscellaneous		212	1,837
Total		96,558	258,560

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Yes.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

All the regulations of the Treasury Department are, I believe, properly enforced, particularly those regarding inspection and disinfection, and the period of observation after disinfection of vessels is observed.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes. Copy of certificate herewith transmitted. (Exhibit C.)

17. What disposition is made of the consular bills of health?

The irregularity of consuls in issuing bills of health, reported by me last year, has been corrected, and two such bills are now issued at foreign ports, both of which are filed in the custom-house, the health officer making a copy of such as he desires. In this connection I may say that I was informed at the custom-house that the collector has never been notified that a consul is now stationed at Alexandretta, and the first intimation of the fact was observed a few days ago when a vessel came in with such a bill noted as "No. 1."

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

As stated in previous reports, there is some danger of the introduction of contagious disease through the lack of quarantine facilities at Perth Amboy, N. J. (See report on Perth Amboy.) I discussed the matter with Health Officer Doty and with the collector of customs at Perth Amboy. (See the latter's letter in my Perth Amboy report.) Dr. Doty stated that he would be not only willing, but is anxious to have all vessels entering the bay at Sandy Hook report to him for inspection and disinfection, and even went so far as to say that I might notify the health officers and collectors of customs at all ports in New York, New Jersey, and Connecticut that infected or suspected vessels would be cared for by him if ordered to his station. He intends inviting the health officers at Perth Amboy, Newark, and Elizabethport to a consultation with a view of inaugurating necessary precautions as far as applicable to vessels coming in at Sandy Hook.

The protection of New York's back door (Hell Gate) is intrusted to an agent stationed at City Point, who is authorized to make the inspection of vessels bound south through Hell Gate. He is under the supervision of the health officer, to whom he reports by telegraph every vessel passing through that channel.

The station at Fire Island is practically abandoned as a quarantine annex, the present health officer believing that fully equipped barges (such as are used for excursion parties on the bay) would be much more satisfactory in case of emergency for housing and segregating passengers than taking them 40 miles from his base of operations.

I am informed by the health officer that health certificates are withheld from children under 10 years of age coming from Cuban ports, but that he allows them to pass upon satisfactory proof that no contagious disease exists among them and the acquiescence of their parents or guardians to their being held in custody by the bureau of contagious diseases of New York or for observation at their hotel or residence.

Brooklyn, New York, and Jersey City and Hoboken, N. J., are protected by the New York quarantine.

JUNE 17, 1896.

EXHIBIT A.

EXTRACT.

[Chapter 661, Article VII, quarantine laws of the State of New York.]

SEC. 103. Examinations, warrants for offenders. The health officer may administer oaths in all examinations to be conducted by him, or under his direction, prescribed by this article, and relative to any alleged violation of quarantine law or regulations. He may issue a warrant to any constable or other citizen for the pursuit and arrest of any person violating any quarantine law or regulation, or obstructing the health officer in the performance of his duty, and for the delivery of any person arrested to the health officer, to be detained in quarantine until discharged by him, not exceeding ten days. Every constable or other citizen to whom any warrant shall be delivered shall obey the direction thereof.

SEC. 104. Boarding vessels. The health officer shall board every quarantinable vessel as soon after her arrival as practicable, between sunrise and sunset; shall ascertain by the inspection of the bill of health, manifest, log book, or otherwise as to the health of all persons on board and the condition of the vessel and cargo; shall examine on oath as many persons on board or elsewhere as he may deem expedient to enable him to determine the period of quarantine and the regulations to which the vessel and cargo shall be made subject, and shall report the facts and his conclusions, and especially the number of sick persons and their diseases, to the quarantine commissioners. It shall be the duty of the health officer at the several ports of entry within the State of New York to require the masters of all merchant vessels arriving at said ports from any foreign port to present a bill of health, duly executed by the consul, vice-consul, or other consular officer of the United States, or by the medical officer attached to the United States consulate by the appointment of the United States Government, or the representative of the United States Government resident at said port of departure, which shall set forth the sanitary condition and history of said vessel; also the sanitary condition of the cargo and of the crew and passengers; also the sanitary condition of the food, water, and ventilation of said vessel; the number of cases at such port of yellow fever, cholera, smallpox, typhus fever, relapsing fever, scarlatina, measles, and diphtheria, the total number of deaths from each of these diseases from all causes the week preceding the day of said bill of health, as far as can be ascertained by the said consul, vice-consul, or other consular officer of the United States, or the medical officer attached to such consulate. Said bill of health shall contain, in addition to the above, a statement of any circumstances affecting the public health in relation to infectious or contagious diseases at the port of departure or the community adjacent thereto. Vessels that touch at other ports on the passage shall bring a bill of health from each and every port, or shall have indorsed upon the original bill of health by the consul, vice-consul, consular officer, or medical officer of the consulate the facts and conditions of those ports as to the existence and prevalence of the infectious and contagious diseases mentioned in this section. All persons coming from or through any port or place who, after the passage of this act, may arrive at the port of New York shall be liable to an examination by the health officer or his deputies, as regards their protection from smallpox. In any case any person so arriving shall refuse to submit to such examination, or upon such examination shall be found not sufficiently protected from smallpox, or refuses to be protected by vaccination, such person, and in case such person be a

minor, then also the person having him or her under charge, shall be detained in quarantine until he or she shall have passed the incubative period from date of last possible exposure; and the expense of such detention shall be chargeable by the commissioners of quarantine upon the consignees or owners of the vessel having such person on board, and such expense as may be incurred shall be a lien upon such vessel. The master of a vessel who shall refuse or neglect to comply with the provisions of this section shall be guilty of a misdemeanor, and be punished by a fine of not less than one hundred dollars nor more than five hundred dollars.

SEC. 105. Bills of health. The health officer shall require the masters of all merchant ships and vessels arriving at such port to present a bill of health duly executed by the consul, vice-consul, or other consular officer of the United States Government, or the representative of the United States Government resident at such port of departure, setting forth the sanitary condition of the vessel, its cargo, crew, passengers, food, waters, and ventilation, and the sanitary history of the vessel, the number of cases at such port of yellow fever, cholera, smallpox, typhus fever, relapsing fever, scarlatina, measles, and diphtheria, the total number of deaths from each of these diseases, and from all causes the week preceding the date of the bill of health, as far as can be ascertained by the officer executing such bill of health, and a statement of any circumstances affecting the public health in relation to infectious or contagious diseases at such port of departure or the community adjacent thereto. Vessels touching other ports on the passage shall also bring a bill of health from each port, or shall have indorsed on the original bill of health by one of such United States officers thereat the facts and conditions of the ports touched as to the existence or prevalence there of any such infectious or contagious disease.

SEC. 106. Effects of deceased persons. The health officer shall secure the effects of deceased persons in quarantine from waste and embezzlement, make a true inventory thereof, and if the rightful claimants thereto do not appear within three months, deliver the same to the public administrator of the city of New York, unless they ought not to be removed, or ought to be destroyed under the provisions of this article.

SEC. 107. Boards of health of New York and Brooklyn. The health officer shall keep the boards of health of New York and Brooklyn at all times informed of the number of vessels in quarantine, of the number of sick in the floating hospital, and their diseases; and he shall receive any vessel or merchandise sent to him by the health authorities of New York or Brooklyn dangerous to the public health.

SEC. 108. Power over master, owner, or consignee of vessel. If the master, owner, or consignee of any quarantinable vessel shall neglect or refuse to do any act or thing lawfully directed to be done by the health officer, or to comply with any lawful order or direction of the health officer, or with any regulation relative to such vessel, or any person or thing on board thereof, the health officer may employ such assistance as may be necessary to enforce any such order, direction, or regulation. The health officer in the lighterage, stevedorage, and storage of quarantinable vessels and merchandise may permit the captains and owners thereof to employ men upon their own account, subject to the same restrictions for the protection of the public health as if licensed by the health officer and quarantine commissioners.

SEC. 109. Quarantinable diseases. The quarantinable diseases are yellow fever, cholera, typhus or ship fever, smallpox, scarlet fever, diphtheria, measles and relapsing fever, and any other disease of a contagious, infectious, or pestilential nature which has been or may be determined to be quarantinable by the health officer. Persons with insufficient evidence of effective vaccination and known to have been recently exposed to smallpox shall be vaccinated as soon as practicable, and detained until the vaccination shall have taken effect, under regulations prescribed by the health officer.

SEC. 110. Quarantinable vessels and period of quarantine.—Every vessel arriving at the port of New York from any place where a quarantinable disease existed at the time of departure, or which shall have arrived at any such place and proceeded therefrom to New York, or on board of which during the voyage any case of any such disease shall have occurred, shall remain at quarantine until the health officer grants a permit for the discharge of such cargo or both. Every vessel arriving at the port of New York from any foreign port, and every vessel from a domestic port (in the ordinary passage from which they pass south of Cape Henlopen, arriving between the first day of May and the first day of November) shall, on their arrival at the quarantine ground, be subject to visitation by the health officer, but shall not be detained beyond the time requisite for due examination and observation, unless they have had on board during the voyage some case of quarantinable disease, in which case they shall be subject to such regulations as the

health officer shall prescribe. No vessel shall be put in quarantine without a written decision of the health officer, of which the captain or master shall be immediately informed. No quarantinable vessel shall depart from quarantine without the written decision of the health officer, which shall be delivered by the master of the vessel to the board of health of the city of New York or the health commissioner of the city of Brooklyn, according to the destination of the vessel, within twenty-four hours after the permit is received by him.

SEC. 111. When vessels may return to sea without quarantine. A vessel may, before breaking bulk, put to sea in preference to being quarantined, if the health officer is satisfied that its sick will be taken care of for the remainder of the voyage, and its bill of health shall be returned if it has not arrived at its port of destination. The health officer shall state on such bill of health the length and circumstance of its detention and its condition on reputting to sea, and shall take care of such of its sick as prefer to remain.

SEC. 112. Detention for examination. If a vessel which has not had, during the voyage, a case of quarantinable disease is found in a condition which the health officer deems dangerous to the public health, the vessel and its cargo shall be detained until the case can be considered, but the decision of the health officer shall be rendered within twenty-four hours. Any vessel in an unhealthy state, whether it has sickness on board or not, shall not be allowed pratique until it shall have been broken out, duly cleansed, and ventilated.

SEC. 113. Sanitary measures; admission to pratique. The health officer may require, before permission to pratique of any vessel, baths and other bodily care of the persons on board; washing and other disinfecting means for clothing; the displacement or complete breaking out of cargo on board; subjection to high steam, incineration, or submersion of a distance below the surface of the water of infected articles; the destruction of tainted or spoiled food or beverages; the complete ejection of the water; the thorough cleansing of the hold; the disinfection of the well; the complete purification of the vessel in all its parts by the use of steam, fumigation, force pumps, rubbing or scraping, and, if deemed necessary, the sending to quarantine anchorage until disinfection is perfected. Admission to pratique shall be preceded by as many visits to the vessel by the health officer as he may deem necessary.

SEC. 114. Disposition of well and sick persons. On the arrival of an infected vessel all well persons on board shall have their freedom as soon as possible consistently with the regulations prescribed by or pursuant to law. All sick persons shall be immediately transferred to the hospital set apart for their reception, and the vessel unladen, purified, and admitted to pratique as soon as possible. Persons sick with different diseases shall be kept separately.

SEC. 115. The yellow flag. The health officer shall cause all vessels, warehouses, and merchandise in quarantine to be designated by a yellow flag, and shall prohibit communication with or passage within range of the same, except under such regulations as he may designate compatible with the public safety.

SEC. 116. Quarantinable merchandise. For the purpose of the sanitary measures adopted at quarantine there shall be three classes of merchandise:

1. Merchandise to be submitted to an obligatory quarantine and purification, comprising personal baggage and dunnage, rags, paper rags, hides, skins, feathers, hair, and all other remains of animals, cotton, hemp, and wool.

2. Merchandise subject to an optional quarantine, comprising sugar, silks, linen, and cattle.

3. Merchandise exempt from quarantine, comprising all merchandise not enumerated in the other two classes.

Merchandise of the first class shall be subjected to such disinfection as the health officer shall direct.

Merchandise of the second class may be admitted to pratique immediately or disinfected, according to circumstances, at the option of the health officer, with due regard to the sanitary condition of the port.

Merchandise of the third class shall be declared free and shall be admitted without unnecessary delay.

Merchandise coming from different vessels and places and at different times in quarantine shall be kept separate.

Clothes and dunnage contaminated with infection shall be disinfected or destroyed.

No putrified animal substance or substances liable to putrify shall be admitted into the warehouses, but all such substance shall be rendered innoxious or destroyed. All merchandise shall be submitted to such measures as the health officer may deem necessary.

SEC. 117. Letters and papers. If there has been a quarantinable disease on board the vessel during the voyage, letters and papers thereon shall be subjected

to the usua. purification, but with such precautions as not to affect their legibility. Articles of merchandise or other things not subject to purifying measures, in an envelope officially sealed, shall be immediately admitted to pratique without regard to the condition of the vessel. If the envelope is of a substance considered as optional, its admission shall be equally optional.

SEC. 118. Vaccination. All persons coming from or through any foreign port or place who may arrive at the port of New York shall be liable to an examination by the health officer or his deputies as regards their protection from smallpox.

If any such person shall refuse to submit to such examination or on such examination shall be found not sufficiently protected from smallpox, or shall refuse to be protected by vaccination, such person, together with the person having him in charge if he be a minor, shall be detained in quarantine until he shall have passed the incubative period from the date of the last possible exposure; and the expense of such detention shall be charged by the commissioners to the consignees or owners of the vessel having such person on board, and such expenses so incurred shall be a lien upon the vessel.

SEC. 119. Diseases subject to quarantine regulations. Typhus-fever and smallpox patients shall be sent to and supported at such places as are now devoted to their care, or to such other places as may be designated from time to time by the health officer and commissioners of quarantine, and all other quarantinable diseases shall be removed to the immigration hospital for care and treatment. The diseases against which maritime sanitary regulations at the port of New York shall apply are yellow fever, cholera, typhus or ship fever, smallpox, scarlatina, diphtheria, measles, relapsing fever, and any disease of a contagious, infectious, or pestilential character which shall be considered by the health officer dangerous to the public health.

SEC. 127. Confinement of offenders. The health officer, upon the application of the master of any vessel under quarantine, may confine in any suitable place on shore any person on board of the vessel charged with the commission of any offense punishable by the laws of this State or of the United States and who can not be secured on board of such vessel. Such confinement may continue during the quarantine of such person, or until he shall be proceeded against in due course of law. The expenses of such confinement shall be charged and collected in the same manner as the expenses of providing for passengers, which the master of the vessel is required to pay.

EXHIBIT B.

STATE OF NEW YORK,
HEALTH OFFICER'S DEPARTMENT,
Quarantine, Staten Island, April 1st, 1896.

To Pilots, Masters of Vessels, and Others:

Your attention is called to sections 393, 394 of the penal code, State of New York, of which the following is a copy:

SEC. 393. A person who, being on board any vessel at the time of her arrival at the port of New York, lands from such vessel, or unlades or transships, or assists in unlading or transshipping, any portion of her cargo, before such vessel has been visited and examined by the health officers, is punishable by imprisonment not exceeding one year, or by a fine not exceeding two thousand dollars, or both.

SEC. 394. A person who goes on board of, or has any communication or intercourse with, any vessel at quarantine, or with any of the crew or passengers of such vessel, without the permission of the health officer, and every person who, without such authority, enters the quarantine grounds or anchorage, is punishable by imprisonment not exceeding one year, or by a fine not exceeding two thousand dollars, or both; and in addition thereto he may be detained at quarantine so long as the health officer directs, not exceeding twenty days. And in case such person shall be taken sick of any infectious, contagious, or pestilential disease during such twenty days, he may be detained at the marine hospital for such further time as the health officer directs.

A. H. DOTY,
Health Officer, Port of New York.

EXHIBIT C.

[Face of blank.]

PORT OF NEW YORK,
Quarantine, Staten Island, ——, 189–.

This permit to be exhibited at the office of the board of health of the city of New York if docked on the New York side; or at the city of Brooklyn board of health if on the Brooklyn side, within 24 hours (Sunday excepted) of your arrival, under a penalty of $200.

Regulations complied with according to act of Congress, February 15th, 1893.

Arrived ——.
Commander, —— ——.
Date of sailing, ——.
From ——.
Officers and crew, ——.
1st cabin, ——; 2d, ——; steerage, ——; total, ——.
Cargo ——.
Consignee, —— ——.
Health, ——.

This vessel has permission to proceed.

—— ——,
Health Officer.

[Reverse of blank.]

To the captain or person having charge of the vessel named in this permit:

Any person, except the master, owner, or consignee, who shall go on board the vessel before this permit shall be delivered, shall be guilty of a misdemeanor, punishable by a fine of five hundred dollars and imprisonment.

Any person, also, who shall neglect or refuse to comply with any provision of the law relative to quarantine, or with any direction or regulation which the health officer may prescribe in the execution of the powers imposed and conferred upon him by law, shall be guilty of the like offence, and subject to the like punishment. [Health Code, article 6, chapter 661, Laws of N. Y., 1893.]

QUARANTINE, STATEN ISLAND,
——————, *189—.*

The undersigned master of ——, being duly sworn, deposes and says: That the port or ports from which he sailed were, to the best of his knowledge and belief, perfectly healthy, being free from all malignant, contagious, or infectious disease, except such as are recorded in the bill of health from said port or ports. That no death or sickness has occurred on outward or inward voyage except such as has been duly reported to the health officer. And the surgeon further affirms and declares that the number of persons examined with reference to their protection from smallpox, and found sufficiently protected, and the number so protected by him by vaccination, is faithfully and truly rendered below.

No. found sufficiently protected, ——.
No. vaccinated by surgeon, ——.

Sworn before me this —— day of ——, 189—.

—— ——, *Master.*
—— ——, *Surgeon.*
—— ——, *Health Officer.*

EXHIBIT D.

HEALTH OFFICER'S DEPARTMENT, STATE OF NEW YORK,
Quarantine, Staten Island.

The within apartment is closed for disinfection and must not be opened until ——.

Dated ——, 1896.

A. H. DOTY, M. D.,
Health Officer, Port of New York.

NEW JERSEY.

REPORT OF INSPECTION OF THE PORT OF PERTH AMBOY.

By Surg. PRESTON H. BAILHACHE, M. H. S.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

There is no quarantine station or quarantine buildings at Perth Amboy; no facilities for inspection of vessels except a small rowboat; no apparatus for disinfection of vessels or baggage; no facilities for the removal of sick or their treatment, or for the removal and detention of suspects. Anchorage for vessels to be inspected by the health officer is designated by a buoy with a flag upon it and is located at the entrance of Staten Island Sound, just off Wards Point.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

There is no quarantine officer other than the health officer, whose name is John G. Wilson, M. D.; his post-office address is Perth Amboy, N. J.; he is authorized to employ a deputy, and generally selects a pilot for that duty.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

There are no local quarantine laws or regulations at this port. (See State laws, under the heading of "Diseases," for such meager provisions against the entrance of diseases as exist.) The quarantine customs of the port consist in a simple inspection by the health officer or his deputy of all foreign vessels entering the harbor and all domestic vessels south of Cape Henlopen, Virginia.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

None. There is no "undue or unnecessary detention or disinfection of vessels;" in fact, no disinfection of vessels whatever is practiced.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

No. Inspections are made from May until November; no treatment is practiced.

6. Are vessels from other United States ports inspected?

Yes; vessels hailing from ports south of Cape Henlopen are inspected.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

No quarantine procedures have been had in recent years, as no infected vessel has appeared at this port during the incumbency of the present health officer. "Chlorine disinfection" was practiced several years ago in the case of a tank steamer.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.) and how regulated? Is there any intercommunication allowed among vessels in quarantine?

None.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels

carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Infected vessels will be detained at the quarantine anchorage and request made by the health officer for instructions.

10. No records are kept at the station of the cases of disease that have occurred during the voyage on arrival and during detention.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Quarantine fees are $7.50 for foreign vessels, except those from Prince Edward Island, which are $5, and $3 for coasters.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

The number of vessels arriving at the port of Perth Amboy, N. J., during the preceding calendar year is as follows:

Month.	From foreign ports.	From foreign ports in yellow-fever latitudes via domestic ports.	From domestic ports.
January	1	2	10
February	2	1	3
March	----------	----------	3
April	1	----------	3
May	2	1	3
June	1	3	11
July	4	1	6
August	4	----------	9
September	5	----------	13
October	2	----------	5
November	3	2	6
December	1	3	4
Total	26	13	76

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

My visit to the custom-house was satisfactory, and I found that the regulations with regard to bills of health and quarantine certificates were duly observed.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

No. On the contrary, the port of Perth Amboy is a constant menace to the public health from the danger of an invasion of foreign pestilence.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the reguiations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

All imperfectly carried out, as there is no quarantine station in existence.

16. Does the certificate of inspection or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893? Transmit copy of certificate.

No.[1]

[1]The Bureau called the attention of the collector of customs to this neglect, who now requires the certificate referred to.

17. What disposition is made of the consular bills of health?

Consular bills of health are filed with master's oath and manifest on entry of vessel at the custom-house.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

In my opinion there should be an inspector of the Service stationed at Perth Amboy, either in the person of the health officer of the port or independent of him. All efforts to prevent the entrance of infectious diseases by a quarantine at New York will prove futile unless the open gate at Perth Amboy is closed. It is proposed by Dr. Doty to require all foreign vessels entering Sandy Hook to proceed to the New York boarding station before going to Perth Amboy or beyond. In this connection I quote a letter received from the collector of customs at Perth Amboy upon this subject:

I would offer the suggestion that Greater New York, for its own safety and protection, should have sole control and authority in matters of public health over all vessels entering at Sandy Hook. No matter where these vessels may discharge, at Perth Amboy, Newark, or elsewhere, the crews invariably go to New York, and one authority, one set of rules, can better govern matters of this kind than a divided responsibility. Should an epidemic start on the Jersey shore, it is very likely to reach the city of New York.

In conclusion, I have the honor to state that Dr. Alva H. Doty, health officer of New York, appreciating the gravity of the situation, has expressed a willingness to care for all suspicious or infected vessels bound for Perth Amboy and above at the New York Quarantine Station. In the meantime the collector of customs at Perth Amboy has been notified by the Bureau that an inspection certificate is required of vessels arriving at Perth Amboy from all foreign ports excepting Canada throughout the entire year, as a prerequisite to entry, and that, in the event of the arrival of an infected vessel, or of a vessel with disease on board, or of a vessel requiring disinfection under the regulations, said vessel must be remanded to the New York Quarantine.

JUNE 16, 1896.

INSPECTION REPORT, CAMP LOW, UNITED STATES QUARANTINE STATION.

By Surg. PRESTON H. BAILHACHE, M. H. S.

SANDY HOOK.

My visit to Camp Low Quarantine Station was made upon the revenue steamer *Manhattan*. I found everything belonging to the Service in fair condition except the buildings, which are gradually going to decay. The sand about the hospital building has drifted away to such an extent that it is liable to fall to pieces in the near future. The piling under the docks has suffered from attacks of the teredo to such an extent as to render it quite unsafe for the property located upon it. The electric plant and laundry are in danger of injury from the piling giving way. The disinfecting plant and tanks appear to be safely out of danger, and are well taken care of by the keeper. The cottage which was removed by the Ordnance Department has not been returned to the Service, but is used, I understand, by one of the sergeants on duty at the proving grounds, to which place it was carried in April last. There is much serviceable property stored at Camp Low that could be utilized at other stations, as may be seen by reference to my property return for January last. The laundry would be a very acceptable addition to the equipment of the marine hospital at this port; the electric plant I consider worthless, as it is out of date and was second hand when put in at Camp Low.

The leaky condition of the various buildings has already been reported, the

most important of which is the leakage over the boiler room and disinfecting apparatus in the new part of the building.

As a sand bar has encroached upon the station to such an extent as to render it necessary to land at considerable distance from the entrance doors to the station, and as the necessity for a quarantine establishment at Camp Low appears to no longer exist, I am of opinion that the sooner it is abandoned and the property utilized before it becomes unfit, the better it will be for the Service.

MAY 28, 1896.

[NOTE.—By direction of the Secretary of the Treasury, arrangements are being made for abandoning this station, the War Department having demanded the return of their reservation for military purposes.]

REPORT OF INSPECTION OF LOCAL QUARANTINES.

By SURG. GEORGE PURVIANCE, M. H. S.

TUCKERTON.

1. No quarantine station. Anchorage 6 miles in one direction and 7 in another. Inlets: Little Egg and Barnegat. No facilities for disinfection or taking care of sick. Mail and telegraph facilities.

2. None.

3. Mr. S. P. Bartlett, deputy collector of this port of entry, was advised and instructed, in case infectious disease was brought into this harbor to at once quarantine the vessel and telegraph to the Supervising Surgeon-General, Marine-Hospital Service, for instructions. The collector has no assistance in the way of an inspector.

4. None.

5. None.

6. No.

7. None.

8. Was instructed not to allow any communication whatever.

9. These facts would be telegraphed at once to the Supervising Surgeon-General, Marine-Hospital Service.

10. No record kept.

11. No fees collected.

12. No vessels enter or clear from this port. Vessels come chiefly from New York and different ports of Virginia and ports along Southern coast laden with coal, lumber, phosphates, and ice.

13. (*a*) See above answers. (*b*) None.

14. No quarantine facilities at this port. No inspections made.

15. No quarantine established.

16. None except as mentioned above.

MAY 15, 1896.

SOMERS POINT.

1. No anchorage except in narrow channel; mail and telegraph facilities; no facilities for disinfection; no place to take care of sick.

2. None.

3. No recent laws on quarantine, and nothing on hand except the Revised Statutes. When a vessel enters or clears from this port, a record is kept of the condition of the crew. No foreign vessels have entered or cleared from this port for seventeen years, except one vessel from Cuba last April. There are a great many vessels owned and documented at this port, but do not enter or clear here.

4. None.

5. None.

6. No.

7. No quarantine procedures.

8. No quarantine procedures.

9. Have recommended that the collector of customs telegraph to the Surgeon-General United States Marine-Hospital Service for instructions in each case mentioned.

10. None.

11. None.

12. No record of vessels from foreign ports in yellow-fever districts, nor from domestic ports. Cargoes of lumber, brick, coal, and ice.

13. I called on the collector of customs of Somers Point and obtained from him the answers to the above questions, and I recommended that he should at once write to the Bureau of the United States Marine-Hospital Service and ask for a copy of the quarantine laws and regulations of the United States.

I recommend that instructions be given to the collector of customs to send any vessel that may apply for entry, with quarantinable diseases on board, to the nearest national quarantine station for disinfection.

14. No quarantine facilities.

15. No inspections made.

16. None except as mentioned and recommended above.

MAY 12, 1896.

BRIDGETON.

1. No quarantine station. Water connection to this port from the Delaware Bay by a small creek; a vessel could anchor at any place in this creek. Mail and telegraph facilities.

2. No officer here except the deputy collector, Theodore R. Lore.

3. The collector has a copy of the United States quarantine laws and regulations of April 26, 1894.

4. None.

5. None.

6. No.

7. No established rule.

8. Instructed not to allow any communication.

9. The collector reports, in accordance with instructions, that in case a vessel should enter this port with a quarantinable disease on board he would at once communicate the fact by wire to the Supervising Surgeon-General, United States Marine-Hospital Service, and while awaiting instructions he would quarantine the vessel and allow no one either to leave her or go on board.

10. No records.

11. No charge except tonnage tax on foreign vessels.

12. Record kept of foreign vessels only; have had two foreign vessels in last fiscal year, one in September, 1895, and one in April, 1896; both vessels from Chile; cargo, nitrate of soda.

13. I called at the custom-house and saw Mr. Theodore R. Lore, deputy collector of the port, of Bridgeton, and obtained from him the answers to above questions.

14. No quarantine facilities at this port.

15. No inspection made at this port.

16. Except as mentioned above.

MAY 20, 1896.

PENNSYLVANIA.

REPORT OF INSPECTION OF THE LOCAL QUARANTINE OR BOARDING STATION AT MARCUS HOOK.

By Surg. GEORGE PURVIANCE, M. H. S.

1. This station is on the border line between Pennsylvania and Delaware, about 18 miles below the city of Philadelphia, with a frontage on the Delaware River of 500 feet. The State of Pennsylvania leased from the Farson estate 7 acres of land at this point for the purpose of establishing a quarantine or boarding station. The lease began on the 1st of October, 1895, and continues for a term of six years. There are three good dwellings and three barns on this property. One pier, 498 feet long, 8 feet wide; end of pier, 50 feet square; depth of water at end of pier, 12 feet at low water. No apparatus for disinfection of vessels and baggage, and no facilities for the removal and detention of suspects. Has mail and telegraph facilities.

2. Henry C. Boenning, M. D., quarantine physician, is in charge of the station; Alfred M. Seymour, M. D., deputy quarantine physician; J. M. B. Ward, M. D., deputy quarantine physician; 7 employees: 1 captain, 1 pilot, 1 engineer, 1 fireman, 1 cook, 1 gardener, 1 special messenger.

3. Treasury laws and laws of the State of Pennsylvania.

4. None.

5. Throughout the year.

6. Yes.

7. None.

8. None.

9. Returned to Federal quarantine station at Reedy Island.

10. Records kept.

11. Fees collected in Philadelphia.

12. Vessels arrived during the year is as follows:

January	98	July	130
February	69	August	133
March	131	September	101
April	134	October	119
May	143	November	90
June	132	December	99

Cargo and ballast.

JUNE 2, 1896.

DELAWARE.

INSPECTION REPORT OF LOCAL QUARANTINES.

By SURG. GEORGE PURVIANCE, M. H. S.

WILMINGTON.

1. No quarantine station. No vessel allowed to enter without health certificate of the medical officer in command of Reedy Island Quarantine Station. Good mail and telegraph facilities; no other facilities.

2. None.

3. Advised the collector to ask the Supervising Surgeon-General for copies of quarantine regulations.

4. None.

5. None.

6. No.

7. No procedures.

8. No procedures.

9. I instructed collector to report to the Supervising Surgeon-General, Marine-Hospital Service.

10. No.

11. Tonnage tax collected on all foreign vessels, and American vessels in foreign trade.

12. Vessels arrived from foreign ports as follows:

January	5	August	5
February	3	September	6
March	3	October	4
April	6	November	4
May	8	December	5
June	6		
July	8	Total	63

The following arrived from foreign ports in yellow-fever latitudes:

January	5	August	5
February	1	September	3
March	4	October	8
April	9	November	7
May	5	December	6
June	12		
July	13	Total	78

Vessels chiefly come from England, France, and Germany, with cargo or ballast.

I called on the deputy collector, Mr. George L. Townsend, and obtained from him the above information. I also called on Dr. Willard Springer, physician to board of health, and was informed by him that no vessel with a suspicious disease aboard is allowed to enter Christiana Creek, which is a mile from the city of Wilmington, without first notifying the port physician. The port physician then inspects said vessel, and should he find any contagious disease aboard, he would not allow the vessel to enter the creek. The owners of tugboats are instructed to inquire as to whether a vessel has any contagious disease on board or not, and failing to do so, are subject to a fine. The only hospital at Wilmington where a contagious disease would be taken care of is in connection with the almshouse, which is 3 miles distant from the city of Wilmington.

JUNE 8, 1896.

REPORT OF INSPECTION OF THE UNITED STATES QUARANTINE STATION AT REEDY ISLAND, DELAWARE RIVER, PENNSYLVANIA.

By Surg. GEORGE PURVIANCE, M. H. S.

INSTRUCTIONS TO MEDICAL OFFICERS OF THE MARINE-HOSPITAL SERVICE DETAILED TO MAKE INSPECTIONS OF UNITED STATES QUARANTINE STATIONS.

1. Your visit to the station should be unannounced.

2. Upon arrival at the station you will first call upon the commanding officer, and arrange with him for an inspection of the station, which should be made as soon after arrival as practicable.

3. You will make proper entries to each question of this inspection blank and forward to this office upon completion of your duty.

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

Name of quarantine station: Reedy Island United States Quarantine Station.
When was the station last inspected? August 17, 1894.
Name of inspecting officer: Surg. George Purviance.

I. PERSONNEL.

Name of officer in command: P. A. Surg. A. H. Glennan.

Date of assignment to duty: August, 1893.

Name and rank of assistants, including acting assistant surgeons: Sanitary Inspector A. B. McDowell.

Give number of members in each family: Passed assistant surgeon has two boys at school.

Name of steward and number of members in family: None.

Name and duties of each attendant: John Tracey, pilot; Henry C. Turner, engineer; Phillip W. West, fireman; John J. Neill, fireman; J. Steven, watchman; Andrew Ostensen, boatman; Fred Dohllof, deck hand; George F. Swartz, cook; Fred Bendler, steward on *Pasteur;* Catharine Wilkins, laundress; George W. Patterson, deck hand; Alexander Johnson, deck hand; Frank Olsen, cabin boy; Harry Hehl, telegraph operator.

II. GENERAL DESCRIPTION OF STATION.

Number of buildings: Three buildings and boathouse.

Limit of anchorage for noninfected vessels: Three miles by 1½ miles.

Limit of anchorage for infected vessels: One mile by one-half mile.

Facilities for inspection of vessels: Steamer *Pasteur*, naphtha launch, and 22-foot cedar rowboat.

Apparatus for disinfection of vessels and of baggage: A 50-horsepower boiler, 2 steam chambers, 1 sulphur furnace, 2 pumping engines, 1 bichloride tank, and 4 cars for steam chambers.

Facilities for removal and treatment of sick: Small boats; one cottage hospital with 18 beds.

Facilities for removal and detention of suspects: Same as above.

Mail and telegraph facilities: Both mail and telegraph.

Give number of wharves: Two.

What is the length of the wharf frontage? One 200 feet; another 10 feet.

Are the wharves in good condition? Yes.

Are the mooring facilities ample? Disinfecting wharf needs 8 mooring and 40 fender piles 18 inches in diameter.

What is the depth of the water at mean low tide along the front of the wharf? Thirty feet.

What is the source of water supply? Cistern water.

Is it sufficient? No; there should be an artesian well.

Is it potable? Yes.

Hard or soft? Soft.

If hard, does it injuriously affect the boilers in use at the station? Is not hard.

How is it distributed and stored, if storage is necessary? In and from tanks.

III.—DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant. See above.

What is the general condition of all machinery? Good, with the following exceptions: Section to steam pipe on east chamber; both chambers have sagged and require leveling; new lubricator for engine to sulphur furnace; one elbow for water pipe from main water tank; cost of same about $50.

Does it appear well taken care of or neglected? Yes; it is well taken care of.

Is there a steam hoisting engine for ballast? No.

Are there ballast tubs and a ballast car for the distribution of ballast? No.

How is ballast disposed of? Water ballast only; generally discharged at sea.

What are the dimensions of the steam disinfecting chamber? Fifteen feet long, 4 feet wide, and 4½ feet high.

Is it rectangular or cylindrical? Rectangular.

How many cars are provided? Four cars.

Are infected articles put in at one end and brought out at the other after disinfection, or is one end of the chamber used for loading and unloading? One end for receiving and the other end for taking out.

Is the chamber provided with thermometers for indicating the temperature during the process of disinfection? Yes, two; one in each end.

Is the chamber equipped with any apparatus for the production of a partial vacuum? What is the nature of the appliance? If efficient in operation? Yes; one vacuum steam pump.

What vacuum is produced, and how long does it take to obtain it? Fifteen minutes.

Is a sulphur furnace provided? Yes.

How many feet of sulphur hose are provided? About 100 feet.

What is its condition? Good.

What is the condition of the fan and engine? Good.

What is the method of storing bichloride solution? In wooden tank on top of building.

What is the capacity of the tank or tanks? Three thousand gallons.

Are they of wood or iron? Wood.

What is the elevation of the tanks above the wharf flooring? Sixty feet.

Is the solution distributed by gravity, or is there a pump for the purpose? Both by gravity and steam pressure.

How many feet of hose are provided for the distribution of the bichloride solution, and what is its size and condition? Two hundred feet; 1 inch in diameter; in fair condition.

How many steam boilers are provided? One.

What is their condition, and do they supply sufficient steam for all purposes? Good, and the supply ample.

IV. BOATS.

Is the station provided with a steam tug or other steam vessel? One steam tug.

If so, is she of wood or iron? Iron.

Give dimensions: Eighty-seven feet 9 inches long, 16 feet 6 inches beam, 6 feet 1 inch deep.

If of wood, is the vessel sheathed with metal? Not wooden.

Are the engines and boiler in good condition? Yes; as far as known, the boiler has not been inspected since she came to the station three years ago.

Give engineer's statement as to necessary repairs and renovation: See answer above.

Is the station provided with a steam or naphtha launch? Yes; one naphtha launch.

Give dimensions: Thirty-six feet long, 7 feet beam, 3 feet draft.

What is its condition? Good.

Give report of medical officer as to efficiency of the launch: Good.

How many small boats are provided, and what is the condition of them and their equipment? One metal lifeboat and two cedar boats, both in fair condition.

Are more boats necessary or desirable? Yes; one metal lifeboat, to ply between the pier and the island; cost, $70.

V. HOSPITAL.

Give location of buildings used as hospital: On north end of the island, well separated from other buildings.

Give general description of the building: One cottage hospital, accommodation for 18 beds, 1 kitchen, 1 dispensing room, 1 room for nurse, and 1 office. It should have sewer connections.

Dimensions: Thirty-six feet by 56.

Number of beds in each ward: One ward, 18 beds.

How many beds can be added for emergencies? Six beds.

Cubic air space allowed each patient: Ample air space.

Heating, lighting, and ventilating: Heated by large stove, lighted by lamps, 1 ventilator in roof.

Has the hospital sufficient furniture? Yes.

What kind of bedsteads and what kind of mattresses and bedding? Service iron bedsteads, cotton and hair mattresses, blankets, sheets, and pillows.

Condition of bedding occupied by patients: Good.

Are the beds clean and free from vermin? Yes.

What is the condition of wards as to general cleanliness? Good.

Is the nursing sufficient and is the nurse immune? No nurses at present; they will be employed as needed.

Does the character of the diet furnished conform to that prescribed in the diet table for marine hospitals? Yes.

Is a proper record of the patients under treatment kept? No patients.

VI. OUTBUILDINGS AND GROUNDS.

Describe general condition of outbuildings. All in good condition.

Describe officers' quarters and condition of furniture. Good.

Describe steward's and attendants' quarters and condition of furniture. Good. (See Annual Reports, 1894 and 1895.)

Describe dining room, condition of table furniture and tableware. Dining room in good condition; ordinary table furniture and tableware.

Describe kitchen and furniture. Frame building, ample in size, and sufficient furniture.

Describe dispensary. A small room; one closed case and small supply of drugs.

Describe laundry. No laundry.

Describe approaches to the station. By boat. (See Annual Reports, 1894 and 1895.)

Describe condition of fences and grounds. No fences. The grounds are being filled in at present all around the building, under a special appropriation, under the supervision of the medical officer in command.

Describe drainage and condition of water-closets. Only sewer connections to surgeon's quarters.

Describe disposal of slops. Thrown into the river.

State whether any animals not authorized by the Department are kept on the reservation. None.

VII. EQUIPMENT.

State approximately age and condition of each horse and how long in service at this station. No horses.

Give number and character of vehicles: No vehicles except boats.

Are they properly cared for? Yes.

Are harnesses in good condition? No harness.

Is there a blacksmith's forge provided? No.

Are there farming implements; and if so, are they in good condition? Yes; in good condition.

Is there a fire apparatus provided; and if so, is there a fire drill organized? No fire apparatus except Star hand grenades.

VIII. DISCIPLINE.

Are officers and employees supplied with uniforms in compliance with the revised uniform regulations? Yes; according to last regulations.

Are uniforms properly worn? Yes.

Give method of granting leaves to officers and employees: According to United States Marine-Hospital Regulations.

Describe when and how inspection, muster, and fire drills are conducted: Daily inspections made in accordance with United States Marine-Hospital Regulations.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year, by months: January, 58; February, 4; no boarding from February to March 12, on account of ice; March, 55; April, 90; May, 119; June, 93; July, 96; August, 109; September, 88; October, 96; November, 74; December, 82. All are from foreign ports.

From foreign ports in yellow-fever latitudes via domestic ports: January, 20; February, 2; March, 28; April, 35; May, 66; June, 39; July, 44; August, 35; September, 17; October, 30; November, 24; December, 25. None from domestic ports.

From what countries chiefly do the vessels come? Cuba, England, Germany, and South America.

Are they in cargo, ballast, or empty? Chiefly in cargo; some in water ballast; none empty.

State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping arriving at the station: Yes.

Give annual amount expended at station for last three years:

July 1, 1894, to December 31, 1894, inclusive	$7,476.83
January 1, 1895, to December 31, 1895, inclusive	13,698.75
January 1, 1896, to April 20, 1896, inclusive	4,778.45
Total	25,954.03

Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

Fender and mooring piles for disinfecting pier; additional strength in the way of iron rods, etc., should be added to the piling under the disinfecting machinery to support the heavy weight on that particular part of the pier; one metal lifeboat for the pier; window blinds and a brick chimney to attendants' building to correspond with the other buildings; terra-cotta sewers for attendants' quarters and cottage hospital; one stationary washstand in surgeon's bathroom; calk deck of inspection steamer *Pasteur;* one new smokestack for inspection steamer *Pasteur*, the old one being worn-out and in bad condition.[1]

I certify that the foregoing is a careful and correct statement of the condition of the service at the Reedy Island Quarantine Station, inspected by me this 13th day of May, 1896.

GEO. PURVIANCE,
Surgeon, M. H. S., Inspector.

[1] The commanding officer was directed by the Bureau to make a special report of the requirements of the station with his recommendation in due form.

REPORT OF INSPECTION OF THE UNITED STATES QUARANTINE STATION AT DELAWARE BREAKWATER, NEAR LEWES, DEL.

By Surg. GEORGE PURVIANCE, M. H. S.

[NOTE.—The quarantine establishment at the Delaware Breakwater is an inspection and refuge station. Infected vessels are sent to the United States Quarantine Station at Reedy Island (40 miles below Philadelphia, on the Delaware River), where disinfection is performed, the exposed condition of vessels at the breakwater rendering it impracticable to disinfect them at that point. Seamen suffering with contagious disease are sent to the lazaretto; suspects are removed to the barracks and kept under observation.]

Name of quarantine station: Delaware Breakwater Quarantine Station.

When was the station last inspected? June, 1895.

Name of inspecting officer: Surg. George Purviance.

I. PERSONNEL.

Name of officer in command: P. A. Surg. C. P. Wertenbaker.

Date of assignment to duty: September 1, 1894.

Name and rank of assistants, including acting assistant surgeons; also give number of members in each family: None.

Name of steward and number of members in family: John F. Kuhn; no family.

Name and duties of each attendant: Horace Williard, engineer; William N. Jeffries, pilot of launch; Thomas Palmer, night watchman; Hans Schellwick, attendant; Charles Bracher, attendant; Hans Thorsen, carpenter and seaman on launch; George Langford, attendant.

II. GENERAL DESCRIPTION OF STATION.

Number of buildings: Fifteen.

Limit of anchorage for noninfected vessels: Twenty square miles.

Limit of anchorage for infected vessels: Five miles square.

Facilities for inspection of vessels: One naphtha launch.

Apparatus for disinfection of vessels and of baggage: One disinfecting chamber for disinfection of baggage and clothing.

Facilities for removal and treatment of sick: One barge and launch to tow the same; three hospitals—contagious, noncontagious, and suspect.

Facilities for removal and detention of suspects: Same as above for removal. Barracks capable of accommodating 800 immigrants; no means to take care of cabin passengers.

Mail and telegraph facilities: Has mail and telegraph facilities.

Give number of wharves: No wharves; one landing pier for small boats, 75 feet long, 8 feet wide. Long iron pier belonging to Government adjoins the reservation.

Are the mooring facilities ample? Ample.

What is the source of water supply? By cistern to surgeon's quarters; surface well in sand for attendant; artesian well for barracks.

Is it sufficient? Not a full supply.

Is it potable? Yes.

Hard or soft? Soft.

How is it distributed and stored, if storage is necessary? Stored for barracks in elevated tanks—3,000 gallons each—for hospitals by pumps.

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant: One steam chamber, one boiler, one vacuum pump, and one force pump.

What is the general condition of all machinery? Good.

Does it appear well taken care of or neglected? Well taken care of.

Is there a steam hoisting engine for ballast? No.

Are there ballast tubs and a ballast car for the distribution of ballast? No.

How is ballast disposed of? No ballast discharged, except water ballast.

What are the dimensions of the steam disinfecting chamber? Nine feet 6 inches by 4 feet 5 inches by 5 feet 4 inches.

Is it rectangular or cylindrical? Rectangular.

How many cars are provided? Two cars.

Are infected articles put in at one end and brought out at the other after disinfection, or is one end of the chamber used for loading and unloading? Put in at one end and brought out at the other.

Is the chamber provided with thermometers for indicating the temperature during the process of disinfection? Yes; two.

Is the chamber equipped with any apparatus for the production of a partial vacuum? What is the nature of the appliance? Is it efficient in operation? One vacuum pump.

What vacuum is produced, and how long does it take to obtain it? Vacuum in jacket, three minutes; in chamber, ten minutes.

Is a sulphur furnace provided? No.

What is the method of storing bichloride solution? In barrels.

How many steam boilers are provided? One.

IV. BOATS.

Is the station provided with a steam tug or other steam vessel? No.

Is the station provided with a steam or naphtha launch? Naphtha launch.

Give dimensions: Thirty-eight feet long, 8 feet beam, 4 feet depth, 3 feet 6 inches draft, 12 horsepower; speed, 12 miles an hour.

What is its condition? Good.

Give report of medical officer as to efficiency of the launch: Good.

How many small boats are provided and what is the condition of them and their equipment? Two small boats; one a tender to the launch in good condition; one attached to barge condemned four years ago; one whaleboat in good condition.

Are more boats necessary or desirable? Two more boats are desirable; one flat-bottom boat for general work, and one light cedar boat.

V. HOSPITAL.

Give location of building used as hospital: On the northwest side of reservation.

Give general description of the building: One noncontagious two-story frame building, ward occupying first floor; one suspect hospital, a one-story frame building; one contagious-disease hospital made of frames, covered with canvas.

Number of beds in each ward: In the first building 20 beds; in suspect hospital 12 beds; in contagious hospital 12 beds.

How many beds can be added? Double the above number.

Cubic air space allowed: Ample air space.

Heating, lighting, and ventilating: Heated by stove, lighted by lamps, ventilated by windows.

Has the hospital sufficient furniture? Yes.

What kind of bedsteads, and what kind of mattresses and bedding? Iron bedsteads, woven-wire and cotton mattresses, sheets, blankets, and counterpanes.

Condition of bedding occupied by patients: Good.

Are the beds clean and free from vermin? Yes.

What is the condition of wards as to general cleanliness? Good.

Is the nursing sufficient, and is the nurse immune? Nursing is sufficient at present; addititional nurses can be employed when needed. Nurses are not immune to yellow fever.

Does the character of the diet furnished conform to that prescribed in the diet table for marine hospitals? Yes.

Is a proper record of the patients under treatment kept? Yes.

VI. OUTBUILDINGS AND GROUNDS.

Describe general condition of outbuildings: Good.

Are the grounds well policed? Yes; by attendants.

Describe officers' quarters and condition of furniture: Large brick building; furniture in good condition.

Describe steward's and attendants' quarters and condition of furniture: Frame building ample in size; furniture in good condition.

Describe dining room, condition of table furniture and tableware: Frame building; furniture and tableware in good condition.

Describe kitchen and furniture: In good condition; some few articles needed.

Describe dispensary: Good condition; very little furniture, but enough for present needs.

Describe laundry: Sufficient at present.

Describe approaches to the station: By water and driveway.

Describe condition of fences and grounds: Good with the exception of what is mentioned and recommended below.

Describe drainage and condition of water-closets: Mentioned and recommended below.

Describe disposal of slops: Such as are suitable are fed to the cow; others are removed from station by wagon.

State whether any animals not authorized by the Department are kept on reservation: No.

VII. EQUIPMENT.

State, approximately, age and condition of each horse, and how long in service at this station: One horse about 12 years old, two years at station.

Give number and character of vehicles: One road wagon, one cart, one two-wheel cart for hauling latrine cans to discharging grounds.

Are they properly cared for? Yes.

Are harnesses in good condition? Yes.

Is there a blacksmith's forge provided? Yes.

Are there farming implements; and if so, are they in good condition? None.

Is there a fire apparatus provided; and if so, is there a fire drill organized? A pipe from the tanks to the buildings and taps at convenient distances for attaching hose can be used in case of fire.

VIII. DISCIPLINE.

Are officers and employees supplied with uniform in compliance with the revised uniform regulations? Yes.

Are uniforms properly worn? Yes.

Give method of granting leaves to officers and employees: According to United States Marine-Hospital Regulations.

Describe when and how inspection, muster, and fire drills are conducted: Formal inspection made every Saturday.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year, by months: January, 7; February, 18; March, 34; April, 29; May, 45; June, 54; July, 45; August, 25; September, 31; October, 23; November, 28; December, 12; total, 343. This not being a port of entry, no note

is taken of vessels arriving from domestic ports, or from foreign ports via domestic ports. No records kept of arrivals from domestic ports.

From what countries chiefly do the vessels come? These vessels come chiefly from the East and West Indies, and bring sugar, principally. They are usually here for orders. They usually come with cargo.

State whether in your opinion the quarantine facilities are sufficient to care for the shipping arriving at the station: Yes.

Give annual amount expended at station for last three years: During July, August, September, October, November, and December, 1893, $46,934.18; twelve months of 1894, $9,598.17; twelve months of 1895, $14,513.66. During January, February, March, and April, 1896, $3,312.85. The above is for improvements, repairs, salaries, etc.

Mention any facts which, in your opinion, should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper: Piling placed along river front to protect the site of contagious-disease camp. At least 150 feet should be put in at once. About 300 feet of fence should be put up to fill up gap in present fence. A bulkhead should be built along one side of contagious-disease camp. A picket fence 8 feet high should be built around the contagious-disease camp. The barracks for immigrants, also kitchen and storeroom, should be shingled at once. The platform in barracks needs repairing. All the buildings should be repainted. There should be an increase in water supply, and I would recommend that an additional water tank be erected. The sewer from the surgeon's quarters should be extended to what is now low-water mark. The other sewers also need a similar extension, the shore line having extended considerably. Officers' quarters in good condition, but need paint for outside and interior woodwork. The steward's quarters are good, but need painting. Attendants' quarters are in fair condition, but would be improved by painting. Officers' furniture is in good condition; new carpets, table, and chairs needed. Kitchen in good condition. Dispensary, very little furniture, but probably sufficient for present needs. Laundry, good.

I certify that the foregoing is a careful and correct statement of the condition of the Service at the Delaware Breakwater Quarantine Station inspected by me this 19th day of May, 1896.

GEO. PURVIANCE,
Surgeon, M. H. S., Inspector.

MARYLAND.

REPORT OF INSPECTION OF THE LOCAL QUARANTINE STATION AT BALTIMORE.

By Surg. GEORGE W. STONER, M. H. S.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The quarantine station is located at Little Hawkins Point, about 8 miles from the city by water and about 19 miles by land. The ground, an area of about 18 acres, is high and dry, beautifully located, and bounded on about two-thirds of its outline by the waters of Curtis Bay and the Patapsco River or Hawkins Bayou. In the rear it joins a truck farm and a small reservation of the light-house service (Leading Point Light). The buildings on the quarantine grounds are (1) the hospital, a two-story building containing four wards, with water-closets and bathrooms for each, and four other rooms and kitchen; (2) physician's residence, a two-story and attic building containing twelve rooms; (3) employees' building, two-story and attic, containing twelve rooms, with a lookout on top; (4) the stable, containing three stalls and two box stalls; (5) the disinfecting building, and (6)

the boathouse. The limits of anchorage for noninfected vessels is about 1 square mile, and for infected vessels several miles. The facilities for inspection of vessels are the tugboat *Hygeia*, steam launch *Inspector*, and one four-oared yawl boat.

For the disinfection of vessels there is no special apparatus, the quarantine physician depending upon the facilities for generating steam on the vessel requiring disinfection, or, if a sailing vessel, the steam apparatus of the boarding tug *Hygeia*, together with the other disinfecting agents—sulphur fumigation and washing down with solution of bichloride of mercury, carbolic acid, etc.

For the disinfection of baggage a new disinfecting apparatus (copies of plans and specifications of this apparatus were forwarded in connection with my former reports) is in place in the new brick building constructed for the purpose. This building is divided by brick partitions into three compartments: (1) Furnace room with storage space for fuel, etc.; (2) room for the reception of infected articles (this room also contains a furnace for the destruction of articles which can not be properly disinfected), and (3) room in which disinfected articles are taken out of the iron disinfecting chamber. This chamber is 20 feet long and presents the appearance of a tunnel between the room for the reception of infected articles and the room where disinfected articles are removed, one-half of the chamber extending into each of these rooms, the object being to prevent any communication or contact of the disinfected with the infected. The cars upon which infected articles are placed and conveyed to the disinfecting chamber are about 10 feet long and 3 feet wide and have each four racks or tiers. Two of the cars can be placed in the chamber at one steaming.

The facilities for the removal of the sick are the boats of the station already referred to, and in case of large numbers lighters would be used. For the care and treatment of the sick a hospital is provided, and for the care of suspects, or for the care and treatment of a large number of the sick, tents would be pitched or temporary barracks constructed. The mail facilities are by boat to the city, post-office box No. 231, and the telegraph facilities are by telephone to the city by long-distance telephone.

2. Give personnel of the station or port, name of the quarantine officer or officers, post-office address, total number of officers and subordinates, etc.

Dr. S. O. Heiskel is the resident quarantine physician, and during the active quarantine season an assistant quarantine physician is employed. Dr. A. W. Smith was the assistant last year and has been reappointed. The crew of the tug *Hygeia* consists of captain, engineer, fireman, and deck hand, and the crew of the steam launch *Inspector*, captain, engineer, and deck hand. The other regular employees are the nurses, cook, laundress, house servant, farmer, and laborer.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Copies of the laws and regulations (Exhibits A and B) governing the local quarantine are forwarded and the quarantine customs of the port are carried out in accordance therewith. The regular period for quarantine for all vessels from foreign ports and from ports south of Cape Henry is from April 30 to November 1, but is sometimes opened as early as April 1 and continued until December 1, and for vessels coming direct from foreign ports inspection is maintained throughout the year.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

The local regulations are carried out, and the requirements of the Treasury Department are also observed. There is no undue or unnecessary detention or disinfection of vessels.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

Inspection is maintained throughout the year for all foreign vessels and all vessels with sickness on board or coming from infected localities.

6. Are vessels from other United States ports inspected?

All vessels from other United States ports south of Cape Henry are inspected from April 30 to November 1, and all vessels having had sickness on board during voyage are subject to inspection and quarantine the year round.

7. Describe quarantine procedures in the inspection of vessels; and if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection; (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

As described above in paragraphs 1 and 4, vessels in quarantine handled as expeditiously as possible. Disinfection of vessels begins immediately after arrival. United States quarantine regulations observed.

8. What communication is held with vessels in quarantine (and before quarantine) by pilots, etc., and how regulated? Is there any communication allowed among vessels in quarantine?

Speaking communication only allowed with vessels brought to or detained in quarantine. Pilots not allowed to leave vessel until permission of quarantine hospital physician shall be first obtained. Penalty of heavy fines. (See local quarantine regulations.)

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Vessels infected with cholera, yellow fever, or smallpox will be treated in accordance with the regulations governing the United States quarantine service. The conditions regarded as giving evidence of such infection are the conditions described in the said regulations, especially in Article II, page 25.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Records are kept at the station of all cases of disease occurring on the voyage or during detention.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

The fees for inspection are 1 cent a ton for vessels over 200 tons (net) and a charge of $2 is made for vessels under 200 tons. There are no other quarantine fees, no charges for disinfection, and no wharfage charges.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port; i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

The following is a tabulated statement, furnished by the collector of customs, of vessels arriving at the port during the year ended December 31, 1895.

Month.	Total from foreign ports.	Total from domestic ports.	Great Britain.		Netherlands.		Italy.		Brazil.		Cuba.		Jamaica.		Other West Indies.		Germany.		Spain.	
			Cargo.	Ballast.	Cargo.	Ballast.	Cargo.	Ballast.	Cargo.	Ballast.	Cargo.	Ballast.	Cargo.	Ballast.	Cargo.	Ballast.	Cargo.	Ballast.	Cargo.	Ballast.
January	35	92	13	6	2	1	....	1	2	....	2	2	3	....	2	....	....	....	....	....
February	27	78	8	3	2	....	....	....	3	....	3	....	2	....	1	....	....	2	2	....
March	44	102	14	2	1	2	....	....	7	....	4	....	4	....	4	....	....	....	1	....
April	34	108	8	4	2	1	4	....	2	....	3	....	7	....	....	....	....	1	....	....
May	48	96	7	....	6	2	1	....	1	....	3	....	9	....	15	....	....	1	....	....
June	59	97	6	1	1	....	3	....	1	....	4	....	7	....	28	....	....	2	....	....
July	60	98	6	....	2	2	....	....	7	....	4	....	6	....	38	....	....	2	....	....
August	29	97	6	1	1	1	2	....	1	....	4	....	4	....	3	....	1	1	2	....
September	40	89	11	2	3	....	1	....	2	....	6	....	6	....	....	....	2	....	....	....
October	31	103	6	1	3	....	2	....	....	1	3	....	4	....	....	....	1	3	2	....
November	44	99	9	5	2	1	4	....	3	....	4	....	4	....	....	....	3	....	2	....
December	60	96	9	3	4	....	10	....	3	....	5	....	5	....	2	....	4	3	3	....
Total	511	1,155	103	28	29	10	27	1	32	1	45	2	61	....	83	....	11	15	12	....

There were also 3 arrivals from Russia; 1 from Cape Colony; 11 from Belgium; 7 from Colombia; 2 from Hongkong; 7 from Algeria; 4 from Greece; 1 each from Turkey, France, Venezuela, and Canary Islands, and 10 from Canada. No arrivals from foreign ports in yellow fever latitudes.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The statement of the number of vessels arrived at the port of Baltimore from the different countries and coastwise, as given above, was obtained from the collector of customs at the custom-house.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

The quarantine facilities are as stated in the foregoing report. Steam apparatus of the vessel requiring the disinfection, and if a sailing vessel, steam from the boarding tug. The sulphur fumigation is applied in the ordinary way, there being no apparatus for applying the same under pressure. The disinfecting solutions are used for washing down, and are also applied by pressure of force pump. The distance from the landing at the quarantine dock to the deep-water channel is about 600 yards, and the removal of persons and baggage from vessel to shore at quarantine station is done by the boats belonging to the station or by the use of lighters. A long pier, with pier head extending to deep water, would be of great advantage to the station; but it is doubtful if one could be constructed of sufficient strength to stand the weather during the winter.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection of vessels, are observed.

The quarantine regulations of the United States Treasury Department are in force (see blank form of certificate of health officer inclosed). The mayor, a year ago, in his message to the city council, referred to the new disinfecting plant, and quoted approvingly from the quarantine officer's report that the building of this plant became necessary in order to comply with the regulations promulgated by the United States Treasury Department. The apparatus, including the substantial brick building in which it is placed, cost the city $15,000. The local quarantine physician seems especially desirous of carrying out the regulations prescribed by the Treasury Department, so that, as he says, no discrimination may be made against the port of Baltimore by subjecting Baltimore-bound vessels to quarantine at the capes (at the United States quarantine at Cape Charles, Va.).

16. Does the certificate of inspection or of pratique signed by the quarantine

officer state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

The certificate of the quarantine officer states that the vessel has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury, and that, in his opinion, the vessel will not convey quarantinable disease. The following is a copy of the blank form:

BALTIMORE, MD., ———, *189—*

I certify that ———, of ———, from ———, has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury, and that, in my opinion, she will not convey quarantinable disease. Said vessel is this day granted free pratique.

———— ————,

Health (Quarantine) Officer, Port of Baltimore.

17. What disposition is made of the consular bills of health?

Duplicate copy is taken up by quarantine physician and placed on file at station. Original copy is taken up by the customs officers.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The general recommendation that I would make applies not alone to Baltimore, but to every State or local maritime quarantine: That maritime quarantine be placed under direct national control and be conducted at the expense of the General Government, the same as all other matters pertaining to the commerce of the port. Vessels infected with cholera should not be allowed to come up the bay.

MAY 22, 1896.

EXHIBIT A.

[From Baltimore City Code, 1893.—Quarantine hospital.]

138. The hospital on the southern shore of the Patapsco River shall be known as the "Quarantine Hospital of the Port of Baltimore;" and a suitable person, to be known and designated as the Quarantine Hospital physician, shall be biennially appointed as other city officers are appointed, who shall be a legally authorized practising physician whose duty it shall be to reside permanently on said hospital grounds, and generally to superintend the affairs of the hospital and the grounds attached thereto, and under the direction of the board of health to manage the whole domestic economy of the premises; to collect all moneys which may become due from patients of every class, and from all immigrants and others who may be received into said hospital, and to pay over said money to the register of the city on the first Monday of each and every month, and make a monthly report on the same day to the board of health of the affairs of the hospital, the number of inmates, by whose order received, and at whose expense. It shall be the further duty of the Quarantine Hospital physician, and he is hereby required, when making his monthly returns to the city register to render a statement in detail of all the several articles, with the quantities and prices attached, purchased by him or by his authority, or in any other manner, for the use of the Quarantine Hospital during the month just ended; also the number of patients resident and under treatment at said hospital at the several times of making said monthly returns. (City Code, 1879, art. 23, sec. 131, res. 202, May 17, 1881.)

139. He shall promptly attend to all messages or communications sent to or left at the hospital which may in any way concern his duties under this ordinance, at all seasons of the year, at any hour of the day between sunrise and sunset; he or his assistant, as hereinafter provided for, shall also carry into execution the quarantine laws and regulations provided for by this ordinance. He may, in case of ill health, or when the mayor and board of health may deem it absolutely necessary, employ, with their consent, one assistant, who shall also be a legally authorized practising physician, and reside at said hospital during the time he is so employed, for whose acts he shall be responsible, and whose compensation shall not exceed the sum of five dollars per day during the time his services may be required; said Quarantine Hospital physician shall, before he enters upon the duties of his office, execute a bond to the corporation, with such sureties as the mayor and comptroller may approve, in the penal sum of five thousand dollars, and with the condition that he will faithfully discharge the several duties and trusts reposed in

him, and pay over to the register all money collected by him or his assistant for the city. (City Code, 1879, art. 23, sec. 132.)

140. No vessel arriving from sea between the thirtieth day of April and the first day of November, and at such other times as the mayor and board of health may direct, shall approach nearer to the city than the quarantine ground, which shall be upon the southern or main branch of the Patapsco River; and it shall not be lawful for any vessel that is subject to quarantine regulations to approach nearer to the city than a line drawn from the point of Fort McHenry to the hospital ground; nor shall any such vessel come within the Lazaretto Light, upon the north side of Fort McHenry, until she has received a written permit from the Quarantine Hospital physician, or his assistant, to that effect; and said Quarantine Hospital physician, or assistant, shall board all vessels arriving from sea (except vessels returning in distress with outward cargo on board) after their arrival at quarantine ground, as soon as practicable, and such ship or other vessel shall come to anchor whenever required by the Quarantine Hospital physician, or his assistant, from the thirtieth day of April to the first day of November in each and every year; and it shall be the duty of the said physician, or his assistant, carefully to examine into the health of all the officers, crew, and passengers of such vessels, the condition of the cargo, the state of the vessel as to cleanliness, and generally into all such circumstances as may in any way affect or concern the health of the city; and if he shall believe it to be unsafe to permit any vessel so examined to unlade her cargo or come to the wharf, he shall order said vessel to the Lazaretto Wharf or to some other place outside the city limits, there to perform the necessary purification, which shall be done in such manner as may be directed by the said physician, or his assistant, to his entire satisfaction, or whenever the health of the city, in the opinion of the physician, or his assistant, may be endangered, whether from the actual presence of disease or from an unclean condition of the ship, vessel, or passengers, to require such ship or vessel to come to anchor at the quarantine ground, and there remain until the passengers have been removed and the ship or vessel thoroughly cleaned and purified; and all expenses of purification and removal and all other expenses incurred by said physician, or his assistant, to prevent the introduction or propagation of contagious and infectious diseases, to be paid by the master, owner, or consignee of the ship or vessel for which the expense was incurred. And it shall not be lawful for any person commanding or having charge of such vessel to remove her from the place assigned or designated by the said physician, or his assistant, without his written permission, or to suffer such vessel to be so removed by others. And any ship, vessel, or person violating any of the provisions of this section, or neglecting to comply with any orders issued or given by said physician, or his assistant, in conformity hereto, shall be liable to a penalty of five hundred dollars, and a further penalty of fifty dollars for every hour the ship or vessel may remain in any position in violation hereof; and an action for the recovery of all fines, forfeitures, or expenses incurred in carrying into effect any of the provisions of this ordinance may be laid against the ship or vessel, the master, the owner, or consignee of the ship or vessel so violating, each or all of them, at the election of the city. (City Code, 1879, art. 23, sec. 133.)

141. All vessels, after their cargoes are discharged, shall, if deemed necessary by the board of health, be forthwith removed to the stream and to a proper distance from the wharf, and thoroughly cleansed and ventilated under the direction of the said board; and any person offending against the provisions of this section, or who shall refuse or neglect to comply with the order of the officer or officers charged with its execution, shall forfeit and pay the sum of one hundred dollars, and twenty dollars thereafter during said disobedience shall continue. (City Code, 1879, art. 23, sec. 134.)

142. The commander, captain, pilot, or person having charge of any vessel coming to the port of Baltimore, from sea or elsewhere, and on board of which there shall be any person or persons affected with smallpox, varioloid disease, or whose condition would authorize a suspicion that the malady may be smallpox or any modification thereof, of any other infectious or contagious diseases, or on board of which smallpox, varioloid, or any eruptive disease of a kind which would authorize a suspicion that it had been any form or modification of smallpox, or any other infectious or contagious diseases, shall have appeared at any time during the voyage from the port or place at which the vessel had cleared, shall bring the said vessel to at the quarantine ground, and there await the arrival of the Quarantine Hospital physician or his assistant, and not depart thence until a written permission from the Quarantine Hospital physician or his assistant shall be obtained for that purpose; and it shall not be lawful for the said commander, captain, pilot, or other person having charge of said vessel to land or bring on shore, or suffer to be landed or brought on shore, any passenger or passengers or any of the officers or crew of such vessel, or any part or parcel of the baggage, goods or effects, or any other

articles contained in said vessel, until he has obtained a written permission from the Quarantine Hospital physician or his assistant so to do; and it shall, moreover, be the duty of the person aforesaid having charge of said ship or vessel to make a full disclosure of all such circumstances in relation to the health of the officers, crew, and passengers on board said vessel during voyage, and at the time of the inquiry, as may be necessary to enable the Quarantine Hospital physician or his assistant to determine on the measures necessary to be taken in the premises, and particularly to answer any interrogations which may be put to him by said officer in reference to the existence of smallpox, varioloid, or other eruptive, infectious, or contagious diseases among the officers, crew, or passengers on board the vessel at the time of inquiry, or at any previous time during the passage; and any person neglecting or refusing to comply with any requisitions or provisions contained in this section, or with any order of the Quarantine Hospital physician or his assistant, in pursuance of and in conformity thereto, shall forfeit and pay the sum of five hundred dollars; and if the said penalty shall have been incurred by the commander, captain, pilot, or other persons having charge of such vessel, and he shall abscond or evade the execution of this ordinance, then the said penalty shall be paid by the owner or consignee of such ship or vessel, unless he shall give such information as may lead to the apprehension of the delinquent. (City Code, 1879, art. 23, sec. 135.)

143. Each member of the board of health shall have full power and authority to give an order for the reception of any person affected with a contagious disease dangerous to the community into the Quarantine Hospital. (City Code, 1879, art. 23, sec. 136.)

144. It shall not be lawful for any person or persons knowingly to bring or cause to be brought into the city any damaged coffee, hides, rice or any other article which, by its nature, is liable to produce disease at any time between the first day of May and the first day of November, in each and every year, under a penalty of one hundred dollars; and it shall be the duty of the mayor and each member of the board of health, whenever any article shall have been brought into the city, to cause a written notice to be served on the person or persons having the same under his, her, or their charge to have the same forthwith removed to such place as may be directed in such notice, and shall likewise order that the vessel (if any) bringing the same be removed within six hours after delivery at said place to the quarantine ground, there to remain until cleansed and ventilated to the satisfaction of the Quarantine Hospital physician, and any person or persons refusing or neglecting to comply with the directions prescribed in the notice, either of the mayor or a member of the board of health, shall forfeit and pay a fine of one hundred dollars for each and every offense and twenty dollars for each and every hour such neglect shall continue. (Ibid., sec. 137.)

145. The mayor and board of health may, in their discretion, exempt from the quarantine regulations of the city of Baltimore all steam vessels coming into the port of Baltimore from any port in the United States north of Cape Henry, which exemption shall be certified to the physicians at the Quarantine Hospital, and shall remain in force until countermanded by said mayor and board of health and no longer; provided, however, that no exemption granted under the provisions of this section shall be so construed as to exempt the commander, captain, pilot, or other person having charge of any vessel coming into the port of Baltimore, or the owners or consignees of the same, from the penalties and fines imposed by section 142 of this article. (City Code, 1879, art. 23, sec. 138.)

146. Vessels arriving from the ports north of Cape Henry free from epidemic or contagious disease, and with cargoes from said ports, shall not be subject to the usual quarantine regulations contained in section 140 of this article, unless, in the judgment of the board of health, compliance with said regulations shall be necessary to protect the health of the city. (Ibid., sec. 139.)

147. The Quarantine Hospital physician or his assistant shall visit all ships or vessels that may come to at the quarantine grounds, as directed in section 142, as soon as practicable, in daylight, after the knowledge of such fact shall have been by any means obtained by him; and said officers are hereby authorized and directed to send all persons affected with smallpox, varioloid, or other infectious or contagious diseases, who may be found on board such vessels, to the Quarantine Hospital, to take or direct such measures in regard to the officers, crew, and passengers as, in their opinion, may be necessary to disinfect them and to prevent their propagating the disease, to direct all such articles on board the vessels to be landed in order to be purified from infection, as they may deem proper, and to subject all such articles to such process of disinfection as they may think necessary for that purpose. And the Quarantine Hospital physician is, moreover, authorized and required to keep all such articles as he may deem necessary to subject to the disinfecting process aforesaid under his own care and supervision until such purpose be accomplished. And it shall be the duty of said Quarantine Hospital

physician or his assistant, without approbation of the mayor, to adopt all means or measures consistent with the laws of the United States, or of the State of Maryland, and with the ordinances of the city of Baltimore, to prevent any communication between the citizens of Baltimore and those detained until the necessary means are used to disinfect them, their baggage, and other property to the satisfaction of the Quarantine Hospital physician or his assistant. And any person removing, or attempting to remove, any baggage or merchandise detained in virtue of this section, or any of the health ordinances of the city, shall forfeit and pay twenty dollars and all expenses of removing said baggage or merchandise back to the hospital or lazaretto grounds as may be directed, and of delivering the same into the charge of the Quarantine Hospital physician or his assistant. (City Code, 1879, art. 23, sec. 140.)

148. The expenses which may be incurred in disinfecting and purifying vessels and persons, baggage, and other articles from the infection of smallpox or other diseases, as provided for in the preceding section, shall be done at the proper cost and charge of the commander, captain, owner, or consignee of the infected vessel, and such part thereof as it may be necessary for the Quarantine Hospital physician or his assistant to incur in the first instance shall be charged to the commander, captain, owner, and consignee, or either of them, at the discretion of the Quarantine Hospital physician or his assistant, and collected by him; but if it can not be so collected, the amount which said physician shall have necessarily expended for the purpose aforesaid shall be refunded or repaid by the register of the city, with the approbation of the mayor. (City Code, 1879, art. 23, sec. 141.)

149. All passengers placed under quarantine, whether detained on shipboard or removed on shore, as the Quarantine Hospital physician or his assistant may direct, who shall fail to maintain themselves, shall be provided for by the master of the vessel in which they shall have arrived; and if the master shall omit to provide for them, as above directed, the expense of their maintenance shall be charged to the vessel in which they arrived. And such vessel shall not be permitted to leave the quarantine ground until such expense shall have been repaid or secured to be paid in a manner satisfactory to the mayor. (Ibid., sec. 142.)

150. If the captain, commander, or other person having charge of any vessel which shall be detained at quarantine by the Quarantine Hospital physician or his assistant shall refuse or neglect to obey or carry into effect any order or requisition of the Quarantine Hospital physician or his assistant made in pursuance of, and in conformity with, the provisions of section 147, he shall forfeit and pay the sum of twenty dollars for every such refusal or neglect, and the further sum of twenty dollars for every hour thereafter during which such disobedience shall continue; and if any person on board such vessel shall leave it and come on shore without the permission of the Quarantine Hospital physician or his assistant he or she shall forfeit and pay the sum of fifty dollars; and any person who shall have been permitted to land, and directed to remain at the Quarantine Hospital until permitted to go into the city, and shall leave the hospital grounds without the permission of the Quarantine Hospital physician or his assistant shall forfeit and pay the sum of fifty dollars; and if any person shall go on board, or have communication in any manner otherwise than by speaking with the persons on board any vessel brought to or detained under the provisions of this ordinance under quarantine, before he or she hath obtained permission from the Quarantine Hospital physician or his assistant, in writing, he or she shall forfeit and pay for every such offense the sum of twenty dollars. If smallpox, varioloid, or any infectious or contagious disease shall appear upon any of the officers, crew, or passengers of any vessel at any of the wharves of the city, or at anchor in the basin or harbor, at any season of the year, and the fact shall come to the knowledge of the board of health, it shall be the duty of the said board, or any of them, to order said vessel to the quarantine ground, to be subject to the regulations hereinbefore provided for in respect to vessels detained at quarantine; and if the commander, captain, or other person having charge of such vessel shall refuse or neglect to obey such order, he shall forfeit and pay the sum of one hundred dollars for such refusal or neglect, and the further sum of twenty dollars for every hour thereafter during which time such disobedience shall be persisted in; and it shall be the duty of the said board of health, or any member thereof, to notify the Quarantine Hospital physician or his assistant of the fact, for his government in the case. (Ibid., sec. 143.)

151. The Quarantine Hospital physician or his assistant, upon visiting any vessel in compliance with the provisions of this ordinance, whether at quarantine or elsewhere, shall demand and receive from the commander, captain, owner, or consignee of such vessel the following sums of money, viz: From any vessel not exceeding two hundred tons register measurement, two dollars for each and every voyage, and for vessels over and above two hundred tons, one cent a ton for each

and every voyage. And it shall be the duty of the Quarantine Hospital physician or his assistant to make monthly returns, on oath, of all the money collected by him and pay over the same to the register of the city, without discount or reduction, and also to return the number of vessels boarded by him and tonnage of each. And if any commander, captain, owner, or consignee of such vessel shall refuse or neglect to pay the sum authorized to be demanded of him by this ordinance, it shall be the duty of the Quarantine Hospital physician or his assistant to issue and deliver, or cause to be delivered, to said commander, captain, owner, or consignee a written order forbidding the landing of any part of the cargo of such vessel until the demand is paid; and if any person so notified shall disobey such order, he or she shall forfeit and pay the sum of twenty dollars and the further sum of twenty dollars for every hour thereafter during which such disobedience shall continue. (City Code, 1879, art. 23, sec. 144.)

152. In consideration of the duties to be performed as Quarantine Hospital physician, and in order to secure the best professional services, said officer shall hereafter receive, in lieu of all commissions or perquisites, a salary at the rate of three thousand dollars per annum, payable monthly, and may occupy the dwelling on the hospital grounds free of charge; but all expenses incurred for his support or that of his family shall be defrayed out of his salary. (Ibid., sec. 145.)

153. The Quarantine Hospital physician, with the consent and approbation of the board of health, shall be authorized, and he is hereby empowered, to employ such persons as may be required for boatmen (whose wages shall be at the rate of sixty dollars per month), farm hands, or nurses at such prices as may be agreed on by them; such person or persons to be discharged as soon as their services are not needed. (City Code, 1879, art. 23, sec. 146.)

154. The Quarantine Hospital physician shall be authorized, and is hereby directed and empowered, to charge each patient over fifteen years of age who may be sent to the Quarantine Hospital fifty cents for each and every day they may continue therein, and twenty-five cents for each and every person under fifteen years of age, except infants, for whom no charge shall be made. And should patient or patients, liable to pay such charges, fail to do so prior to leaving said hospital, then the master, owner, or consignee of the ship or vessel from which such patient was received shall be answerable for such charge, and it shall not be lawful for any person commanding or having charge of such ship or vessel to remove such ship or vessel from the quarantine grounds before executing in writing an agreement to pay to the mayor and city council of Baltimore such sum or sums as shall be chargeable to each and every patient sent to said hospital from such ship or vessel. (Ibid., sec. 147.)

155. Said Quarantine Hospital physician, through the board of health and with the approbation of the mayor, may obtain the necessary supplies for the support of the hospital, and for carrying out the provisions of this ordinance, and all bills for these purposes must be contracted by the board of health, and said physicians may, with the approbation of the mayor, draw on the comptroller for such sums as may be required for the purposes aforesaid, provided the same shall not exceed the sum appropriated for the current year by the mayor and city council for the support of the Quarantine Hospital department. (Ord. 114, Sept. 23, 1882.)

156. Whenever the Quarantine Hospital physician, or his assistant, shall find it necessary to order the goods, baggage, or bedding from on board a ship or vessel for the purpose of cleansing or disinfecting the same, he shall take care to have them kept safe from injury or depredation, and cause them, when disinfected, to be returned to the ship or vessel from which they were taken, before such ship or vessel shall leave the quarantine grounds, unless the owner or owners thereto be detained at the hospital, in which case the same shall be delivered to the respective owner or owners thereof, when they shall be discharged from the hospital; the captain, owner, or consignee shall be answerable for all expenses incurred by carrying out the provisions of this section. (City Code, 1879, art. 23, sec. 149.)

157. It shall be the duty of the Quarantine Hospital physician, or his assistant, to carefully inspect the condition of all passengers and passenger ships or vessels arriving at this port from any foreign country; and whenever, in their opinion, the health of the city may be endangered, whether from the actual presence of disease or from an unclean condition of the ship or passengers, to require such ship or vessel to come to anchor at the quarantine grounds, and there remain until all the passengers have been removed, and the ship or vessel thoroughly cleansed and purified; all expenses of purification and removal and all other expenses incurred by the Quarantine Hospital physician or his assistant, to prevent the introduction or propagation of contagious or infectious diseases, to be paid by the master, owner, or consignee of the ship or vessel for which the expense was incurred. (Ibid, sec. 150.)

158. The Quarantine Hospital physician or his assistant may, when either of them deem it necessary to prevent the propagation of smallpox or varioloid disease among the crew and passengers of ship or vessel detained at the quarantine ground, vaccinate any one or more of said crew and passengers, and may charge twenty-five cents a person for performing said duty, and in case one or more persons on board a ship or vessel whom it would not be necessary to send to the hospital, but who may desire the attendance of the Quarantine Hospital physician or his assistant during any part of the time said ship or vessel may remain at the quarantine grounds, shall charge fifty cents per day for each and every person he may so attend; and in case said person or persons shall fail to pay such charges, then the ship or vessel, the master, the owner, or consignee of the ship or vessel shall be answerable for the charges provided to be made; the money, when collected, to be paid to the city register, to be placed by him to the credit of the Quarantine Hospital. (City Code, 1879, art. 23, sec. 151.)

159. Whenever the harbor masters, or any one of them, shall hear or know of any violation of any of the provisions of this ordinance, it shall be his or their duty to report said violation to the board of health, who shall promptly enforce the penalties of this ordinance; and all money so collected shall be paid to the city register, who shall place the same to the credit of the Quarantine Hospital. (Ibid., sec. 152.)

The mayor of the city, the presidents of the two branches of the city council, the president of the German Society, the president of the Hibernian Society, and the president of the St. Andrew's Society are a committee, ex officio, and are hereby empowered to visit said hospital once during each month, or oftener, if necessary, and to examine the condition of the patients, their food, bedding, clothing, cleanliness, and ventilation of the apartments, as well as into all other things connected with the general or medical management of the institution; and said committee, through mayor only, may make such suggestions to, or requisitions upon, the board of health as may be deemed expedient or necessary in relation to the food, bedding, or other suitable supplies for the comfort of said patients, with due consideration at the same time of an economical expenditure of such moneys as from time to time may be appropriated for the use of the said hospital. (Ibid., sec. 153.)

161. The officers, respectively, of the aforesaid visiting committee shall be honorary and without pecuniary remuneration; provided, however, that the board of health is hereby authorized to supply at all necessary times suitable conveyance for said committee to and from said hospital, the vouchers for the expense of which conveyance shall be allowed in the annual statement of said board, properly charged to the account of the said hospital. (City Code, 1879, art. 23, sec. 154.)

162. The mayor of the city, the city comptroller, and the engineer of the harbor board are hereby authorized to enter into an agreement with the owners of the land adjoining on the south the property belonging to the mayor and city council of Baltimore, known as the Quarantine Hospital, establishing and defining a line prolonged into the river from the dividing line between the said two parcels of land, along which the respective owners of said two parcels of land may extend improvements into the river in front of their respective parcels of land, as allowed by law, which line shall thenceforth be the boundary line between said parcels of land to the extent to which the respective owners of said land are now, or may hereafter be, entitled by law to extend improvements into the river. (Ord. 70, May 14, 1881.)

163. The mayor is hereby authorized, in behalf of the mayor and city council of Baltimore, to execute all deeds that may be necessary to give legal effect to said agreement, subject to the approval of the city solicitor. (Ord. 70, May 14, 1881.)

CONTAGIOUS AND INFECTIOUS DISEASES.

164. Every physician shall report to the commissioner of health, in writing, upon blanks to be furnished by said commissioner, every person having smallpox, cholera, yellow fever, malignant diphtheria, measles, whooping cough, mumps, pseudo-membranous croup or scarlet fever, and varioloid, and his or her place of dwelling, and name, if known; such report to be made within twenty-four hours after the first visit, if such report was not previously made by some physician. (Ord. 125, Oct. 24, 1882; ord. 22, May 20, 1890.)

165. It shall be the duty of each and every practising physician in the city to report, in writing, to the commissioner of health the death of any of his patients who shall have died of contagious or infectious disease within twenty-four hours thereafter, and to state in such report the specific name and type of such disease. (Ord. 125, Oct. 24, 1882.)

166. The keepers of all hotels and boarding houses, and the agents and owners of all tenement houses or private residences or dwelling houses, having any person or persons in their hotels, boarding houses, tenement houses, or private residences or dwelling houses, suffering from or afflicted with any malignant, infectious, or contagious disease, as mentioned in section 164, after they shall have become acquainted with the fact, or are apprised of the same, shall immediately notify the commissioner of health, at his office in the city hall, stating the name of the person or persons so afflicted, their age and residence or location, and such other facts as they may be in possession of. Any such keeper, owner, or clerk of any hotel or boarding house, or any agent or owner of any tenement house, private residence, or dwelling house who shall fail or neglect to notify, in writing, the commissioner of health within twenty-four hours of such case of malignant, contagious, or infectious disease after having become aware, apprised, or informed of the same, shall be subject to the penalties hereinafter specified. (Ibid.)

167. The commissioners, managers, principals, or other proper person or head officer of each and every public or private institution in the city, where persons lodge or abide temporarily or permanently, shall report, in writing, the name, if known, and the condition and disease of any and every person being thereat, and sick of smallpox, cholera, or yellow fever, malignant diphtheria, scarlet fever, and varioloid. (Ord. 125, Oct. 24, 1882.)

168. The master, chief officer, or consignee, or any of them, of every vessel not being in quarantine or within quarantine limits, but being within one-fourth of a mile of any dock, wharf, or building of the city, having on board any contagious disease, shall report to the commissioner of health, or cause to be reported immediately, in writing, the particular location of said vessel and its name, and shall in said report state the name, disease, and condition of any person being in or on such vessel, and sick of any contagious disease, as aforesaid. (Ibid.)

169. No person shall bring to any deck, wharf, or building, or within one thousand feet thereof, in the city, or unload at any dock, building or pier therein, or have storage in the city, any skins, fish, rags, bones, hides, or similar articles or materials which have been brought from any infected place, without or otherwise than according to a written permit so to do from the commissioner of health; and no person shall sell, exchange, or in any way make any exposure of any straw, bedding, clothing, or articles that have been exposed to any contagious disease, or are liable to communicate such disease, till after the same shall have been adequately cleansed or disinfected, and a written permit so to do obtained from the commissioner of health. (Ibid.)

170. No person shall, within the city, without a permit from the commissioner of health, carry or remove from one building to another, or from one vessel to the shore, any person sick of any contagious disease; nor shall any person, by any exposure of any individual sick of any contagious disease, or of the body of such person, or by any negligent act connected therewith, or in respect of the care or custody thereof, or by needless exposure of himself, cause or contribute to, or promote the spread of disease from any such person or from any dead body. (Ord. 125, Oct. 24, 1882.)

171. All bodies of persons who shall have died of any of the contagious diseases mentioned in section 164 shall be buried within twenty-four hours after death, unless extension of time shall be granted by the health commissioner; and no such body shall be exposed to the peril or prejudice of the life or health of any person. (Ibid.)

172. Whenever a disease of a contagious and infectious character is discovered to exist in any dwelling house or building within the city, and which is situated in an unhealthy or crowded part of the same, and is in a filthy and neglected state, or is inhabited by too many persons, the said commissioner of health, by advice and consent of the mayor, may, and at the expense of the city, compel the inhabitants of such dwelling house to remove therefrom, and may place them in such buildings or temporary structures in some more salubrious situation, until measures can be taken, under the direction and at the expense of the city, for the immediate cleansing, ventilation, purification, and disinfection of such dwelling. (Ibid.)

173. The commissioner of health, with the approbation of the mayor, may cause all houses, districts, or parts of districts where contagious and infectious diseases exist, as mentioned in section 164, to be fenced in and guarded by sentinels; and said commissioner may also in such cases, with the approbation of the mayor, furnish such subsistence and clothing as may be necessary during the time said district or part of district may be fenced in as above; the expense of the same to be borne by the city. (Ibid.)

174. When a disease dangerous to the public health exists, and in order to prevent

the spreading of the same, the commissioner of health, with the approval of the mayor, shall have the power to rent halls, dwelling houses, and other suitable places, or have erected such temporary structures for a hospital or place of reception for the sick and infected as is judged best for their accommodation and the safety of the inhabitants, which shall be subject to such rules and regulations as the commissioner of health, with the approval of the mayor, may prescribe; and the commissioner of health may cause any sick and infected person to be removed thereto, unless the condition of such person will not admit of his or her removal without danger to his or her health, in which case the house or place where he or she remains shall be considered as a hospital; and all persons residing in, or in any way concerned, within the same, shall be subject to such regulations as may be prescribed by the commissioner of health, with the approval of the mayor. (Ibid.)

175. When such disease is found to exist, the commissioner of health shall use all possible care to prevent the spreading of the infection, and to give the public notice of infected places by displaying a yellow flag on the premises where said infectious disease exists, and by all other means which in his judgment shall be most effectual for the common safety; and whoever obstructs the commissioner of health or his agents in using such means to prevent the spreading of the infection, or wilfully removes, obliterates, defaces, or handles the yellow flags or other signals so displayed, shall be subject to such fines and penalties as prescribed in section 183. (Ibid.)

176. Whenever the commissioner of health may have just cause to suspect that any baggage, clothing, bedding, or goods of any character, found in the city, are infected with any contagious or infectious diseases which may be dangerous to the public health, he shall proceed to the nearest magistrate and obtain a warrant, and have said goods removed to such place as he may deem best, or otherwise detained until, in the opinion of the commissioner of health, they are freed from infection. (Ibid.)

177. Parents and guardians shall cause their children and wards to be vaccinated before they attain the age of one year, and revaccinated whenever the commissioner of health shall, after five years from the last vaccination, require it. (Ibid.)

178. The commissioner of health shall require and enforce the vaccination of all persons residing in the city and not before vaccinated, and the revaccination of any person in the infected district, whenever, in his opinion, the same may be necessary. (Ibid.)

179. It shall not be lawful for any person or persons to convey any body suffering from smallpox, scarlet fever, diphtheria, or other contagious diseases, to or from any point in the city of Baltimore, nor any known to have died from smallpox, or other contagious diseases, in any hackney coach, buggy, cab, or gig which is for public hire, under penalty of having it or them taken by the commissioner of health, disinfected, fumigated, and quarantined for thirty days, unless it or they are used for that purpose only, and then the commissioner of health must be satisfied that such is the case. (Ibid.)

180. It shall not be lawful for any person or persons having hackney coaches, buggies, cabs, or gigs for hire to hire or cause or permit the same to be hired or loaned, or in any manner to be used, by any person or persons for the purpose of conveying a dead body known or supposed to have died from smallpox, scarlet fever, diphtheria, or any other infectious diseases, to or from any dwelling or public building to any cemetery or other point within or through the city, unless they conform to the restriction in section 179. (Ibid.)

181. In every case where there has been smallpox, diphtheria, scarlet fever, or other contagious diseases, and the sick person has either died or been removed from the premises where the disease existed, and the occupant or occupants have vacated the property without causing a thorough and complete fumigation and disinfection of said property, then it shall be the duty of the owner or owners of said property to have said premises properly fumigated and disinfected before permitting any person or persons to visit the property for the purpose of becoming tenant or tenants, owner or owners of said premises. (Ibid.)

182. The commissioner of health, whenever in his judgment he may deem it expedient to properly vaccinate the citizens of Baltimore, may, with the advice and consent of the mayor, appoint extra vaccine physicians to fully carry into effect the provisions of this section of this ordinance. (Ibid.)

183. Any person who violates, disobeys, omits, neglects, or refuses to comply with or who resists any of the provisions of this ordinance, shall be fined not less than one dollar nor more than two hundred dollars for each offense; said fines to be collected as other fines are collected, except that the fine for the refusal to vaccinate shall not exceed ten dollars. (Ibid.)

EXHIBIT B.

Masters, pilots, and other persons having charge of vessels coming to the port of Baltimore will take notice that the following quarantine regulations are in force at said port, and that any violation thereof will subject the vessels and persons offending to the penalties therein mentioned.

I. All vessels arriving from sea, between April 30 and November 1 (except from ports in the United States north of Cape Henry), are required to stop at quarantine ground, and there await the arrival and orders of the Quarantine Hospital physician or his assistant.

Any vessel violating this regulation, or any order given by the Quarantine Hospital physician or his assistant in conformity therewith, will incur a penalty of $500, and a further penalty of $50 for every hour the said vessel shall remain in any position in violation thereof.

II. Masters, pilots, or other persons having charge of vessels coming to the port of Baltimore, whether from sea or elsewhere, at any and all seasons of the year, on board of which there may be, or may have been, at any time during the voyage, any sickness of an infectious or contagious character, or which would authorize a suspicion that it might be infectious or contagious, are required to stop at quarantine, and there await the arrival of the Quarantine Hospital physician or his assistant, and shall not leave there without the written permission of said physician or his assistant; and said masters, pilots, and other persons having charge of said vessels are warned not to suffer any person who may be on board, or may come on board before the quarantine officers, to leave said vessels, or any baggage, goods, or other article to be landed or brought on shore from said vessels until the written permission of the Quarantine Hospital physician or his assistant shall be first obtained.

Any violation of this regulation will subject the master, pilot, or other person so offending to a fine of $500, and a like penalty will be imposed for any violation of the orders of the Quarantine Hospital physician or his assistant, given in pursuance thereof, or for any refusal to make full disclosure of all circumstances in relation to the health of the officers, passengers, and crew on board of said vessels, at the time of inquiry and during the voyage.

III. Any person who shall go on board, or have communication otherwise than by speaking with the persons on board any vessel brought to or detained at quarantine, before he or she shall have obtained permission in writing from the Quarantine Hospital physician or his assistant, shall be fined $20 for each and every offense.

IV. If any person on board such vessel shall leave it and come on shore without the permission of the Quarantine Hospital physician or his assistant, he or she shall be fined $50.

V. Any person removing or attempting to remove any baggage or merchandise detained at quarantine, under any of the health ordinances of the city of Baltimore, without the permission of the Quarantine Hospital physician or his assistant, will be fined $20 and all expenses of returning said baggage or merchandise into the charge of said physician or his assistant.

VI. Persons engaged in the act of violating any of the foregoing regulations or orders of the Quarantine Hospital physician or his assistant, in pursuance thereof, will be subjected to summary arrest besides incurring the pecuniary penalties named.

VII. Masters of vessels are authorized by act of Congress to arrest and hold as prisoners, to be delivered to the proper authorities, any persons who, not being in the United States service or authorized by law, shall come on board their vessels without leave prior to the actual arrival of said vessels at their port of destination and before they shall be completely moored.

By order of the board of health.

[NOTE.—These regulations are also printed in Spanish and Italian.]

DISTRICT OF COLUMBIA.

REPORT OF INSPECTION OF LOCAL QUARANTINE STATION AT WASHINGTON, D. C.

By P. A. Surg. W. J. S. STEWART, M. H. S.

1. No quarantine station; no anchorage. Vessels from foreign ports are inspected by the District health officer or deputy health officer. No apparatus for disinfection of vessels or baggage; no facilities for removal and treatment of sick other than afforded by the city hospitals; no facilities for removal or detention of suspects.

2. No station; inspection done by District health officer or his deputy.

3. No local quarantine.

4. No additional requirements; no unnecessary detention.

5. Inspection of all vessels from foreign ports is maintained throughout the year.

6. No vessels from other United States ports are inspected.

7. The inspection consists in examination of the bill of health, mustering the crew and seeing that there is no contagious disease among them, and, in future, filling out blank attached (Exhibit A). If an infected vessel, or one considered so by the inspector, should arrive, he would communicate with the office of the Marine-Hospital Service by telephone.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.) and how regulated? Is there any intercommunication allowed among vessels in quarantine?

The majority of vessels arriving from foreign ports are towed up from the mouth of the river. After docking, word is sent to the custom-house, and from there a telephone message is sent to the health office for an inspector to go to Georgetown to issue the pratique. In the interim no attempt is made to prevent communication with the vessel.

9. In case of infection or suspected infection the health officer would consult with the Marine-Hospital Bureau.

10. No records are kept. The "bill of inquiry preliminary to issue of permit to enter," attached (Exhibit A), will in future form a record.

11. No fee for inspection is required.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months, from (*a*) foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port—i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Month.	Vessels.	From—	Cargo.
January	1	New Brunswick	Laths.
March	1	Trinidad	Asphalt.
April	1	New Brunswick	Ice.
June	1	Trinidad	Asphalt.
	1	New Brunswick	Laths.
July	2	do	Ice and laths.
	1	Trinidad	Asphalt.
August	1	do	Do.
September	1	New Brunswick	General cargo
October	1	Trinidad	Asphalt.
November	1	New Brunswick	General cargo
	3	Trinidad	Asphalt.

For 1896 to date, 4 from Trinidad and 1 from New Brunswick. Imports, ice and laths, and a few cargoes of gypsum. No exports. Some coal is carried to southern United States ports and the vessels return in cargo of yellow pine from there to New Brunswick. No arrivals from foreign ports in yellow-fever latitudes or from domestic ports.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

I ascertained that the bills of health are filed in the custom-house; that no vessel from a foreign port, or from an infected domestic port, is admitted to entry without a certificate from the health officer or deputy. No immigrants at this port.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

If the vessels were inspected in the stream before being docked, and no communication allowed until after pratique had been granted, I think, in consideration

of the character of the cargoes, the fact that no immigrants arrive, and the infrequency of the arrival of foreign vessels, the facilities would be sufficient.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

Article X, paragraph 4, and Article I, paragraph 4, inasmuch as no effort is made to prevent communication until after visit of health officer or deputy.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893? Transmit copy of certificate.

It does not; copy attached (Exhibit C). It seems to imply a previous inspection.

17. The consular bills of health are filed at the custom-house with other papers relating to the vessel.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

No other facts known by me other than above stated. Recommendations are that Article I, D. 4, p. 25, and Article X–4, p. 31, Quarantine Regulations, be enforced.

OCTOBER 7, 1896.

EXHIBIT A.

BILL OF INQUIRY PRELIMINARY TO ISSUE OF PERMIT TO ENTER.

DISTRICT OF COLUMBIA, HEALTH DEPARTMENT,
Washington, ———, *189*—.

1. What is the name of this vessel? ———.
2. What is the rig of the vessel? ———.
3. What is the name of the commander? ———.
4. From what port did she start on this voyage? ———.
5. When did she clear this port? ———.
6. What is her tonnage? ———.
7. To what port does she belong? ———.
8. How many men, all told, compose your crew? ———.
9. How many passengers have you? ———.
10. How many passengers are foreigners? ———.
11. Are all the passengers you have taken on board now on board of your vessel? ———.
12. Where were the passengers taken on board? ———.
13. Have you had any sickness on board since the commencement of this voyage? If so, what? ———.
14. Are all now on board in good health? ———.
15. At what port or places did your vessel touch or trade during the voyage, and what time did she leave each of them? ———.
16. Did any sickness prevail in the harbor or on shore or at any of said ports or places? ———.
17. Of what does your cargo consist? ———.
18. To whom is your cargo consigned? ———.
19. To whom is your vessel consigned? ———.
20. Have you a bill of health? ———.
21. Has any person boarded your vessel since you entered the Capes? ———.
22. Has any person left your vessel since you entered the Capes? ———.
23. Have you any rags or waste aboard? ———.

Inspected and passed ———, 189—.

———— ————,
Inspector.

EXHIBIT C.

PERMIT TO ENTER.

DISTRICT OF COLUMBIA, HEALTH DEPARTMENT,
Washington, ———, 189—.

This is to certify that ——— has been discharged from quarantine, with free pratique, and having been again examined this day and found in sanitary condition and free from disease, is therefore entitled to enter at the custom-house at Georgetown, D. C.

——— ———, *Health Officer.*

VIRGINIA.

REPORT OF INSPECTION OF UNITED STATES QUARANTINE STATION AT CAPE CHARLES.

By Surg. H. R. CARTER, M. H. S.

INSTRUCTIONS TO MEDICAL OFFICERS OF THE MARINE-HOSPITAL SERVICE DETAILED TO MAKE INSPECTIONS OF UNITED STATES QUARANTINE STATIONS.

1. Your visit to the station should be unannounced.
2. Upon arrival at the station, you will first call upon the commanding officer and arrange with him for an inspection of the station, which should be made as soon after arrival as practicable.
3. You will make proper entries to each question of this inspection blank and forward to this office upon completion of your duty.

WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

Name of quarantine station: Cape Charles Quarantine.
When was the station last inspected? Last record is August 19, 1894.
Name of inspecting officer: Surgeon-General Wyman, M. H. S.

I. PERSONNEL.

Name of officer in command: P. A. Surg. W. J. Pettus, M. H. S.
Date of assignment to duty: November 16, 1895.
Name and rank of assistants, including acting assisting surgeons: No assistants.
Name of steward and number of members in family: F. J. Herty; no family.
Name and duties of each attendant: Charles V. Merkle, engineer; H. C. Harman, keeper at Fishermans Island; C. J. Bonneville, keeper of steamer *Koch;* Hugh Harper, keeper of ship *Jamestown;* Charles Engleson, keeper of steamer *Dagmar;* W. R. Melson, assistant keeper of Fishermans Island; Henry Simpson, cook; Andrew Andersen, seaman; Andrew Brady, seaman; Ira Sawyer, fireman; Harry Winingder, attendant. The men designated as "keepers" are, save Harper, not available for general use.

II. GENERAL DESCRIPTION OF STATION.

Number of buildings: Seven—2 barracks, 1 laundry and dining room, 1 disinfecting building and bath house, 1 pump house (over artesian well), 1 storehouse on pier head, 1 keeper's house; all on Fishermans Island.
Limit of anchorage for noninfected vessels: Off the *Jamestown*, to leeward if possible, for inspection only. Vessels detained here only for inspection.
Limit of anchorage for infected vessels: To northwest of Fishermans Island.
Facilities for inspection of vessels: Yawl boats and naphtha launch.
Apparatus for disinfection of vessels and of baggage: Two steam chambers, modern type, one on *Jamestown* and one at Fishermans Island; two sulphur furnaces, one on *Jamestown* and one on the *Koch*, and two bichloride tanks and steam

pumps for the same, similarly distributed. The plant on the *Jamestown* is complete, well designed, and in good order. Those on the *Koch* and Fishermans Island are also complete, but the sulphur furnace is not so good as the other.

Facilities for removal and treatment of sick: For removal of sick, none; a tug would be hired and the *Koch* used as a transfer barge. The sick would be treated at Fisherman's Island in one of the buildings (barracks). The yellow-fever cases from the *Daspa* were so treated in 1894.

Facilities for removal and detention of suspects: For removal, none; it would be done by ship's boats or chartered vessels. For detention, the barrack at Fishermans Island would be used; they are ample and well equipped.

Mail and telegraph facilities: For boarding station, good; Fort Monroe. For Fishermans Island, not good, but there is a telephone to Cape Charles at Smiths Island, belonging to the United States, about 2 miles distant.

Give number of wharves: One at Fishermans Island, only.

What is the length of the wharf frontage? One hundred and four feet.

Are the wharves in good condition: No; save 31 new creosoted piles; those under the pier head are practically all gone, and I think none of the old piles will hold until winter. The 31 new piles will hold the pier head, but the gangway will probably go next winter, unless new piles are put in.

Are the mooring facilities ample? Vessels moor by their own anchors and ground tackle.

What is the depth of water at mean low tide along the front of the wharf? Fifteen feet.

What is the source of water supply? Artesian well and four cisterns for rain water, with a good roof supply; well has a steam pump for distribution.

Is it sufficient? Yes.

Is it potable? Yes.

Hard or soft? The artesian water is hard.

If hard, does it injuriously affect the boilers in use at the station? Never been used in them.

How is it distributed and stored, if storage is necessary? No storage except rain water, as given above. The artesian water is connected with the cisterns at the disinfecting building, bath house, and laundry, and thence distributed, but there is no general service to barracks, etc.

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant: Two steam chambers, 2 sulphur furnaces, 2 bichloride pumps and tanks, with hose and nozzles, etc. There are two complete plants, with boilers, engines, etc.

What is the general condition of all machinery? All disinfecting machinery is in good order.

Does it appear well taken care of or neglected? Well cared for.

Is there a steam hoisting engine for ballast? There is such an engine aboard the *Jamestown* that could be so used. There has never been occasion to use it.

Are there ballast tubs and a ballast car for the distribution of ballast? No.

How is ballast disposed of? Very little has ever been handled, and it was thrown overboard off Fishermans Island.

Is it disinfected prior to being discharged, and what facilities exist for supplying ballast to vessels needing it? It was not disinfected. Sand could be taken from Fishermans Island for vessels, but there has been (I think) occasion to do so but once.

What are the dimensions of the steam disinfecting chamber? *Jamestown*, 9 feet by 5 feet 4 inches by 4 feet 4 inches; at Fishermans Island, 15 feet by 8 feet by 8 feet.

Is it rectangular or cylindrical? Both rectangular.

How many cars are provided? Two for each.

Are infected articles put in at one end and brought out at the other after disinfection, or is one end of the chamber used for loading and unloading? Put in at one end and brought out at the other.

Is the chamber provided with thermometers for indicating the temperature during the process of disinfection? That on the *Jamestown* has no thermometer. They have been requisitioned for but not received. That at Fishermans Island has a thermometer.

Is the chamber equipped with any apparatus for the production of a partial vacuum? What is the nature of the appliance? If efficient in operation? Yes; have vacuum air pumps; said to be efficient by the engineers who have used them.

What vacuum is produced and how long does it take to obtain it? It has been used at 5 inches and takes five minutes on the *Jamestown* and eight minutes at Fishermans Island.

Is a sulphur furnace provided? Two of them; one aboard the *Jamestown* and one aboard the *Koch*.

How many feet of sulphur hose are provided? Sixty feet, in five sections.

What is its condition? Good; almost new; only two sections have been in use.

What is the condition of the fan and engine? Good on board both *Jamestown* and *Koch*.

What is the method of storing bichloride solution? Aboard *Jamestown* in a 1,000-gallon wooden tank (deck); aboard *Koch* in two 1,000-gallon iron tanks (hold).

Are the tanks of wood or iron? The one on the *Jamestown* is of wood, and the two aboard the *Koch* are of iron.

What is the elevation of the tanks above the wharf flooring? None on wharf.

Is the solution distributed by gravity, or is there a pump for the purpose? Distributed by a steam pump on both vessels.

How many feet of hose are provided for the distribution of the bichloride solution, and what is its size and condition? Two hundred and fifty feet of 2-inch hose, new and in good condition; 2-inch nozzles, ½-inch and ¼-inch delivery.

How many steam boilers are provided? Three—1 at the artesian well, Fishermans Island; 1 at the disinfecting house, Fishermans Island; 1 aboard *Jamestown*.

What is their condition, and do they supply sufficient steam for all purposes? Good; they supply sufficient steam.

IV. BOATS.

Is the station provided with a steam tug or other steam vessel? Two steam vessels—the *Dagmar*, for boarding, and the *Koch*.

If so, is she of wood or iron? Both of iron.

Give dimensions: *Dagmar*, 101 feet by 16 feet 6 inches.

If of wood, is the vessel sheathed with metal? The *Jamestown* is of wood and metal sheathed.

Are the engines and boilers in good condition? Boilers are not; the *Koch's* engine is in good condition, but the *Dagmar's* engine needs a larger circulating pump.

Give engineer's statement as to necessary repairs and renovation: Aboard the *Jamestown* none are needed; at Fishermans Island none ar needed; aboard *Dagmar*, renewal of part of the boiler, new grate, and circulating pump, bars and bearing bars, and some piping; aboard *Koch*, new tubes in boiler, forward tanks conected with pump aft, inspirator, steam gauge, and sheet-iron covering around boiler, new connection door for boiler.

Is the station supplied with a steam or naphtha launch? Has a naphtha launch.

Give dimensions: Twenty-one feet; 2-horsepower engine.

What is its condition? Good.

Give report of medical officer as to efficiency of the launch: Good.

How many small boats are provided, and what is the condition of them and their equipment? Four small boats, all in good condition.

Are more boats necessary or desirable? No.

V. HOSPITAL.

Give location of building used as hospital: No building erected for a hospital. Barracks can be so used.

Give general description of the building: There are two barracks buildings 300 by 26 feet each, made of dressed lumber and divided into six wards, with 96 bunks in each ward.

How many beds can be added for emergencies? Six in each ward.

Cubic air space allowed each patient: About 325 cubic feet, if ward is full.

Heating, lighting, and ventilating: No arrangements for heating; would be lighted by lanterns. Have ventilators in roof, etc.

Has the barracks sufficient furniture? Yes.

What kind of bedsteads and what kind of mattresses and bedding? Bunks, with moss mattresses and blankets.

Are the beds clean and free from vermin? Yes.

What is the condition of wards as to general cleanliness? Clean.

VI. OUTBUILDINGS AND GROUNDS.

Describe general condition of outbuildings: Good.

Are the grounds well policed? Yes.

Describe officers' quarters and condition of furniture: None.

Describe steward's and attendants' quarters and condition of furniture: None.

Describe dining room, condition of table furniture and tableware: 80 by 30 feet (about); condition of table furniture and ware is good; some things from Camp Low, which are rusty; everything else is in the original package.

Describe kitchen and furniture: Two steam boilers for vegetables; four steam boilers for soup, etc., 50 gallons each; one coffee boiler; one range.

Describe dispensary: Small space in corner of storeroom.

Describe laundry: Large building under the same roof as the kitchen and storeroom; has 24 stationary tubs with water connections to tank and hot-water boiler.

Describe approaches to the station: Board walks are laid from the wharf to the buildings, and also between them.

Describe condition of fences and grounds: No fences. Grounds are partly quite firm and partly shifting sand dunes.

Describe drainage and condition of water-closets: There are none.

Describe disposal of slops: Thrown overboard.

State whether any animals not authorized by the Department are kept on reservation: On the island the keeper has a cow and a pig; the latter in a pen.

VII. EQUIPMENT.

State approximately age and condition of each horse, and how long in service at this station: No horse.

Give number and character of vehicles: No vehicle.

Are harnesses in good condition? No harness.

Is there a blacksmith's forge provided? No.

Is there a fire apparatus provided; and if so, is there a fire drill organized? Aboard the *Jamestown*, hose connected with a hand pump. Aboard the *Dagmar* and *Koch*, hose connected with their steam pumps. At Fisherman's Island, fire buckets at convenient places in the buildings are provided. Drill aboard *Jamestown*; none elsewhere.

Are officers and employees supplied with uniforms in compliance with the revised uniform regulations of 1896? Have uniforms, as required by regulations now in force.

Are uniforms properly worn? Yes.

Give method of granting leave to officers and employees. Granted by officer in command at his discretion. Very seldom granted; about one night in two or three weeks. No leave granted save to men aboard *Jamestown*.

Describe when and how inspection, muster, and fire drills are conducted. Once a week aboard the *Jamestown*. The other parts of the station can not be inspected save at long intervals.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year, by months: See appended list (A).

From what countries chiefly do the vessels come? Great Britain.

Are they in cargo, ballast, or empty? See schedule; mainly in cargo.

State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping arriving at the station? The present facilities are amply sufficient for disinfection; for inspection they are not sufficient. In general, the work is fairly satisfactory and vessels are boarded without delay, but in bad weather boarding from the *Jamestown* must cause more or less delay, because the steamers can not always stop where they are wanted.

Give annual amount expended at station for last three years: In 1893, $23,738.87; in 1894, $20,012.85; in 1895, $14,275.17.

Give the immediate needs of the station as stated by the commanding officer: Boarding would be more satisfactory if done in a steam vessel.

Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

REMARKS AND RECOMMENDATIONS.

This is both a disinfecting station and an inspecting station, besides being fitted for the care of passengers from an infected vessel. As a disinfecting station it is well equipped, having two complete disinfecting plants, two being needed on account of the peculiar location and arrangement of the station. There seems to be no need of change for this. The method of boarding, however, is not altogether satisfactory. In general the boarding can be done by a yawl from the *Jamestown*, as is the present arrangement, without undue delay; but in rough weather it is difficult, and will occasionally cause detention of vessels. Still, with the small number of vessels inspected here, the work can be fairly well done from the *Jamestown*, and it will be but seldom that a vessel is detained. It could of course be more satisfactorily done if boarding were done from a steamer. For recommendations for this part of the station, in addition to the repair of the boilers of the steamers *Dagmar* and *Koch*, recommended by the engineer in paragraph 4, in which I concur, I would recommend the renewal of the metal at and just above the water line of the *Jamestown*. It is as thin as paper and breaks off easily. I am informed that the metal on her bottom under the water line is in good condition, but that I have mentioned is not.

The arrangements for the care of steerage passengers on Fishermans Island, with what I am told has been contracted for, are fairly complete. The matter of lighting the barracks should be looked into by the custodian, and also the manner of getting any large number of people ashore expeditiously.

I would recommend at Fishermans Island that the piles needed to hold up the gangway be replaced this summer, else it will almost certainly go down next winter. There are 39 defective, worthless piles still under the pier head, but the

31 new piles put under, with their bracing, renders that part of the wharf fairly safe. The gangway, however, simply can not hold without repair. In this work there is no need of large piles, which are costly. At the distances they stand a 10-inch pile is sufficiently heavy, and near the shore 8-inch will do. One hundred and forty-two new piles are needed (as at present spaced) for the gangway.

I certify that the foregoing is a careful and correct statement of the condition of the Service at the Cape Charles Quarantine Station, inspected by me this 23d day of May, 1896.

H. R. CARTER,
Surgeon, M. H. S., Inspector.

MAY 21, 1896.

EXHIBIT A.—*Vessels inspected at Cape Charles Quarantine from May 1, 1895, to November 30, 1895.*

[From foreign ports.]

Month.	In cargo.	In ballast.	Total.
May	7	6	13
June	6	3	9
July	4	1	5
August	5	2	7
September	9	1	10
October	8	1	9
November	9	3	12
Total	48	17	65

Of these 8 are from ports subject to yellow fever.

ALEXANDRIA.

1. There is no quarantine station. Vessels from foreign ports come in through the Virginia capes. Those needing inspection can stop for that purpose at the Cape Charles Station.
2. There is no quarantine officer.
3. No local quarantine is maintained.
4. There are no quarantine procedures at this port.
5. There is no inspection or treatment of vessels at any season here.
6. No vessels from other United States ports are inspected here.
7. There are no inspection or other quarantine procedures here.
8. No vessels are held in quarantine here.
9. Infected vessel would be reported to the Bureau and held for instructions.
10. No records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.
11. No fees connected with quarantine.
12. Vessels from foreign ports entered the port of Alexandria, Va., during the calendar year 1895 as follows: May, 3; June, 1; July, 1; September, 2; December, 1; total, 8. All were schooners from Nova Scotia or New Brunswick, in gypsum, taking coal coastwise as cargo. There is no record of coastwise entries.
13. The data given in No. 12 are from the custom-house. There is no immigration bureau.
14. There are no quarantine facilities here and none are needed.
15. No quarantine regulations of the Treasury Department are applicable to the class of vessels entering here; hence none are violated.
16. There is no certificate of inspection or of pratique given any vessel which has entered at this port.

17. Consular bills of health are filed with the entry papers.

18. The vessels which make customs entry at Alexandria are all from the British provinces, the inspection of which by a quarantine officer is not required by the United States Treasury regulations. The statute, however (sec. 5, act of February 15, 1893), requires that every vessel clearing from any foreign port shall present as a prerequisite for entry a certificate from the health officer at the quarantine station that the regulations made by the Secretary of the Treasury have been complied with. It would seem, then, that although these vessels do not by regulation require inspection, i. e., a full examination of the vessel and its personnel, yet that they do require such an examination as is needed to grant this certificate, and as is implied by this certificate.

Now, the regulations which are to be certified to as having been observed by these vessels are, (1) that they have bills of health; (2) that they are from the British provinces; (3) that they have no foreign immigrants as passengers, and (4) that the port of departure is free from quarantinable disease. Of the first three the customs officer must ex officio take cognizance, and in the absence of a quarantine officer, I see no reason why he should not be directed by the Department to read the bill of health, and, if the port of clearance be free from quarantinable disease, to issue himself the certificate required by law for customs entry. Should the port of clearance not be free from quarantinable disease, he should report the matter to the Bureau. Such a chance would be of very rare occurrence—not once in ten years.

The alternatives are (1)the appointment of a sanitary inspector at Alexandria, and (2) require the vessels to come to the Cape Charles Station for inspection. The first seems hardly required by the commerce of the port, and the second, as long as the Cape Charles Station is located in Hampton Roads, would involve some delay, it not being in the track of vessels for Alexandria, and an additional expense for pilotage, as these vessels would have to pay the Virginia Pilots' Association as well as the Chesapeake Association, as they do now.

SEPTEMBER 7, 1896.

WEST POINT AND TAPPAHANNOCK.

1. There is no quarantine station at either place. All vessels from foreign ports entering the York or the Rappahannock must come through the Virginia capes and do come via the Cape Charles Station and are inspected and disposed of there.

2. There is no quarantine officer at either place.

3. No local quarantine is maintained.

4. There are no quarantine procedures enforced here; those at Cape Charles have been described in the report on that station.

5. Inspection of vessels for these ports is maintained at Cape Charles, some years the entire year, and some years not. Last year there was no inspection from December 1, 1895, to May 1, 1896. There is no inspection either at West Point or Tappahannock.

6. Vessels from other United States ports are not inspected, unless they have sickness aboard when they pass the capes.

7. There are no quarantine procedures here; those at Cape Charles are set forth in report of that station.

8. No vessels are quarantined here.

9. Should an infected vessel apply for entry at either port and the conditions be suspected, she would be remanded to Cape Charles Quarantine for disposition and allowed to enter only on the pratique of that station.

10. No records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

11. No fees of any kind connected with quarantine.

12. Vessels from foreign ports entering the port of West Point, Va., during the

calendar year 1895: January, 3; November, 1; December, 1; total, 5. All were large steamships from transatlantic ports in water ballast, for cotton mainly. In addition there were three entries of foreign steamships, coastwise, coming for cotton, staves, and shuttle wood. There are no coastwise entries recorded save those of regular steamers. Owing to the removal of the terminus of the Southern Railroad from this place to Norfolk, Va., it is believed that there will be no more entries of vessels from foreign ports at West Point. Indeed, there have been none in the present calendar year. At Tappahannock there were no entries from foreign ports in 1895, and no coastwise entries recorded, save the regular steamers from Baltimore.

13. The data given in No. 12 are from the customs books; save an occasional stowaway there are no immigrants.

14. Cape Charles is in position to care for both ports, and its facilities are ample.

15. All regulations of the Treasury Department are observed.

16. The certificate of inspection complies with the Treasury regulations.

17. The consular bills of health at West Point are filed with the entry papers at Richmond; at Tappahannock none are received.

18. The remarks made in the report on Petersburg and City Point are applicable to these ports also. They are cared for by the Cape Charles Station, and, indeed, Tappahannock needs no care of any kind for maritime quarantine.

AUGUST 22 and SEPTEMBER 4, 1896.

PETERSBURG AND CITY POINT.

1. There is no quarantine station here. All vessels entering at Petersburg enter through Hampton Roads, and are thus inspected and passed on by the United States Quarantine Station of Cape Charles.

2. There is no quarantine officer. The collector of customs sees that the vessels present the proper certificate from the Cape Charles Quarantine as a prerequisite for entry.

3. No local quarantine is maintained; all depends on the Cape Charles Station.

4. There are no quarantine procedures here.

5. The inspection at Cape Charles was maintained from May 1 to December 1 of the last year; none in the interval. No treatment of vessels there during the winter season, save in special instances.

6. Unless vessels have sickness aboard, they are not inspected at Cape Charles Quarantine; none inspected here.

7. All quarantine procedures take place at Cape Charles Quarantine and have been described.

8. No vessels are quarantined here. Cape Charles has been described.

9. Should an infected vessel pass Cape Charles and the condition be discovered here, she would be sent back to that station.

10. No records are kept here.

11. There are no fees connected with quarantine here.

12. Vessels entering the port of Petersburg, Va., during the calender year 1895—from foreign ports: May, 1; July, 1; October, 1; total, 3; all from New Brunswick, with gypsum. Coastwise: January, 3; February, 1; May, 1; December, 4; total, 9; all in cargo from northern ports, taking return cargoes of cross-ties and lumber.

13. There is no immigration bureau. The data in No. 12 are from the custom-house.

14. The shipping is sufficiently cared for at the Cape Charles Quarantine.

15. All the quarantine regulations for the shipping of this port are enforced at Cape Charles Quarantine.

16. The certificate of inspection states that the Treasury regulations have been complied with. (Exhibit A.)

17. Consular bills of health are filed with the entry papers.

18. This port, like all of the ports in Virginia, is provided for, as far as maritime quarantine is concerned, by the United States station in Hampton Roads, and like all, save Norfolk and Newport News, depends altogether on that station, having no quarantine arrangements of any kind. None are needed, the collector really doing all that a local inspector would in seeing that the vessels have been passed on at Cape Charles.

AUGUST 27, 1896.

EXHIBIT A.

———, ———, *189*—.

I certify that the schooner ———, of ———, from———, has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury, and that in my opinion she will not convey quarantinable disease.

Said vessel is this day granted free pratique.

———— ————,

P. A. Surgeon, M. H. S., Quarantine Officer, Cape Charles Quarantine.

NEWPORT NEWS.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Vessels are inspected about one-half mile below lower coal pier. Quarantine officer goes to them on one of the Chesapeake and Ohio tugs, which meet vessels for the purpose of docking them. It is an inspection station only, and has no buildings and no plant of any kind.

2. Dr. A. C. Jones is quarantine officer; no deputies and no subordinates. Post-office address, Newport News, Va.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

Copy of the recent law (A) and regulations (B) is herewith transmitted. Vessels are boarded by the quarantine officer, as described in paragraph 1, and inspected by him. Although paragraph 2 of the inclosed regulations (B) provides for the disinfection of certain vessels by the health officer, this has not been done for some years, as no vessel requiring disinfection has been allowed to pass the Cape Charles Station in the roads. Should any vessel inspected at the Newport News Quarantine require disinfection the quarantine officer says he would send her to the Cape Charles Station for that purpose, having no means of properly disinfecting her. No vessels, then, are detained at this quarantine, as paragraph 3 of its regulations imply. It is an inspection station only, and the remarks made of the Norfolk Quarantine apply in the main to it. There is, however, less delay to vessels in this inspection than in that of Norfolk; indeed, there is practically no delay at Newport News.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

Vessels from United States ports south of Cape Lookout are required to be inspected. There is no undue delay and no disinfection of vessels.

5. Inspection of vessels from foreign ports is maintained throughout the year. No treatment of vessels at any time of the year.

6. Are vessels from other United States ports inspected?

Yes; from "all ports south of Cape Lookout," and vessels from northern ports of the United States which have been south within thirty days.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection; (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

Vessel is boarded, bills of health examined, and if in quarantine season, the pratique of the Cape Charles quarantine officer is asked for. Crew mustered and compared with the articles in crew list. If infected, the vessel would be sent to Cape Charles Quarantine. None have been, however. There is no detention or disinfection; only inspection.

8. What communication is held with vessels in quarantine and before quarantine by pilots, and how regulated? Is there any intercommunication allowed among vessels in quarantine?

Communication is forbidden by regulation. Pilot goes aboard at the Capes and stays aboard until pratique is given. No one else allowed aboard until pratique is given.

9. Any infected vessel would be sent to Cape Charles Quarantine. Articles 2 and 3 of regulations define a vessel's inspection for this port.

10. No records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

11. Quarantine (inspection) fee is $7. There are no other fees and no other services.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

[From customs entries.]

Month.	Foreign ports.			Coastwise ports.		
	In cargo.	In ballast.	Total.	North.	South.	Total.
January	6	2	8	10	31	41
February	6	2	8	10	19	29
March	10	4	14	12	17	29
April	6	4	10	14	23	37
May	4	4	8	11	11	22
June	6	1	7	5	10	15
July	3	0	3	6	19	25
August	1	0	1	6	14	20
September	5	1	6	4	8	12
October	6	0	6	4	16	20
November	6	1	7	4	22	26
December	6	1	7	14	21	35
Total	65	20	85	110	210	320

Of the vessels from foreign ports, six only came for bunker coal from Mexico and the West Indies. Nearly all in this list (from foreign ports) are steamships, and mainly from Great Britain. Save the six above mentioned, all came for cargo. There is a line of six vessels from Newport News to London and Liverpool. Of the coastwise entries, all are steamships; the 210 from the South came, without exception, for bunker coal; the remainder for cargo. Seventy-eight of the vessels coming coastwise from the South are subject to quarantine inspection.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The consular bills of health, in duplicate, one of which bears the quarantine officer's indorsement, "Inspected and passed," are filed with the entry papers of

vessels from foreign ports. To these, during the time they are issued, are also added the certificate of pratique of the Cape Charles quarantine officer. Immigration inspector is common to this port and to Norfolk.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

With Cape Charles quarantine, yes; without it, no.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

Except the form of pratique issued on which the vessel enters, when Cape Charles quarantine is closed, all the regulations of the Treasury Department are, I believe, properly carried out. There is no disinfection or detention; only clean vessels are handled here.

16. No certificate of inspection, or of pratique, signed by the quarantine officer, is furnished. Can not transmit copy of certificate, because none is issued. One of the consular bills of health is indorsed "Inspected and passed." It is signed by the health officer.

17. Both bills of health are filed at custom-house with the entry papers.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The attention of the customs officer should be called to the fact that when Cape Charles quarantine is closed, he is granting entry to vessels from foreign ports without the certificate required by the law of February 15, 1893. The general remarks made of the Norfolk quarantine are applicable to this, and the work is the same. The inspection of coastwise vessels from southern ports is less onerous to the vessels than that at Norfolk, however, as there are no regular lines of this kind coming into Newport News, and there is less delay in boarding; indeed, the boarding is so managed that there is no delay worth mentioning.

A.

CHAP. 65.—An act to amend and reenact an act approved March 6, 1886, entitled "An act to authorize the judge of the county court of Warwick to appoint a quarantine officer at Newport News," by placing the appointing power with the governor, and defining the duties of said officer, and adding thereto sections 2, 3, 4, 5, 6, 7, and 8.

[Approved January 16, 1896.]

Be it enacted by the general assembly of Virginia, That the act approved March sixth, eighteen hundred and eighty-six, entitled "An act to authorize the judge of the county court of Warwick to appoint a quarantine officer at Newport News," be amended and reenacted so as to read as follows, and that sections two, three, four, five, six, seven, and eight be enacted and added thereto, as follows:

SEC. 1. *Be it enacted by the general assembly of Virginia*, That the governor of Virginia be, and he is hereby, authorized to established quarantine at the port of Newport News, and to appoint a quarantine officer, and to regulate his fees; to make such health arrangements and sanitary regulations at the port of Newport News as in his judgment may be necessary to prevent the introduction and spread of any infectious or contagious disease.

SEC. 2. The quarantine officer to be appointed under this act shall be a practicing physician, having his residence in the city of Newport News. His term of office shall be two years, the first term to begin on the first day of May, one thousand eight hundred and ninety-seven, and he shall be appointed during the month of March prior to the succeeding term.

SEC. 3. Said quarantine officer shall be subject to removal for cause, and any vacancy in said office shall be filled for the unexpired term by appointment made by governor.

SEC. 4. The said quarantine officer shall appoint an assistant, who shall be a practicing physician and a resident of Newport News, and who may be removed at pleasure.

SEC. 5. The fees to be fixed by the governor shall be the same as the fees fixed by law for Norfolk for quarantine, and no expense under this act shall be imposed on the city of Newport News or any port of this Commonwealth.

SEC. 6. The quarantine officer at Newport News now holding this office at the time of the introduction of this bill shall continue in office until his successor shall be appointed by the governor and enter upon the discharge of his duties.

SEC. 7. All acts or parts of acts in conflict with this bill are hereby repealed.

SEC. 8. This act shall be in force from its passage.

B.

HEALTH NOTICE.

1. All vessels, steam or sail, arriving in the waters of this port between the 1st day of May and the 1st day of November from ports to the southward of Cape Lookout will be required to stop at quarantine anchorage, opposite quarantine flag pole on right-hand shore as you approach the docks, one-half mile below the port.

2. All vessels arriving in the waters of this port within the period above specified from ports known, suspected, or liable to be infected with yellow fever, cholera, or any other infectious or contagious disease, but having had no case on board during voyage, will be quarantined at least ten days, counting from day of sailing from last port, and thoroughly disinfected under the supervision of the health officer; and in case of any vessel arriving with any case of infectious or contagious disease on board, or having had any such case on board during voyage, she shall be quarantined at the discretion of the health officer, and then only allowed to proceed to port by concurrence of board of health.

3. All vessels arriving in the waters of this port within the above specified period having previously visited, within thirty days, any port, foreign or domestic, known, suspected, or liable to be infected with any infectious or contagious disease, as above specified, or having had any such case on board within the period of thirty days, shall remain at quarantine anchorage subject to such orders as may be given by the health officer upon inspection.

4. Vessels, crews, or passengers of vessels subject to quarantine are forbidden communication with the shore, other vessels, or boats without written permission of health officer.

5. Vessels from foreign ports are subject to quarantine inspection by health officer during the whole year.

6. It shall be the duty of all licensed Virginia pilots to furnish the captain of any vessel bound into the waters of this port with a copy of these regulations, if the captain desires it.

7. Captains of vessels, pilots in charge, and harbor masters will be held responsible for any violation of the above rules.

By order of the county judge.

A. C. JONES, M. D., *Health Officer.*

RICHMOND.

1. There is no quarantine station; no quarantine inspection, disinfection, or any other quarantine procedure in force at this port. The health officer does not inspect vessels. Such vessels as enter from foreign ports are inspected at the Cape Charles Station and are admitted to entry on the pratique of that station.

2. There is no quarantine officer.

3. There are no laws and no regulations; no customs.

4. There are no quarantine procedures of any kind carried out.

5. No inspection here. Inspection for this port is done at the United States station, Cape Charles.

6. No vessels are inspected here.

7. Answered above.

8. No vessels quarantined; no restriction of communication.

9. Should an infected vessel arrive, the collector would inform the health officer and wire the Department for instructions. A vessel with cholera or yellow fever would be sent to Cape Charles; smallpox would probably be cared for by the city.

10. No station and no records.

11. No fees are collected.

12. Only two vessels arrived from foreign ports, both in September, 1895. Coastwise American vessels do not enter at the custom-house. Of the two vessels from foreign ports, one had guano from Orchilla and the other plaster of paris from Nova Scotia. Both had the certificate of pratique from Cape Charles, in proper form, and on it entry was made.

13. Bills of health (circular) and certificate of pratique from the Cape Charles Quarantine were filed with the entry papers of vessels from foreign ports.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Yes; Cape Charles does such little quarantine work as is needed for Richmond. There is no need of a quarantine here.

15. All necessary quarantine regulations for this port are carried out at the United States quarantine station at Cape Charles, Va.

16. Answered above.

17. Both copies of the bill of health are filed with entry papers at the custom-house.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

There seems to be nothing to say or to recommend, save that the condition of this port is an argument, as far as it goes, for keeping up the Cape Charles inspection during the winter.

MAY 20, 1896.

NORFOLK.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick and for the removal and detention of suspects; mail and telegraph facilities, etc.

This is an inspection station only, and simply proposes to see that only noninfected vessels are allowed to come to the dock, infected vessels being refused entry and remanded to the United States Quarantine at Cape Charles. There are no buildings, no anchorage for infected vessels, no disinfecting apparatus, and no arrangements for the care of the sick or of suspects. The quarantine station, i. e., the place of inspection, is in the stream, off the coal pier at Lamberts Point, where (with the exceptions to be noted, paragraph 3) pilots are directed to bring vessels, and where they are boarded by the quarantine officer, inspected, and disposed of by him.

2. Give personnel of station or port, name of quarantine officer or officers, post-office address, and total number of officers and subordinates.

Quarantine officer, Dr. F. S. Hope; deputy quarantine officers, Drs. C. F. Parrish and E. A. Hatton. All reside and practice medicine in Portsmouth, Va., which is also their post-office address.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Copies of the laws and regulations under which this quarantine is conducted (Exhibits A and B) are inclosed, and in addition a copy of the United States quarantine regulations of 1894 is bound with them. As stated in paragraph 1, this is an inspection quarantine only, and does no disinfecting. The pilots' association is kept informed by the quarantine officer what classes of vessels are subject to inspection. These are anchored off Lamberts Point, and await his inspection there. As stated in paragraph 2, the quarantine officer does not reside at the quarantine station, but at Portsmouth, 4 miles distant (his predecessor resided in

Norfolk). He is advised of the arrival of a vessel requiring inspection, generally by the consignee or the pilot's association, by telephone, and goes to the station by a steam launch or the electric cars. If notified when the vessel passes Cape Henry, he will generally meet her when she comes to anchor. If not, she awaits his arrival. In either case the inspection is made in the stream and no one allowed to leave the vessel, and no one, save the pilot, to go aboard her until pratique is granted, when she comes to her dock. Exceptions: The vessels of the Merchants' and Miners' Line from Savannah, Ga., have, for the past year, been allowed to come to their own dock, foot of Main street, in Norfolk, for inspection. Also, in special instances of foreign coastwise steamers for bunker coal, the vessel is allowed to go to the pier head and be inspected there, as much time would be lost by waiting for the quarantine officer by laying in midstream. The present quarantine officer also states that he intends to grant to vessels of the Navy the privilege of being inspected at the navy-yard in Portsmouth. These last three concessions are not provided for in the quarantine regulations of this port, but are in force by custom. It will be observed that the local regulations provide for inspection alone, and do not even say what classes of vessels shall be refused entry, this being left absolutely to the discretion of the quarantine officer. Any vessel refused pratique by him would doubtless be referred to the quarantine board of Elizabeth River.

4. (*a*) Inspection from May 1 to November 1 of all vessels from United States ports south of Cape Lookout; (*b*) of any vessel from May 1 to November 1 from a United States port which has been in any port south of Cape Lookout within thirty days previous to arrival.

Class (*a*), vessels from United States ports are not subjected to inspection by United States quarantine regulations, and of class (*b*) only the small number which come from yellow-fever ports via northern ports without disinfection. There is some detention of vessels due to the quarantine officer living at a distance and being engaged in practice, and vessels must wait until either he or one of his deputies comes. No delay in any other way, and I think this is not considerable, the quarantine officer waiving his regulations (see last paragraph) when their enforcement would make delay.

5. State whether the inspection is maintained throughout the year, or for what period (and what treatment of vessels is enforced during the entire year).

Inspection of vessels from foreign ports, from infected ports, and of those which have a contagious disease aboard, or which have had it aboard en route, is continued all the year; that of coastwise vessels only from May 1 to November 1. No treatment of vessels at any time.

6. Are vessels from other United States ports inspected?

Yes.

7. This is described in No. 2.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No communication is allowed with a vessel until pratique is granted, save that she takes a pilot aboard at the Capes, who stays aboard until she is given pratique.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Such vessels would be remanded to the United States quarantine station at Cape Charles. The presence, within a reasonable time (thirty to ninety days), without efficient disinfection of any one of these diseases would be held evidence of infection; also coming from a port infected with such disease.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Record is kept of cases of sickness en route and on arrival. There is no detention. I inclose copy of record (Exhibit C).

11. Quarantine fee is $7 for inspection; no other services rendered and no other fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come and whether in cargo, ballast, or empty.

There are no data in either the collector's office or that of the quarantine officer by which the second question (*b*) can be answered, and the third question (*c*) can be answered only imperfectly, as no record is kept of the entries of all American vessels in the coastwise trade. I give the following table, taken from the customs books and quarantine records, respectively:

Customs entries.

Month.	Foreign ports.			Coastwise ports (foreign).		
	In cargo.	In ballast.	Total.	North.	South.	Total.
January	1	2	3	4	40	44
February	4	2	6	4	31	35
March	1	5	6	10	21	31
April	2	2	4	1	27	28
May	1	.....	1	2	19	22
June	2	1	3	5	17	22
July	1	1	2	2	11	13
August	2	.....	2	1	12	13
September	3	1	4	.....	15	15
October	1	.....	1	6	19	25
November	1	4	5	5	21	26
December	2	6	8	8	27	35
Total	21	24	45	48	260	308

No American vessels are included in the coastwise entries. They are foreign steamships, and those that came via northern ports came (either in ballast or partly loaded) for cargo; and those from southern ports, almost all for bunker coal. They are vessels which have taken in cargo at the southern (United States) ports and coal at Lamberts Point. The ninety-three vessels of this class which came between April 30 and November 1 are subject to "quarantine" (inspection) by the regulations of this port.

Quarantine records.

Month.	From foreign ports.	From the United States, South America, West Indies, and West Africa.	Month.	From foreign ports.	From the United States, South America, West Indies, and West Africa.
January	4	2	August	2	25
February	10	6	September	4	25
March	4	1	October	7	30
April	6	6	November	6	4
May	5	17	December	8	3
June	5	33			
July	2	22	Total	63	174

In the first column are included not only vessels directly from foreign ports, but those via northern United States ports which have been in Spanish or Mediterranean ports within thirty days. A comparison of "customs entries" with "quarantine records" will show how many of this class there were in each month—18 during the year. The second column, for the months from November to April, inclusive, simply gives vessels from southern ports other than those of the United States. For the remainder of the year (the quarantine season) these figures include these vessels and all those from United States ports south of Norfolk as well—sailing craft as well as steamers. The vessels from foreign ports are mainly from Great Britain and Spain, the former especially. The imports are iron, tin, sulphur ore (from Huelva), and other materials used in fertilizers. The exports are coal and cotton. It is a coaling station for steamers from all the United States ports south of it, and from most of the Mexican and Central American ports; also a port of call of considerable importance, but it is as a coaling station that it is specially known.

13. State the result of your visit (*a*) to the custom-house; (*b*) immigration bureau.

The certificate from Cape Charles quarantine (required by paragraph 4, Article X, United States Quarantine Regulations, 1894) and the bill of health (paragraph 2, Article I) in duplicate, and the certificate of the local quarantine officer are appended to the entry papers of each vessel from a foreign port which enters between May 1 and the closure of the Cape Charles quarantine. The certificate of the Cape Charles station is not given during the winter months, and entry is made without it, on the certificate of the local quarantine officer, which is not of the form required by law. The immigration bureau is represented by one official, an inspector, who also does duty at Newport News. Three immigrants, he informs me, have entered the past year.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

With the Cape Charles station, yes; without it, no.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection of vessels are observed, particularly the time of observation after disinfection.

Except that the certificate of pratique issued is not of the form required by the act of February 15, 1893, I think that all of the quarantine regulations of the United States relating to the inspection of vessels are enforced. They do not handle or in any way provide for the disinfection of infected vessels.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893? Transmit copy of certificate.

No. Copy of certificate transmitted. (Exhibit D.)

17. What disposition is made of the consular bills of health?

Both bills (original and duplicate) are filed with the entry papers at the custom-house.

18. Mention any facts which, in your opinion, should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The situation here will not be appreciated unless one considers that, save in the winter months, every vessel requiring inspection by United States quarantine regulations (that is, all save from healthy United States ports) is inspected and passed on at the Cape Charles Station, and only those found clean are allowed to proceed, and are reinspected by the quarantine officer here. Naturally, then, as only clean vessels report for inspection during the quarantine season, there is no need for providing for infected vessels, nor of special precautions against conveying infection during inspection. The work of this station is, then, perfectly safe. But for

this provision, there would be risk in inspecting vessels at the present inspection place on account of its immediate proximity to shipping, and in the present manner, viz, the communication with the city by the quarantine officer, who is not immune to yellow fever. All the necessary work for this port, save for the winter, is really done at the Cape Charles Station. The inspection of vessels from "all United States ports south of Cape Lookout" is a relic of the old belief that yellow fever is endemic on the South Atlantic and Gulf coasts. At present it simply shows a lack of sanitary knowledge in the framers of the regulations. Its enforcement is absolutely without sanitary value and is simply an obstruction to commerce; a slight one, it is true, but absolutely unnecessary.

I have no recommendation to make, save that the collector of the port be advised to require a certificate of pratique of the proper form for the entry of vessels from foreign ports when the Cape Charles Station is closed for the winter, if it be so closed next winter.

MAY 24, 1896.

EXHIBIT A.

Quarantine regulations, quarantine district of Elizabeth River.

[Adopted April 30, 1877, by resolution of the board of quarantine commissioners, as authorized by act of assembly approved February 26, 1877.]

No. 1. The following classes of vessels shall be subjected to the inspection of the quarantine medical officer, to wit:

(A) Such as have on board any case of infectious or contagious disease at the time of arrival.

(B) Such as have had any infectious or contagious disease on board at any time during the voyage, though there is no case on board at the time of arrival.

(C) Such as have sailed from any port at which any infectious or contagious disease prevailed at any time during the stay of the vessel at such port, or within sixty days previous to her arrival at such port.

(D) Such as shall arrive from any American port to the southward of the latitude of Cape Lookout between the first day of May and the first day of the ensuing November in each year.

(E) Such as shall arrive from any foreign port.

(F) Such as shall arrive from any other home port which, for due reasons, may have been interdicted by the board of quarantine commissioners, of which due notice shall be given to all concerned.

(G) Such as shall arrive from any American port between the 1st day of May and the 1st day of the ensuing November, if she shall have been in any port (foreign or domestic) south of Cape Lookout during any portion of thirty days previous to arrival.

No. 2. The quarantine ground or anchorage for the inspection of vessels arriving within the limits of this quarantine district via Hampton Roads shall be in the bight of Craney Island Buoy No. 9, bearing east, and for those arriving from the southward via the canals at any point in the southern branch not less than one and a half miles above the navy-yard.

No. 3. All vessels liable to inspection shall come to at said anchorages until visited by the quarantine medical officer, and any master, pilot, or other person having charge of any such vessel who shall bring her nearer the ports of this district than the aforesaid anchorages, without the sanction of the quarantine medical officer, shall be subjected to a fine not less than twenty dollars nor more than one hundred dollars.

No. 4. Any person (other than a licensed pilot) who shall board a vessel liable to inspection, either before or during the continuance of the quarantine term imposed upon her, without the permission of the quarantine medical officer, shall be subjected to a fine of twenty dollars, and in addition to a forced residence upon said vessel, under the same restrictions as are imposed upon the crew, during her quarantine term.

No. 5. Any person landing from or leaving a vessel while she is under quarantine restrictions, or procuring the landing of any part of her cargo, ship furniture, clothing, or chattels of passengers or crew, without the written permission of the quarantine medical officer, shall be subject to a fine of not less than twenty nor more than five hundred dollars, and be prosecuted for a misdemeanor.

No. 6. Any vessel having on board damaged or infected cargo shall be subjected to disinfection under the direction of the quarantine medical officer before being allowed to come into port, and the concealment of the fact of damaged or infected cargo, furniture, or clothing shall be punished by a fine of not less than twenty dollars nor more than five hundred dollars and a prosecution for misdemeanor.

No. 7. Any vessel may be sent back to perform a quarantine term and disinfection, under the orders of the quarantine medical officer, after arrival in port, upon the discovery of damaged cargo (or such as may affect the health of either port) during the discharge thereof; and a failure to give information to the quarantine medical officer of such discovery of damaged cargo shall be punished by a fine of not less than twenty nor more than five hundred dollars.

No. 8. Every vessel subject to inspection shall display the usual yellow flag upon her arrival at the quarantine anchorage, and keep the same at her mast until allowed pratique by the quarantine medical officer.

EXHIBIT B.

CHAP. 114.—An act to constitute one quarantine district of the Elizabeth River and its branches, and to create a board of quarantine commissioners and a quarantine medical officer for said district. Approved February 26, 1877.

1. *Be it enacted by the general assembly of Virginia*, That for the better protection of the cities of Norfolk and Portsmouth and Norfolk County against the introduction of infectious and contagious diseases by vessels arriving in the common harbor of said cities or into any part of the Elizabeth River, and to secure uniformity in the administration of the laws and regulations concerning quarantine appertaining to shipping in said river, the Elizabeth River and its branches shall constitute one quarantine district.

2. That a board of commissioners is hereby created, to be known as the board of quarantine commissioners for the district of Elizabeth River, the said board to consist of seven commissioners, three of whom shall be appointed by the council of the city of Norfolk, three by the council of the city of Portsmouth, and one by the judge of the county court of Norfolk County. Each of said representations of three commissioners on said board shall embrace at least one practicing physician, if practicable. The said commissioners shall hold their office for the term of four years, commencing on the first day of April, eighteen hundred and seventy-seven, unless sooner removed by the authority appointing them. All vacancies in the board shall be filled in the same manner as the original appointments. The said board shall organize by electing one of their number president, with such other officers as they may deem necessary, and a majority of the board shall constitute a quorum for the transaction of business.

3. That the said board of quarantine commissioners shall be invested with all the powers now granted by law to the councils of the cities of Norfolk and Portsmouth and to Norfolk County, or by the general law on the subject, in regard to the establishment and regulation of matters of quarantine, and they shall prescribe such rules and regulations, conformably to existing law, as they may deem necessary and have exclusive control of the quarantine appertaining to shipping for the Elizabeth River and its branches and the cities, towns, and villages situated thereon. They shall meet monthly upon any day agreed upon by themselves, but the president of the said board may, upon his own motion, and shall at the request of any two members of the board by written notice to each member convene the board at any time when circumstances may render prompt action necessary. The said board shall at their first meeting or as soon thereafter as practicable select a suitable quarantine anchorage and shall adopt and publish for the information and government of all concerned rules and regulations for the management and enforcement of an efficient system of quarantine for said district. All pilots licensed by the laws of this State are hereby required to conform to the rules and regulations thus adopted, under the penalty of a fine of not less than twenty nor more than one hundred dollars. The said board shall require the quarantine medical officer hereinafter created to faithfully carry out these rules and regulations, and they shall have power to review the official action of said officer and to revoke or reverse his decision in regard to any particular vessel, but in such case they shall record their reasons for so doing in the minutes of their transactions. The said board of quarantine commissioners shall not as a board nor shall any of the members thereof in their official characters make any recommendation for the appointment of the quarantine medical officer hereinafter provided for.

4. That the said board of quarantine commissioners shall have power, whenever in their opinion circumstances may demand it, by and with the consent of the councils of the cities of Norfolk and Portsmouth, to acquire by condemnation, as

provided for by existing laws, or by purchase, a suitable site for a lazaretto at any eligible point on Elizabeth River, and to erect thereupon one or more buildings, to be constructed of wood, for temporary accommodation and treatment of sick seamen and passengers arriving at the quarantine anchorage upon infected vessels; provided, the cost of such a site and the erection of the buildings thereon shall not exceed the sum of five thousand dollars; and provided further, that the cost of maintenance and treatment of the persons so removed to the lazaretto buildings from infected vessels shall be paid by the masters or owners of such vessels, upon which the costs thus incurred shall constitute a lien.

5. That the said board may, by and with the consent of the councils of the cities aforesaid, in lieu of the purchase of a site and the erection of lazaretto buildings, provide and fit out a floating hospital for the accommodation and treatment of the same class of infected persons as is described in section four of this act; provided, the expense so incurred shall not exceed the amount specified in said section; such floating hospital to be moored, when having on board infected persons, at such point in the lower river or Hampton Roads, sufficiently removed from the channel, so as not to endanger the health of persons on board of passing vessels.

6. That the said board of quarantine commissioners shall pay the annual salary of five hundred dollars, in quarterly instalments of one hundred and twenty-five dollars each, to the quarantine medical officer created by this act; and in case they shall see fit to purchase the site and erect the lazaretto buildings, or instead thereof to provide and fit out the floating hospital hereinbefore provided for, they shall make a report of their proceedings, accompanied by a verified statement of all the expenditures thereby incurred, to the councils of the cities of Norfolk and Portsmouth and to the county court of Norfolk County.

7. That the governor shall appoint and commission a quarantine medical officer for said district, who shall be a resident of the city of Norfolk or of the city of Portsmouth, or Norfolk County, and whose term of office shall be for two years from the first day of April, eighteen hundred and seventy-seven, unless sooner removed by the governor, and who shall be the inspecting officer for all vessels arriving in Elizabeth River or any of its branches, subject to such inspection as shall be required by and in accordance with the rules and regulations of the board of quarantine commissioners created by this act; provided, that no one shall receive such appointment who is not a doctor of medicine of good standing, and who has not had at least five years' experience in the practice of his profession.

8. That the quarantine medical officer shall board with promptness all vessels liable to his inspection, and no vessel shall be detained in quarantine without his stated decision. No vessel thus detained by him shall change her assigned position without his written permission. He shall superintend the thorough cleansing, by the most approved methods, of any infected vessel, at the proper cost of such vessel. He shall not allow pratique to any vessel once detained by him, by reason of said vessel's having, at the time of his inspection, infectious disease on board, or of her having had such disease on board at any time during her voyage, without the express sanction of the board of quarantine commissioners. He shall have general superintendence and control of any lazaretto or floating hospital that may be established under the provisions of this act, and the care and treatment of any sick thereon. He shall administer oaths and take affidavits in examinations as to the sanitary condition of vessels, and in relation to any alleged violation of the quarantine regulations, such oath to have the same validity and efficacy as if administered by a justice of the peace. He shall have authority to direct, in writing, any constable or police officer to pursue, within the limits of his district, and to arrest any person, who shall violate any quarantine regulation or obstruct him in the performance of his duty; and any person violating the quarantine laws or regulations, or obstructing the quarantine medical officer in the discharge of his duty, shall be deemed guilty of a misdemeanor, punishable by fine of not less than twenty nor more than five hundred dollars, or by imprisonment of not less than one nor more than six months; and warrants for any offender under this act may be issued upon the oath of any party complaining, by any justice of the peace or county, or the mayor of any city in this State in which such offender may be at the time; and upon proof of probable cause, the offender shall be bound, with security in due form of law, to appear at the next term of the corporation or county court of said city or county, for trial of such misdemeanor; and the corporation or county court of such city or county shall have jurisdiction for the trial thereof, as in other cases of misdemeanor. All fines recovered under the provisions of this act shall be turned over to the said board of quarantine commissioners, to be used by them in carrying out the objects of this act.

9. The quarantine medical officer shall exact of the master, owner, or consignee of each vessel visited by him in performances of his official duties, a fee of seven

dollars for each necessary visit of inspection, and also the cost of cleansing, fumigation, or disinfection, whenever necessary, recoverable before the mayor or any justice of the peace of either of the said cities or said county. He shall defray all expenses attending upon his inspection of vessels out of the fees thus received, and he shall keep a true record of his receipts and expenditures, and report annually to the board of quarantine commissioners the items of the same. He shall also report to the said board, annually, on or before the twentieth day of December, the names and class of all vessels visited by him during the year, the disposition made of such vessels, and such other information concerning the quarantine service as he may deem expedient.

10. The quarantine medical officer shall, when required by the board of quarantine commissioners, reside at or near the quarantine grounds or anchorage. He may, with the consent of the said board, appoint a deputy, who shall possess like qualifications, and be invested with the same powers as himself; but the said quarantine medical officer shall be held responsible for the conduct and compensation of such deputy.

11. That for the purpose of defraying the necessary expenses to be incurred by the board of quarantine commissioners in carrying out the provisions of this act, the city of Norfolk shall be assessed with and shall pay three-sevenths thereof, and the city of Portsmouth shall be assessed with and shall pay three-sevenths thereof, and the county of Norfolk shall be assessed with and shall pay one-seventh thereof; provided, that the said board of quarantine commissioners shall receive no compensation for their services.

12. That all acts and parts of acts inconsistent with the provisions of this act are hereby repealed.

13. This act shall be in force from its passage.

EXHIBIT C.

State quarantine officer's report.

Name of vessel, ———. Nationality, ———. Class, ———. Iron or wood, ———. Tons burden, ———. Name of commander, ——— ———. Days of passage, ———. Day of arrival, ———. From what port, ———. Where last from, ———. No. passengers, ——; cabin, ——; steerage, ——. No. officers, ——. No. crew, ——. Cargo, ———. Sanitary condition, ———. Prevailing diseases at port of departure, ———. No. cases of sickness and character during voyage, ———. Fee due, ——. Fee paid, ——. Disposition, ———. Consignee, ——— ———. Remarks, ———.

——— ———, M. D.,
State Quarantine Officer for District of Elizabeth River.

EXHIBIT D.

Certificate of State quarantine.

PORTSMOUTH, VA., ———, *189—*.

I certify that ——— ———, of ———, from ———, bound for ———, has in all respects complied with the quarantine regulations prescribed by the State of Virginia, and in my opinion the vessel, cargo, and passengers are each and all free from infectious disease or danger of conveying the same. Said vessel is this day granted free pratique.

——— ———, M. D.,
State Quarantine Officer, District of Elizabeth River.

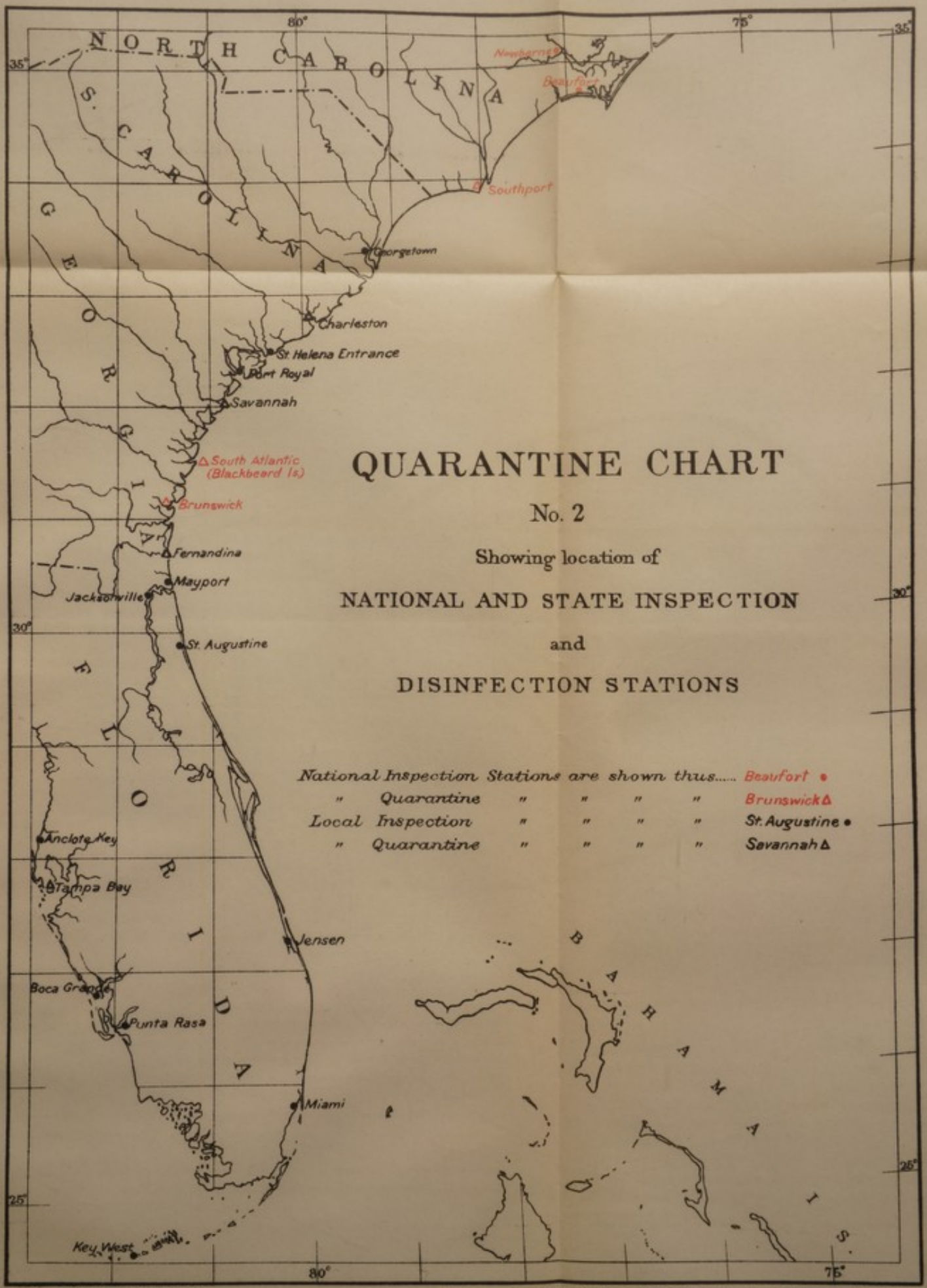
NORTH CAROLINA.

REPORT OF INSPECTION OF UNITED STATES QUARANTINE AND INSPECTION STATIONS.

By Surg. H. R. CARTER, M. H. S.

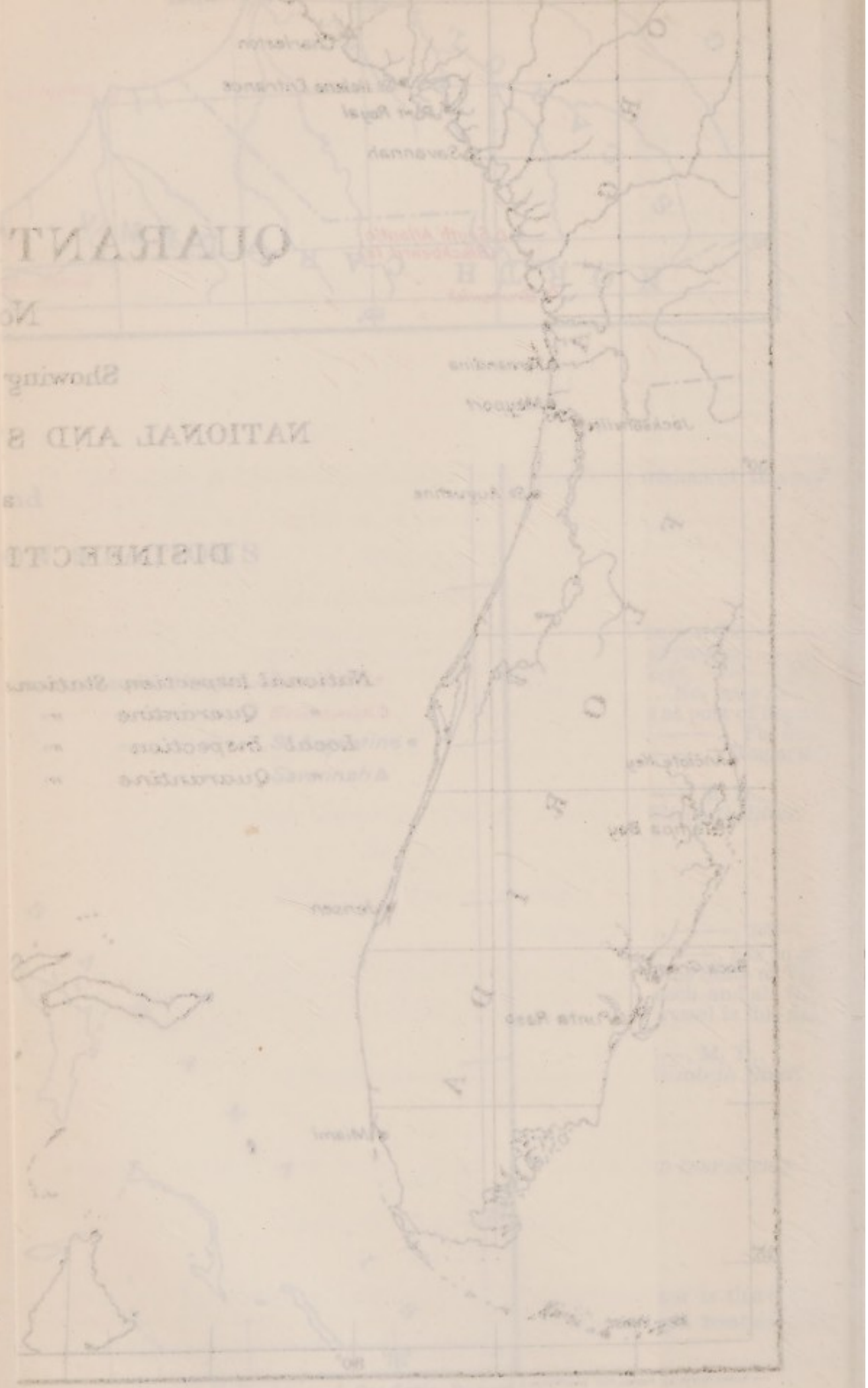
EDENTON.

1. There is no quarantine station, buildings, or anchorages, nor is there any anchorage for noninfected or infected vessels, nor for removal and treatment of the sick. There are good mail and telegraph facilities.



THE NORRIS PETERS CO. PHOTOLITHO. WASHINGTON, D. C.

Prepared at the Office of the U. S. Coast and Geodetic Survey



2. There is no quarantine officer; the commissioners of the town are empowered to appoint one should they see fit.

3. No quarantine is maintained and there are no quarantine regulations.

4. There are no quarantine procedures of any kind in force and no detention or disinfection of vessels.

5. No inspection is maintained at any time and no treatment of vessels.

6. Vessels from other United States ports are not inspected.

7. There are no quarantine procedures of any kind.

8. There is no communication between vessels.

9. Vessels infected with cholera, yellow fever, or smallpox would be ordered into the stream and the Bureau asked for advice by the collector. I don't know what would be regarded as evidence of the vessel being infected in each case.

10. No records are kept at the station of the cases of disease which have occurred during the voyage, on arrival, or during detention.

11. There are no quarantine fees charged and no services are rendered to vessels.

12. In regard to vessels arriving during the preceding calendar year, by months, (*a*) from foreign ports; (*b*) foreign ports in yellow-fever latitudes via domestic ports; (*c*) domestic ports, and the character of the commerce carried on by the ports, I have to say that no vessel entered this port during the last calendar year falling under either *a* or *b*, and there is no record of the number of vessels coming coastwise under *c*. However, there is no great number of coastwise vessels, save small craft from Norfolk to Elizabeth City. There is a regular trade from this port to the West Indies, mainly Jamaica ports, by three schooners loaded with shingles, etc., and also a trade in molasses or salt or fruit to a United States port and thence empty coastwise back to Edenton. These vessels load at Plymouth, in the Edenton district, across the river. For the past two years these vessels have entered only at ports south of the southern boundary of Maryland, and thus are not liable to inspection here. They enter at Beaufort, N. C., Newbern, N. C., and Norfolk, Va.

13. I obtained above information from the custom-house; there is no immigration bureau here.

14. I am of opinion that the quarantine facilities are sufficient to care for the shipping entering this port.

15. There are no quarantine regulations of the Treasury Department which apply to the shipping at this port.

16. No entries requiring the certificates of inspection or pratique are made at this port.

17. No consular bills of health are received here.

18. The only source of danger which I see can occur at this port, extremely slight though real, would accrue by the wreck of an infected vessel on the North Carolina coast. Nearly all the crews of such vessels come to Norfolk, Va., via Elizabeth City, and I would suggest that the Life-Saving Service be requested to send the crews of wrecked vessels from certain badly infected ports—say Habana, Cienfuegos, and Santiago—by tugboat to Cape Charles Quarantine for inspection, and not, as now would be the case, forwarded to Norfolk via Elizabeth City by rail.[1] Cases requiring similar disposition of crews of wrecked vessels have occurred several times at Southern stations. I have spoken to the inspector of the Life-Saving Service on the North Carolina coast regarding this matter, and Lieutenant Cantwell, of that Service, said he would keep watch.

JUNE 17, 1896.

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[1] The General Superintendent of the Life-Saving Service was requested as above recommended.

WASHINGTON.

Name of station: Washington, N. C.
When was the station last inspected? July, 1895.
Name of inspecting officer: P. A. Surg. L. L. Williams, Marine-Hospital Service.

I. PERSONNEL.

Name of officer in command: Sanitary Inspector John. C. Rodman, M. D.
Date of assignment to duty: July 7, 1895.
Name and rank of assistants, including acting assistant surgeons; also give number of members in each family: No assistants.
Name of steward and number of members in family: No steward.
Name and duties of each attendant: Ivey Foreman, boatman; John Harris, boatman.

II. GENERAL DESCRIPTION OF STATION.

Number of buildings: No buildings.
Limit of anchorage for noninfected vessels: Off a yellow flag below Washington, on the Tar River, about three-fourths of a mile.
Limit of anchorage for infected vessels: Same as above.
Facilities for inspection of vessels: Small boat and two boatmen.
There is no apparatus for disinfection of vessels and of baggage.
Facilities for removal and treatment of sick: None; noncontagious cases would be brought ashore.
Facilities for removal and detention of suspects: None; suspects would be detained on vessel under guard or sent to Cape Charles Quarantine Station, as might be directed by the Bureau.
Mail and telegraph facilities: Good; town of Washington.
Give number of wharves: None.
Are the mooring facilities ample? Vessels use their own ground tackle; holding ground good.
What is the source of water supply? No water supply. Could use the water of the Tar River, which is fresh.
Is it sufficient? Yes.
Is it potable? Yes.
Hard or soft? Soft.

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant: No disinfecting plant.
Is there a steam hoisting engine for ballast? No.
Are there ballast tubs and a ballast car for the distribution of ballast? No.
How is ballast disposed of? No ballast comes in.
Is it disinfected prior to being discharged, and what facilities exist for supplying ballast to vessels needing it? None is discharged and no ballast is needed here by vessels.
What are the dimensions of the steam disinfecting chamber? No steam chamber.
Is a sulphur furnace provided? No furnace provided.
What is the condition of the fan and engine? No fan; no engine.
What is the method of storing bichloride solution? No method of storing bichloride.
What is the capacity of the tank or tanks? No tanks.
No steam boilers are provided.

IV. BOATS.

Is the station provided with a steam tug or other steam vessel? No.

Is the station provided with a steam or naphtha launch? No.

How many small boats are provided, and what is the condition of them and their equipment? One; good; not the property of the service.

Are more boats necessary or desirable? No.

V. HOSPITAL.

Give location of building used as hospital. No hospital.

VI. OUTBUILDINGS AND GROUNDS.

Describe general condition of outbuildings: No outbuildings.

Are the grounds well policed? No grounds.

Describe approaches to the station: No approaches; officer (inspector) comes in rowboat to vessel at anchor near the flag, which is the station.

Describe condition of fences and grounds: No fences or grounds.

Describe drainage and condition of water-closets: No water-closets.

Describe disposal of slops: No slops.

State whether any animals not authorized by the Department are kept on reservation: No.

VII. EQUIPMENT.

No equipment.

VIII. DISCIPLINE.

Are officers and employees supplied with uniforms in compliance with the revised uniform regulations dated June 20, 1896? Uniforms are not required of officers or employees at this station, and they have none.

Give method of granting leaves to officers and employees: No leaves granted.

Describe when and how inspection, muster, and fire drills are conducted: No inspection; no muster; no fire drills.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year, by months:

(*a*) From foreign ports: February, 1; June, 1; no other in 1895; both from St. Christopher.

(*b*) From foreign ports in yellow-fever latitudes via domestic ports: None.

(*c*) From domestic ports: No record save of steamers of inland (North Carolina Sound) navigation.

From what countries chiefly do the vessels come? British West Indies, Danish West Indies, St. Christopher, St. Martins, and Barbadoes.

Are they in cargo, ballast, or empty? Cargo.

State whether in your opinion the quarantine facilities are sufficient to care for the shipping arriving at the station: Yes.

Give annual amount expended at station for last three years: Nine hundred and thirty-six dollars for the fiscal year ending June 30, 1896; none before that.

Give the immediate needs of the station as stated by the commanding officer: No recommendations.

Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The schooner *Cora*, twice from foreign ports (St. Christopher and St. Martins), has been inspected since the appointment of the inspector, and the pay seems excessive for the work done. Inspections were: One in February and one in May,

1896—both inspections of the same vessel. Another vessel now in the West Indies is to be back in July. Some arrangement for inspection of vessels from foreign ports is obviously necessary to enable them to enter in accordance with the act of February 15, 1893, but the compensation, $936 per annum, seems excessive for the service rendered, and I would recommend that the pay of the sanitary inspector and boatmen be discontinued and that the former be paid only for services when performed, say $15 for each inspection, furnishing his own boat and boatmen. If it is not in accordance with Department custom to employ a sanitary inspector in this manner, I would recommend that the customs officer (deputy collector) be authorized to employ a physician to make the inspection of such vessels as require it for entrance to the custom-house under the act of February 15, 1893. The first method seems preferable at this port, and if approved I would recommend the present sanitary inspector, Dr. John C. Rodman, of Washington, N. C. In either case the inspection should be made about where made at present, and no communication between the vessel and the shore, directly or indirectly, be allowed previously to granting pratique. The place where the sanitary guard for this station should be located is at Ocracoke Inlet, Portsmouth, N. C.

I certify that the foregoing is a careful and correct statement of the condition of the Service at the Washington (N. C.) Quarantine Station inspected by me this 3d day of June, 1896.

H. R. CARTER,
Surgeon, M. H. S., Inspector.

NEWBERN.

Name of station: Newbern, N. C.
When was the station last inspected? June, 1895.
Name of inspecting officer: P. A. Surg. L. L. Williams.

I. PERSONNEL.

Name of officer in command: Sanitary Inspector Claude M. Benton, M. D., Marine Hospital Service.

Date of assignment to duty: July 3, 1895.

Name and rank of assistants, including acting assistant surgeons; also give number of members in each family: No assistants.

Name of steward and number of members in family: No steward.

Name and duties of each attendant: William S. Parsons; boatman.

II. GENERAL DESCRIPTION OF STATION.

Number of buildings: None.

Limit of anchorage for noninfected vessels: Off a buoy, with yellow flag, about 1 mile below Newbern, in the Neuse River.

Limit of anchorage for infected vessels: Same as above.

Facilities for inspection of vessels: Yawl boat.

Apparatus for disinfection of vessels and of baggage: An inspection station only; no apparatus for disinfecting.

Facilities for removal and treatment of sick: Noncontagious cases have been brought ashore to the United States Marine Hospital in the small boat; infectious diseases not treated.

Facilities for removal and detention of suspects: If suspicions were very slight, suspects would be detained aboard vessel, with a guard; if grave, the vessel would be sent to Cape Charles Quarantine Station, with suspects aboard.

Mail and telegraph facilities: Good; town of Newbern.

Give number of wharves: None.

Are the mooring facilities ample? Vessels lie to their own ground tackle; good holding ground.

What is the source of water supply? No water supply; could get water from Newbern for drinking, etc.

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant: No disinfecting plant.

How is ballast disposed of? None ever comes to Newbern.

Is the station provided with a steam or naphtha launch? No.

How many small boats are provided and what is the condition of them and their equipment? One; not the property of the Service; a yawl or sometimes a skiff is used to reach the station.

Are more boats necessary or desirable? No.

V. HOSPITAL.

Give location of building used as hospital: No hospital.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year, by months:

(*a*) From foreign ports: January, 1; February, 1; no other arrivals.

(*b*) From foreign ports in yellow-fever latitudes via domestic ports: One in June, 1895, from St. James and 2 from Jamaica via Baltimore.

(*c*) From domestic ports: No records save coastwise steamers in the North Carolina sounds.

From what countries chiefly do the vessels come? Two from Jamaica, 1 from St. Johns.

Are they in cargo, ballast, or empty? In cargo.

State whether in your opinion the quarantine facilities are sufficient to care for the shipping arriving at the station. Yes.

Give annual amount expended at station for last three years: $816 for the fiscal year ending June 30, 1896; none before that.

Give the immediate needs of the station as stated by the commanding officer: He states that the inspector at Beaufort, N. C., gets $75 per month, and the boatman $40, and thinks this station should have as much, or else that the Service should buy a boat for the use of the station.

Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper:

As no vessels have entered this port requiring inspection by the United States quarantine regulations, or for any sanitary reason, since the appointment of the sanitary inspector, July 3, 1895, it would seem that the amount expended for this inspection ($816) is excessive. Still, foreign vessels do enter, and there are two schooners now running regularly between this port and the West Indies, so that arrangement for inspection seems necessary, if only to allow vessels to enter in accordance with the law. I would therefore recommend that the present compensation of the sanitary inspector and boatman be discontinued and that the sanitary inspector be paid only for services rendered, $10 or $15 for each inspection, no allowance being made for boat hire. If this be approved, I would recommend Dr. Claude M. Benton, the present sanitary inspector, for the position. If this be deemed inadvisable, I would recommend that the collector of customs be authorized (when a vessel requiring inspection by the act of 1893 applies for entrance) to employ a physician, preferably the acting assistant surgeon, Marine-Hospital Service, to make the inspection and issue the certificate required. The latter

method seems to me preferable here, for reasons which need not be explained. All vessels specially liable to convey infection should be turned back at Ocracoke Inlet and none allowed to come to this inspection station save those reasonably safe. In any case, the vessel should stop at the place for inspection and not come to the wharf or communicate with the shore until pratique is given.

I certify that the foregoing is a careful and correct statement of the condition of the Service at the Newbern Quarantine Station, inspected by me this 30th day of May, 1896.

H. R. CARTER,
Surgeon, M. H. S., Inspector.

BEAUFORT.

1. There are no arrangements for quarantine service of any kind here at present. From July 9, 1895, to November 1, 1895 (the close of quarantine season), Dr. F. M. Clarke acted under appointment from the Treasury Department as sanitary inspector Marine-Hospital Service. During that period there were arrangements to inspect vessels in Beaufort Harbor opposite a yellow flag on a point of marsh. Inspection was done in a sail or row boat, with one or two boatmen, as needed. This is all the plant or station that has ever been here, and at present, save the mail and telegraph facilities, none of the things asked for by the Bureau exist. I will add that no vessels needing inspection have entered during this period.

2. At present, there is no one in any way concerned with maritime quarantine, save the collector of the port. Sanitary Inspector F. M. Clarke, with one or two boatmen, maintained an inspection quarantine under the United States Quarantine Regulations from July 9, 1895, to the close of the quarantine season, November 1, 1895. His post-office address is Beaufort, N. C.

3. During the period above specified the inspection quarantine was maintained under the laws and regulations of the United States. At present there is no quarantine. I transmit herewith a copy of the statutes of North Carolina, which shows that the commissioners of Beaufort are empowered to enforce quarantine, etc. (Exhibit A). At present there is no port physician, and there are no quarantine regulations. If there was, it would be in accordance with these statutes.

4. No quarantine procedures, either under printed regulations or by custom, are enforced at the present time. When the sanitary inspector was on duty, as above stated, only the United States quarantine regulations were carried out. There is no unnecessary detention or disinfection of vessels.

5. No inspection this year; last year it was had only during the quarantine season.

6. No vessels from other United States ports are inspected.

7. No quarantine procedure or inspection of vessels is at present performed, nor do any arrangements exist for the same.

8. A vessel in quarantine, either under North Carolina laws or the United States regulations, would have no communication with other vessels in or out of quarantine or with the shore. Pilots would be allowed to bring vessels in, but they must be isolated in accordance with United States regulations, or remain aboard, as required by North Carolina law. In point of fact, the pilots would generally "con" such a vessel in and not go aboard, thus avoiding quarantine. At present vessels can communicate as they please.

9. A vessel infected with cholera, yellow fever, or smallpox would be sent to Cape Charles or South Atlantic quarantine, as might be preferred.

10. No records are kept, as there is no station; in fact, no vessels enter requiring inspection.

11. No quarantine fees are required, as there are no quarantine operations.

12. In regard to the number of vessels arriving at the port during the preceding

calendar year, by months, (*a*) from foreign ports, (*b*) from foreign ports in yellow-fever latitudes via domestic ports, (*c*) domestic ports, I have to report that but two vessels arrived from foreign ports, both in cargo; one was from La Guayra en route to New York, and merely stopped for coal, and therefore did not enter at the custom-house, staying less than twenty-four hours. The other vessel was loaded with salt from St. Martins. There were no arrivals from foreign ports in yellow-fever latitudes, and no record of any arrival from domestic ports.

13. Above information was obtained from the custom-house. There is no immigration bureau.

14. In my opinion the quarantine facilities at this port are insufficient.

15. The regulations of the Treasury Department requiring the inspection of vessels from foreign ports are not complied with.

16. No certificate of inspection or pratique is furnished.

17. Consular bills of health are filed at the custom-house.

18. The commerce of this port is insignificant; only two vessels requiring inspection under regulations of the Treasury Department have entered during the last calendar year. Still, vessels from foreign ports and a few coastwise vessels require inspection as a prerequisite to entry, and some facilities for this inspection, I presume, should be provided. There is also sanitary risk—slight, indeed, but real—that a quarantinable disease (yellow fever) may be conveyed by the few vessels which enter here, they being all from tropical ports.

The anchorage under Cape Lookout is used as a "harbor of refuge" by a considerable number of small vessels, mainly coastwise, and also by schooners from the West Indies, which lie there at times for days and even weeks. These have communication with the shore by fishing vessels, etc. The use of this harbor is said to be increasing, and therein is a possible source of infection.

I do not recommend the appointment of a sanitary inspector on the same terms as last season. While the appointee is a most excellent man, the compensation of $115 per month for himself and boatman seems to be excessive for the work done. I would recommend, if it be practicable, that the sanitary inspector be appointed (Dr. F. M. Clarke preferred), to be paid only when his services are rendered, i. e., when he inspects a vessel requiring it by the regulations of the Treasury Department. Fifteen dollars per vessel would be sufficient compensation, allowing nothing for boat hire, unless he went to Cape Lookout, when boat hire could be allowed.[1]

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[1] Dr. F. M. Clarke was appointed inspector and instructions given him in accordance with the above. The following letter was addressed to the secretary of the State board of health:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE,
Washington, D. C., June 25, 1896.

SIR: I have respectfully to request that the pilots bringing vessels to Beaufort, N. C., be directed to bring all vessels from foreign ports, and all vessels from the West Indies, Central and South America, and Mexico, coming via a northern United States port, to a convenient place in Beaufort Harbor, which will be designated by Acting Asst. Surg. F. M. Clarke, quarantine inspector, said vessels to fly a yellow flag and to be considered in quarantine, as per the laws of North Carolina and the United States, until released by the quarantine officer, Dr. Clarke.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

RICHARD H. LEWIS, M. D.,
Secretary North Carolina Board of Health, Raleigh, N. C.

[Reply.]

NORTH CAROLINA STATE BOARD OF HEALTH,
Raleigh, July 9, 1896.

DEAR SIR: Your communication of 25th ultimo in regard to the quarantining of vessels at Beaufort was duly received. A copy has been transmitted to the superintendent of health of Carteret County, with the request that he convey the information therein contained to the pilots of that port.

Very respectfully, yours,

RICH. H. LEWIS, *Secretary.*

WALTER WYMAN, M. D.,
Supervising Surgeon-General, M. H. S., Washington, D. C.

Recommendations.—1. Request the board of health or the governor of North Carolina to direct the Beaufort pilots to "bring to" all vessels from foreign ports and from yellow-fever (southern) ports via a northern United States port, at a convenient place in the Beaufort Harbor, to be designated by the sanitary inspector, said vessel to fly a yellow flag, and be held in quarantine as far as the laws of North Carolina and the United States require, until released.

2. The sanitary inspector to then board and inspect them and determine on their disposition and give them the proper certificate.

The customs officer (boarding officer) should be instructed to notify the inspector of the arrival of a vessel. If this is not practicable the collector should be given authority to employ a physician to board the vessel and make the inspection required by law.

JUNE 8, 1896.

EXHIBIT A.

[Extracts from statutes of North Carolina.]

SEC. 2893. Quarantine, when and by whom directed; masters and pilots to report the health of vessels; duty of those ordered to perform quarantine; penalties on masters and pilots. (R. C., c. 94, s. 1; 1783; c. 194, s. 12; 1793; c. 379, s. 1; 1802; c. 624.)

The commissioners of navigation in the respective ports and inlets of the State, and where there are no such commissioners, any three justices of the peace convenient to said ports or inlets, or the commissioners of any seaport town, shall meet together and appoint such place or places as they may think proper for vessels to perform quarantine; and when a vessel shall arrive at any of the said ports or inlets, having an infectious distemper on board, or which came from any place that was at the time of her sailing, or shortly before, infected with any malignant disorder, the master and pilot of the vessel shall anchor her at the place so appointed, and give immediate information thereof to the commissioners of navigation, or to the commissioners of the seaport town; or, where there are no commissioners, to the nearest justice of the peace, who, with two others, to be summoned by him, or any three of the commissioners aforesaid, or any one commissioner and two justices, or any one justice and two commissioners, shall thereupon cause such vessel and her crew to be examined by at least one experienced physician, when to be had, upon whose report in writing (which said physician is required to make), and on other information they may receive, any three of such commissioners, and where there are no commissioners any three neighboring justices, or any one commissioner and two justices, or any one justice and two commissioners, or the commissioners of the town to which such vessel is bound, may order and command the master of the vessel, crew, and passengers to perform quarantine, as by them shall be deemed most proper and requisite, to check or prevent any infectious distemper from spreading in the State; and every person on board such vessel directed to perform quarantine shall, from time to time during such quarantine, obey all orders given by the authority of the said commissioners or justices, respecting the victualing, purifying, and cleansing of such vessel and all persons and articles on board, and the intercourse of said persons with the inhabitants of the State, the receiving any persons on board, or the putting them on shore; and if the pilot or master neglect to give such information as above required, the pilot, for such neglect, shall forfeit and pay one hundred dollars, and the master, for the like neglect, shall forfeit and pay two hundred dollars. And in case the master of any vessel so ordered to perform quarantine shall refuse to comply with or fail to fulfil the orders for performing quarantine with his vessel as aforesaid, he shall forfeit and pay two hundred dollars for each day he shall fail to perform the quarantine; for which forfeiture the property of the captain, with the vessel and cargo, shall be liable, if it shall appear that the breach of the order was by the consent of the owner or consignee; but if the owner or consignee did not consent, then the master of such vessel only shall be liable.

SEC. 2894. Vessels coming from infected place to anchor at quarantine ground; coming into port without permission, master or pilot indictable. (R. C., c. 94, s. 2; 1817, c. 946, s. 1.)

If any vessel shall be brought into the State from a place which at the time of her departure was infected with the yellow fever, smallpox, or other infectious disorder, or if any vessel arriving in the State shall have the smallpox or yellow fever

or other infectious disorder on board, or shall have had such disorder on board during her passage to the State, such vessel shall be anchored at the place appointed for quarantine, and there remain until permitted to remove by the commissioners of navigation, or by the commissioners of the town to which the vessel is bound, or by the justices aforesaid; and if any such vessel shall come to such town, or into its harbor, without permission obtained as aforesaid, the pilot or master conducting the vessel, or ordering or permitting her to be conducted, to such town or harbor, shall be guilty of a misdemeanor, and fined not less than one thousand dollars and imprisoned not exceeding one year.

SEC. 2895. Such vessel to be removed. (R. C., c. 94, s. 3; 1817, c. 946, s. 2.)

The commissioners of navigation, or the commissioners of the town in the harbor of which any vessel shall have arrived in violation of this chapter, or the justices aforesaid, may use such force as shall be necessary to remove said vessel to the place of quarantine; their reasonable charge for which service shall be paid by the master or owner of the vessel, and may be recovered of either of them before any court having jurisdiction.

SEC. 2896. Port physicians appointed. (R. C., c. 94, s. 4; 1802, c. 624, s. 2.)

The commissioners of navigation in the several ports of the State, and, where there are no such commissioners, the commissioners of the several seaport towns, may appoint port physicians, and regulate and prescribe the fees to which they shall be respectively entitled, according to the different quarantine stations, which they shall be bound to attend for the purpose of inspecting vessels, as required by this chapter, and giving certificates of their situation and condition in regard to the health of their respective crews and passengers.

SEC. 2897. Penalty on passengers or crews breaking quarantine. (R. C., c. 94, s. 5; 1793, c. 379, s. 2.)

When a vessel shall be directed to perform quarantine, and any seaman or passenger shall, contrary to the order and direction of the commissioners or justices as aforesaid, leave the vessel and land on any other place than they shall allow of, every person offending shall forfeit and pay two hundred dollars for each offence, and when he shall have left the vessel with the master's consent, the master shall pay a like penalty of two hundred dollars for every such offence of any of his passengers or seamen.

SEC. 2898. On person going on board without leave, and on masters allowing it; such person to remain on board. (R. C., c. 94, s. 6; 1793, c. 379, s. 3.)

When any vessel shall be directed to perform quarantine, and any person knowing of such order, by the information of the master or otherwise, shall go on board of such vessel without permission of the commissioners or justices aforesaid, every such person shall forfeit and pay one hundred dollars. And if any person shall be permitted by the master to come on board without informing him of the order and directions of the commissioners or justices of the peace, the master shall forfeit and pay two hundred dollars for every person so offending, and four hundred dollars for suffering any person so on board to depart his vessel without leave of the commissioners or justices aforesaid, and the said commissioners or justices are empowered to order every person who shall go on board any such vessel to remain there for such length of time as they may think proper; and if he disobey such order, he shall pay one hundred dollars.

SEC. 2899. Persons breaking quarantine arrested and sent back. (R. C., c. 94, s. 7; 1793, c. 379, s. 4.)

The commissioners or justices aforesaid, or a majority of them, respectively, may issue their warrant to any sheriff or other officer, commanding him to take the body of any person that may have left any vessel ordered to ride quarantine, and carry him on board of said vessel; and the said officer may summon such persons to assist him in the execution of the warrant as he may see fit.

SEC. 2900. Penalty for landing articles. (R. C., c. 94, s. 8; 1793, c. 379, s. 5.)

If any master of a vessel ordered to ride quarantine shall convey, or cause or permit to be conveyed, any article of goods, wares, and merchandise from his vessel on any other lands, or into any other boat or vessel than the said commissioners or justices shall authorize, he shall forfeit and pay two hundred dollars for every such offence. And any other person so conveying, or causing to be conveyed, any article as above mentioned, shall be liable to the like penalty.

SEC. 2904. Penalty on pilots bringing in vessels without certificate, etc. (R. C., c. 94, s. 12; 1797, c. 486, s. *a*.)

If any pilot shall bring any vessel beyond the place fixed and limited by the commissioners of navigation, without a certificate of the health officer declaring that there is no danger to be apprehended from any infectious disease on board said vessel, such pilot shall forfeit his branch or commission, and thence be incapable to act as a pilot in any port of the State.

SEC. 2905. Commissioners of navigation may appoint harbor master and health officer and enact by-laws. (R. C., c. 94, s. 13.)

The commissioners of navigation of the several seaport towns in the State shall have power to appoint a harbor master and health officer, to prescribe their duties and authority, to make rules and regulations for their government, allow them a reasonable compensation for their services, and determine how such compensation is to be paid. And they shall have power to pass such by-laws (not inconsistent with the laws of the land) for the better regulation of the quarantine to be performed by vessels arriving from ports infected, or suspected to be infected, with any infectious disease, and for preventing all intercourse between such vessels and persons on shore, as to them may seem meet and proper, and to enforce obedience to such by-laws by imposing such penalties as they may think proper.

SEC. 2906. Of seaport towns, where no commissioners of navigation, to have like authority. (R. C., c. 94, s. 14.)

The commissioners of the several seaport towns and towns having a port of entry, where there are no commissioners of navigation, shall have the same power and authority and be subject to the same duties as are prescribed for the commissioners of navigation in relation to the quarantine of vessels in the ports of their respective towns; and all persons offending against the regulations of the commissioners of such towns shall be subject to the same fines, penalties, and forfeitures as though the said regulations had been made by the commissioners of navigation.

UNITED STATES QUARANTINE, SOUTHPORT.

Name of quarantine station: Southport Quarantine Station.

When was the station last inspected? Never before.

I. PERSONNEL.

Name of officer in command: John. M. Eager, passed assistant surgeon, Marine-Hospital Service.

Date of assignment to duty: July 6, 1895.

Name and rank of assistants, including acting assistant surgeons: None.

Name of steward and number of members in family: No steward.

Name and duties of each attendant: Knud Tobiasen, engineer and carpenter; James K. Hansen, messenger and watchman; Einar T. Eriksen, boatman; Thomas Larsen, cook; Niels Jorgensen, keeper of steamer *Woodworth*.

II. GENERAL DESCRIPTION OF STATION.

Number of buildings: None complete.

Limit of anchorage for noninfected vessels: Not laid out.

Limit of anchorage for infected vessels: Not laid out.

Facilities for inspection of vessels: Naphtha launch and a yawl boat (clinker-built).

Apparatus for disinfection of vessels and of baggage: None.

Facilities for removal and treatment of sick: Could remove sick in yawl; no facilities for treatment and nowhere to treat them.

Facilities for removal and detention of suspects: None.

Mail and telegraph facilities: Post-office and telegraph office at Southport, N. C.

Give number of wharves: One under process of construction.

What is the length of the wharf frontage? Will be 120 feet.

Are the wharves in good condition? Not yet completed.

Are the mooring facilities ample? Will be when completed, I think.

What is the depth of water at mean low tide along the front of the wharf? Twenty-two feet.

What is the source of water supply? None at present; will have artesian well.

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant: None so far.

Is there a steam hoisting engine for ballast? No.

Are there ballast tubs and a ballast car for the distribution of ballast? No.

How is ballast disposed of? None has been disposed of so far.

What are the dimensions of the steam disinfecting chamber? No chamber.

Is a sulphur furnace provided? No.

What is the method of storing bichloride solution? No method provided.

How many steam boilers are provided? None.

IV. BOATS.

Is the station provided with a steam tug or other steam vessel? Has a steam tug, but it is used simply as quarters; it is moored in the river; no steam on her.

If so, is she of wood or iron? Wood.

Give dimensions: Eighty by 17 feet.

If of wood, is the vessel sheathed with metal? Yes.

Are the engines and boiler in good condition? No.

Give engineer's statement as to necessary repairs and renovations: No engineer on the tug; for present use no repairs are needed. For use as a steam tug, see Exhibit A.

Is the station supplied with a steam or naptha launch? Yes.

Give dimensions: Thirty by 6 feet; engine, 6 horsepower.

What is its condition? Good.

Give report of medical officer as to efficiency of the launch: Good.

How many small boats are provided, and what is the condition of them and their equipment? Two; in good order.

Are more boats necessary or desirable? Yes, a light-draft sailboat for general use; this is urgently needed to save launch.

V. HOSPITAL.

Give location of building used as hospital: Not built yet; will be on pier head.

Give general description of the building: Pavilion; not completed.

Dimensions: Thirty-six by 15 feet, of which 17 by 15 feet is ward.

Number of beds in each ward: Four.

How many beds can be added for emergencies? Two.

Cubic air space allowed each patient: One thousand six hundred and twenty for four beds.

Heating, lighting, and ventilating: Stove; lamps; ventilator in roof and windows.

Has the hospital sufficient furniture? None as yet.

Is the nursing sufficient, and is the nurse immune? No nurse.

Does the character of the diet furnished conform to that prescribed in the diet table for marine hospitals? No patients. The diet of the employees is less varied and, indeed, less good than at a marine hospital, but is as good or better than at most quarantine stations. It is good enough.

VI. OUTBUILDINGS AND GROUNDS.

Are the grounds well policed? No grounds; everything afloat and on piles.

Describe officer's quarters and condition of furniture: The officer has no quarters; he has an office and storeroom and coalbin ashore, at Southport.

Describe steward's and attendants' quarters and condition of furniture: No steward's quarters; attendants' on the steamer *Woodworth*.

Describe dining room, condition of table furniture, and tableware: No dining room or furniture save that aboard the *Woodworth*.

Describe kitchen and furniture: Galley of *Woodworth*, with ordinary galley outfit in very bad repair.

Describe dispensary: No dispensary; one will be under the same roof as the hospital, when built.

Describe laundry: No laundry; men wash their own clothes.

Describe approaches to the station: Station will be on piles, and there will be no approaches, save by a ladder.

Describe condition of fences and grounds: No grounds.

Describe drainage and condition of water-closets: None yet; water-closet will be over water.

Describe disposal of slops: Thrown overboard from the *Woodworth*, and will be thrown overboard from the station.

State whether any animals not authorized by the Department are kept on reservation: No.

VII. EQUIPMENT.

Is there a blacksmith's forge provided? One asked for.

Are there farming implements; and if so, are they in good condition? No.

Is there a fire apparatus provided; and if so, is there a fire drill organized? No apparatus, except fire buckets filled and in good order aboard the *Woodworth;* no fire drill.

VIII. DISCIPLINE.

Are officers and employees supplied with uniform, in compliance with the revised uniform regulations dated June 20, 1896? Yes.

Are uniforms properly worn? Yes.

Give method of granting leaves to officers and employees: Officer takes none; granted to men at discretion of officer; practically one day in five weeks.

Describe when and how inspection, muster, and fire drills are conducted? The steamer *Woodworth* generally inspected once a week and men mustered; no fire drill.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year, by months.

(*a*) From foreign ports: July, 4; August, 1; September, 5; October, 6; November, 12; December, 9.

(*b*) From foreign ports in yellow-fever latitudes via domestic ports: None.

(*c*) From domestic ports: July, 2; September, 1.

The above is obtained from the records of the station.

The maritime quarantine for Wilmington, N. C., has long been done by an inspection station at Southport, N. C., and is still so done. It seems, then, consonant with the instructions relative to quarantine inspection to make no report of inspection of Wilmington, it being covered by that of Southport. As, however, the United States inspection station at Southport has only been in operation since July, 1895, complete statistics of entries of vessels for the last calendar year, called for by paragraph 12 of said instructions, will not be furnished by the report on that station. I have the honor, therefore, to submit the following statistics taken from the customs records at Wilmington, N. C., so as to make a more complete exposé of the commerce which is to be passed on at the Southport quarantine.

Report of vessels entering at Wilmington, N. C., for the calendar year 1895.

Month.	Tropical.			Transatlantic.		Total.
	Ballast.	Cargo.	Empty.	Ballast.	Cargo.	
January	6	4	.....	2	.....	12
February	10	.....	.....	2	3	15
March	4	.....	.....	3	2	9
April	5	.....	.....	1	2	8
May	4	.....	.....	1	.....	5
June	2	.....	.....	2	.....	4
July	2	1	1	.....	.....	4
August	1	.....	.....	.....	.....	1
September	1	.....	.....	4	.....	5
October	2	.....	.....	3	1	6
November	.....	2	1	6	2	11
December	5	2	.....	.....	1	8
Total	42	9	2	24	11	88

Of these, seven were steamships (one only from a tropical port in sand ballast), the remainder were sailing crafts, schooners and small square-rigged vessels (brigs and barks). This trade is with the West Indies and mainly to the more healthful ports, though not confined to them, twenty-four of the vessels being from ports which are regarded with more or less suspicion by southern quarantine authorities, and some from ports certainly infected. The ballast brought is sand, earth, gravel, and rubbish. And here I would say that for vessels from tropical ports the ballast record taken from the manifests is misleading. These vessels are almost exclusively schooners, and while taking aboard a small amount of ballast (sand or earth), at the port of departure, this is thrown overboard off Cape Fear to avoid ballast charges, etc., in Southport and Wilmington. Schooners from tropical ports come in then with "swept holds."

The imports are a few cargoes of fruit from Harbor Island and the Bahamas, salt from the smaller West India Islands and Liverpool, sulphur from Spain and Italy, kainite from Germany, and guano from Navassa. The export of cotton is mainly carried by steamers that enter coastwise. The trade to the West Indies is in lumber, shingles, and staves.

Entries of foreign vessels coastwise.

Month.	From ports north.	From ports south.	Total.
January	.....	1	1
February	2	.....	2
March	1	.....	1
April	2	.....	2
May	3	.....	3
June	2	.....	2
July	2	.....	2
August	1	.....	1
September	4	.....	4
October	4	1	5
November	2	1	3
December	3	.....	2
Total	26	3	29

Of these, twelve were sailing vessels, the remainder steamships for cotton, which had previously come from "ports in yellow-fever latitudes," and hence fall under (*b*) of this paragraph. There is no means of finding out the facts from the customs records. American vessels coastwise, save steamers in regular lines, do not enter here, and there is thus no record of the coastwise trade in American vessels. It consists of lumber and naval stores, the latter in small amount.

From what countries chiefly do the vessels come? From Great Britain in October, November, December, January, and February; other months from the smaller West Indian ports.

Are they in cargo, ballast, or empty? Mainly in ballast, which is almost entirely sand and rubbish.

State whether in your opinion the quarantine facilities are sufficient to care for the shipping arriving at the station: No.

Give annual amount expended at station for last three years: Not in annual report.

Give the immediate needs of the station as stated by the commanding officer: Makes no recommendation for immediate needs, except that he requires a flat-bottom sailboat for transportation of supplies and to save the launch.

Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The station at present is simply an inspection station, and has no means of handling infected vessels. Any such vessel must be sent to some disinfecting station, Cape Charles or the South Atlantic Quarantine.

I would earnestly recommend the completion of the plant here, so that vessels can be disinfected. It would seem that the number of attendants (five) is in excess of the requirements of an inspection station doing so little work as this, but I am informed that at times less than four men can not pull a boat against the current to board a vessel.

The naphtha launch in use is little suited to the needs of a boarding boat. A smaller one, 18 to 20 feet long, without upper works and decked over, with the same engine that this one has, could be used as a boarding boat in almost all weather, and would require two less men at the station while only an inspection station. I would add that the records of the station are well kept, the attendants efficient and under good discipline, and the floating craft is kept in most excellent condition.

I certify that the foregoing is a careful and correct statement of the condition of the Service at the Southport United States Quarantine Station, inspected by me this 6th day of June, 1896.

H. R. CARTER,
Surgeon, M. H. S., Inspector.

EXHIBIT A.

WILMINGTON, N. C., *May 19, 1896.*

Dr. J. M. EAGER, Passed Assistant Surgeon,
Southport, N. C.

DEAR SIR: I take pleasure in making you the following proposition for the repair of your quarantine tug:

I find, upon examination, that the valve and valve seat of the engine require refitting; that the engine requires new brasses for both gibs, crossheads, and cranks; that the links require overhauling; that a section of the copper pipe requires repairing; steering-wheel and bells require overhauling; engine requires lining up; the pumps overhauling, repacking, etc., and I propose to do this work, putting the engine in running order, for the sum of $173.

I find also that the smokestack requires repairing; that there is a patch to be put on the back connection; also a patch in the port furnace. The patch on the bottom requires renewing, and her tubes will all have to come out and be replaced with new ones.

This work I propose to do for the sum of $325, making the overhauling of both engine and boiler cost $498. This with the understanding, of course, that you put the boat in Wilmington at my disposal.

Owing to the boat being in the water, my representative was unable to examine the wheel and the stern bearing to ascertain whether they required attention or not.

The above is based on the supposition that the wheel and stern bearing are in good order.

Trusting that I may be favored with your order for the work, and assuring you that it shall have prompt and careful attention, and that all work shall be done in a thorough and workmanlike manner, I am,

Yours, truly, CHAS. M. WHITLOCK.

SOUTH CAROLINA.

REPORT OF INSPECTION OF LOCAL QUARANTINE STATIONS.

By Surg. H. R. CARTER, M. H. S.

GEORGETOWN.

1. The quarantine station at this port is located on South Island, about 11 miles below the city of Georgetown, on Winyaw Bay, on the west side of its entrance. It is marked by a yellow flag, and has no buildings save the residence of the officer. It is essentially an inspection station from May 1 to November 1, but disinfects certain classes of vessels. The anchorage for all vessels in quarantine is off the flag as far to the east shore of the bay as is practicable, the channel being close to the west shore. It is not marked out in any way, and there is no plant of any kind save a boarding boat and some pots, and I think none is needed. Mail facilties are good. No telegraph, but a telephone line will, I am told, be laid to Georgetown.

2. Dr. J. William Folk is the quarantine officer. His address is South Island, S. C. One subordinate.

3. I transmit herewith copy of the State laws and regulations for quarantine stations (Exhibit A). Vessels from ports known to be infected with yellow fever, or having had that disease aboard, are sent to Sapelo Quarantine. Other vessels in ballast from all West India ports, and vessels the sanitary condition of which the quarantine officer is suspicious, are disinfected at this station, ballast being always discharged previous to disinfection. Only one such disinfection has, however, been performed in the last eighteen months—a schooner from Ponce, Puerto Rico, in March, 1895.

4. The quarantine procedures in the case of a vessel from an infected port or suspected latitude should be its disinfection during the entire year, by regulations, but this was not done at this station in the only case that has presented itself (a vessel without ballast). A vessel with ballast was disinfected.

5. Inspection is maintained during the entire year. Vessels from ports infected with yellow fever, and vessels in ballast from any West Indian port, are disinfected or sent for disinfection elsewhere during the entire year.

6. No vessels from other United States ports are inspected.

7. The quarantine procedures in the inspection of vessels are set forth in section 958, page 13, general statutes of South Carolina (Exhibit A). An infected vessel is sent to the United States South Atlantic Quarantine Station. The disinfection of such vessels as are disinfected here begins as soon as the ballast is discharged and the hold cleaned. The time occupied is not known—probably from twenty-four to forty-eight hours. The time after completion of this disinfection, five to fifteen days, at the option of the quarantine officer. Some are not detained.

8. No communication is held with vessels in quarantine or between vessels in quarantine. Pilots board safe vessels, but would "con" dangerous ones in.

9. A vessel infected with cholera, yellow fever, or smallpox could be sent to Sapelo Quarantine or Southport when completed. The evidence of infection would be a foul bill of health or other evidence of the existence of the disease at the port of departure, or at port of call, the presence of fomites or the disease aboard, or, indeed, any condition capable of conveying contagion which would induce the quarantine officer to hold her.

10. Records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, or during detention, copies of which are forwarded to the chairman of the quarantine committee of the State board of health.

11. The quarantine fees are as follows: Inspection fee, $3; disinfection, not over 100 tons, $10; over 100 and less than 250 tons, $14; 250 and less than 500 tons, $20; 500 tons and less than 750 tons, $28; 750 tons and less than 1,000 tons, $34; 1,000 tons and less than 1,250 tons, $40; 1,250 tons and upward, $44 to $68. This charge is made for each process of fumigation and disinfection, and I presume refers to the fact that by Article VI, page 8, of the laws referred to, certain vessels must be subjected to at least two fumigations, and not to the different processes of the same disinfection. There are no other charges here, ballast being thrown overboard, and there being no wharf.

12. The number of vessels arriving from foreign ports in 1895 was one from Guantanamo, January 1, swept hold; and one from Ponce, Puerto Rico, in ballast, which was discharged and the vessel disinfected. There were no entries of vessels from foreign ports via United States ports during the calendar year. There was one in June, 1894. There are no complete entries in custom-house book of coastwise vessels, and none were inspected at quarantine in 1895. The commerce is almost entirely coastwise with Northern ports, in lumber and naval stores; some cotton, which also goes to Northern United States ports. About two or three vessels come in from the West Indies per annum, usually in the winter.

13. My visit to the custom-house resulted in obtaining the above information. No immigration bureau here.

14. In my opinion the quarantine facilities are insufficient; there are none for the care of infected vessels, should one come; but with the present arrangement of sending all the infected vessels during the period from May 1 to November 1 to the South Atlantic Quarantine Station, the present station simply serves as one for inspection, so far as infected vessels are concerned, and is sufficient.

15. All the regulations of the Treasury Department which apply to vessels entering here during the past eighteen months have been observed, except that the certificate of pratique in the form required is not furnished vessels, inspection only being required.

16. The certificate of inspection or pratique is not signed by the quarantine officer, copy of which is herewith transmitted (Exhibit B).

17. The consular bill of health is filed, one copy in the custom-house and the other at the station.

18. This station has not the facilities to treat an infected vessel as required by modern sanitation or the United States quarantine regulations, but, considering the amount and character of the commerce, they are not needed.

With the present order to the collector of customs, which agrees with the State regulations in force at the South Island Quarantine, requiring from vessels from infected ports a certificate of disinfection at the South Atlantic or similar station, I believe the inspection is sufficient, and very carefully and conscientiously done. The discharge of ballast under water from all tropical ports, even in the winter season, is, I think, a wise precaution, and to be commended even if not always necessary.

I find no change to recommend, save that the quarantine officer be requested to sign the certificate of pratique required by the Treasury regulations in addition to the certificate of discharge which he now signs for the mayor of the town. I presume if a few blank certificates of the form required be furnished him and he be informed that the certificate is necessary for customs entry, there would be no difficulty.[1]

JUNE 15, 1896.

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[1]Blank certificates were sent to the quarantine officer June 20, 1896, through the collector of customs at Georgetown, and the secretary of the State board of health was requested to have said officer comply with the Treasury regulations relative to signing pratique.

EXHIBIT A.

Rules and regulations of the quarantine service at the several ports of the State of South Carolina.

1. Every vessel arriving from a foreign port or infected port of the United States shall immediately proceed to the boarding station and display a yellow flag or the vessel's ensign in the rigging, and shall be visited by the quarantine officer between sunrise and sunset, as soon as possible after such arrival.

The quarantine officer, on boarding a vessel, will furnish the master with a printed copy of the quarantine regulations of the port.

The quarantine officer shall examine her bill of health and inspect the ship, and require of the captain or master answers, in duplicate, under oath, to the following questions, of which, as soon as obtained, a copy shall be forwarded to the chairman of quarantine committee of the State board of health:

STATE OF SOUTH CAROLINA, QUARANTINE STATION,
Port of ———, *188*—.

DEAR SIR: I have the honor to report the arrival of ——— at this station on ———, and submit the following answers of commanding officer, over his signature:

(1) From what port did your vessel clear?
(2) When did you sail?
(3) From what port did you clear prior to last clearance?
(4) What was your cargo or ballast from that port?
(5) Number of your crew?
(6) Number of passengers?
(7) What ports have you touched at during voyage?
(8) Was there any infectious or contagious disease at port from which you cleared—if so, what?
(9) Was there any infectious or contagious disease at any port at which you touched? If so, where, and what disease?
(10) Has there been any infectious or contagious disease on board this vessel during last twelve months? If so, what disease?
(11) Have you a bill of health? If not, why?
(12) What sickness on board while in port of clearance?
(13) What sickness on board during voyage?
(14) What sickness on board since arrival here?
(15) What cargo?
(16) What kind of ballast?
(17) Where was this ballast obtained?
(18) Have any of your crew or passengers come in contact, during the voyage, with any vessel having sickness on board, or with any vessel from an infected port?

I certify that I have truthfully answered each and every one of the above questions; also, that I have received a copy of the printed quarantine regulations from the quarantine officer.

———, ———,
Captain of ship ———, *of* ———.

Having made a thorough inspection of vessel, cargo, ballast, and log book of the ———, I respectfully report. [1. That she is discharged from quarantine.] [2. That she is held for discharge of ballast and disinfection.]

———, ———,
Quarantine Officer.

2. No vessel shall be kept under observation more than twenty-four hours without a stated decision in writing by the quarantine officer.

3. Vessels neither suspected nor infected shall be at once given free pratique and allowed to proceed to the wharf or usual anchorage.

4. In case the vessel is infected, the following rules shall govern the quarantine officer:

(*a*) The crew and passengers shall be inspected by the quarantine officer, and if any are sick, they shall be removed to the proper hospital, care being taken that their persons be cleansed, as far as is consistent with their condition, and that no part of their clothing or bedding enters the hospital until thoroughly disinfected.

(*b*) Passengers not sick shall be removed to quarters prepared for their reception, and their clothing and baggage shall be thoroughly disinfected.

(*c*) All other clothing, bedding, and dunnage in the vessel shall be thoroughly disinfected.

(*d*) The vessel's hold shall be subjected, for twenty-four hours, as thoroughly as practicable, to a first process of disinfection by fumes of burning sulphur before disturbing the cargo, the hatches and air ports being tightly closed, after which the hatches shall be opened and the hold of the vessel, as far as possible, aired, the bilge water pumped out, and the cargo immediately transferred to the warehouses or lighters, if such transfer is deemed necessary by the quarantine officer, either to secure the thorough cleansing and disinfection of the ship, or because the cargo itself is of such a character that requires disinfection.

In deciding as to the necessity for removal or treatment of cargo the quarantine officer shall be governed by the following considerations:

If the ship be a foul ship, the removal of cargo and ballast will always be necessary to secure thorough cleansing of the hold.

(*e*) The ballast, if earth, sand, or porous stone, shall be deposited under water at a point to be selected by the proper health authorities. Vessels needing a certain amount of ballast to maintain their upright position will be required to use float ballast, in order to complete the proper cleansing of the hold.

(*f*) After this preliminary disinfection, and the discharge of cargo or ballast, if necessary, the vessel shall be thoroughly cleansed, disinfected, and reventilated, under the supervision of the quarantine officer; and this shall apply to the hold, bilge, limbers, the forecastle or sleeping apartments of the crew, the caboose, and the cabins for passengers, as well as bunks, portable berths, bedding, etc. All decaying wood shall be scraped and disinfected with strong solutions of the sulphates or chlorides of iron or zinc.

(*g*) Until this process of cleansing and disinfection has been completed to the satisfaction of the quarantine officer, as shown by his certificate to that effect, there shall be no communication between the vessel and the shore, or other vessels, except by the written permit of the quarantine officer, and then only in the manner and for the purpose specified in said permit; and any person or vessel communicating, without such permit, with a vessel in quarantine, shall also be placed in quarantine and treated as suspected, besides incurring the penalties prescribed by statute. The vessel shall be discharged from quarantine after a thorough cleansing and disinfection, but only upon the certificate of the quarantine officer.

5. The sick shall be detained in hospital until the quarantine officer decides that their discharge will not be attended with danger to themselves or to others.

6. Persons under observation shall be detained for not less than five days, or as long as it shall be necessary, in the judgment of the quarantine officer. Passengers shall be detained no longer than for the period of incubation of the disease, or diseases, for which the ship is quarantined. In case, however, that yellow fever, cholera, plague, smallpox, or relapsing fever, occur among the passengers so detained, the quarantine officer shall send the person or persons affected with such disease to hospital, and the others shall be detained until he shall be satisfied of their freedom from infection.

7. In case of smallpox the sick shall be sent to hospital, and those not sick shall be immediately vaccinated, or revaccinated, at the discretion of the quarantine officer, after which they shall be allowed to proceed to their destination (after the period of incubation of diseases has passed).

8. Persons employed at the quarantine station, brought in contact with vessels infected with yellow or typhus fevers, smallpox, plague, or cholera, shall not be permitted to leave such station until their clothing and baggage have been disinfected, nor until, in the judgment of the quarantine officer, sufficient time has elapsed since the last exposure.

9. It shall be the duty of the quarantine officer to take the responsibility of applying such measures as he may deem indispensable for the protection of the public health.

QUARANTINE CODE.

I. On and after the opening each year of the National Quarantine Station (Sapelo Sound) all vessels from infected or suspected latitudes arriving with plague, cholera, smallpox, yellow or typhus fever on board, or having had same during voyage, must be directed by the pilot to proceed to said National Quarantine Station.

II. Any vessel arriving at any port bearing the certificate of the national quarantine officer must be brought to anchor at the quarantine station, and there remain until released by the order of the quarantine officer.

III. During the closure of said National Quarantine Station all vessels such as above described must anchor at the Port Quarantine Station, under personal direction of the quarantine officer.

IV. Vessels from any foreign port direct or via American ports, with or without

sickness on board, will, during the entire year, be compelled to anchor and remain at the quarantine station until released by written permit of the quarantine officer.

(Dr. Folk construes this section to mean if via one United States port, quarantine; if via two or more, no quarantine.)

V. All vessels arriving at any port with sickness on board, or having had same during voyage, will, at all seasons of the year, no matter from what port, either American or foreign, anchor at the quarantine station, and there remain until released by order of the quarantine officer of the port.

VI. Vessels from infected or suspected latitudes will, during the entire year, be required to discharge any and all ballast at the quarantine station, or such other place as may be designated by the health authorities, to have bilges and limbers cleaned and sweetened. From November 1 to May 1 of each year said vessels shall be subjected to at least one fumigation. From May 1 to November 1 of each year said vessel shall be subjected to at least two fumigations and such other disinfection as may be necessary, and be detained at least fifteen days during said latter period.

VII.[1] On and after May 1 and until November 1 of each year, and longer if the State board of health so determine, all coastwise vessels or steamers from latitudes south of Cape Hatteras, other than those by inland route, must anchor at the quarantine station. Steamers and vessels from noninfected or nonsuspected ports will not be detained longer than necessary for the quarantine officer to satisfy himself of their perfect sanitary condition. [Not enforced.]

VIII.[1] Coastwise steamers and vessels arriving at this port by inland route, from latitudes south of Cape Hatteras, between May 1 and November 1, and later of the State board of health so determine, must be inspected and given permits by the quarantine officer before the landing of either passengers or freight. [Not enforced.]

IX. From May 1 to November 1 of each year, no vessel from an infected or suspected latitude will be allowed to either lighter or bring cargo of fruit up from quarantine station.

X. Pilots must in each case, before boarding, make inquiry as to the sanitary condition of vessels; in no case must they board if the vessel has contagious or infectious sickness on board, or has had same during voyage; in such case they must either direct to Sapelo quarantine station, lead the vessel in, or have their small boat hoisted alongside, clear of the water, and in this way pilot the vessel in.

By order of State board of health.

_____ _____,

Quarantine Officer, Port of _____, *S. C.*

LAWS RELATING TO QUARANTINE—PART I, TITLE VIII, CHAPTER XVIII, GENERAL STATUTES OF SOUTH CAROLINA.

SECTION 947. The anchorage ground for vessels at quarantine at the ports of Georgetown, Charleston, and Hilton Head shall be designated by buoys, to be anchored under the direction of the health officers; and every vessel subject to quarantine shall, immediately on her arrival, anchor within them and there remain, with all persons arriving on her, subject to the examination and regulations imposed by law. For the purpose of quarantine, the port of Hilton Head shall be held to include the port of Beaufort. The quarantine anchorage for Port Royal Harbor shall be not less than 1 mile below and south of the mouth of Johnsons or St. Helena River.

SEC. 948. For the more certain prevention of the introduction of disease into the several ports of this State, every vessel arriving from a foreign port or from a suspected or infected port of the United States, shall immediately proceed to the quarantine station of the port of arrival and display a yellow flag or the vessel's ensign in the rigging, and shall be visited by the quarantine officer, between sunrise and sunset, as soon as possible after such arrival.

All vessels which have had infectious or contagious diseases on board during the voyage or while in the port of departure, and also all vessels from infected or suspected latitudes or ports, shall be subjected to a detention of not less than five days, or for such longer time as the constituted health authorities at the port of arrival may deem requisite, and pratique shall not be given to any such vessel until such vessel shall have been thoroughly disinfected and fumigated, the cargo and ballast having been first discharged.

SEC. 949. All vessels and persons remaining at quarantine on the 1st day of

[1] Sections VII and VIII will not be enforced unless specially ordered by the State board of health.

November shall thereafter be subject to such quarantine and restrictions as vessels and persons arriving on and after that day.

SEC. 950. All vessels arriving on and after the 1st day of November, having had during the voyage a case of smallpox, cholera, or typhus, or infectious or contagious disease, and every vessel from a foreign port having passengers, and not hereinbefore declared subject to quarantine, shall, on her arrival, be anchored at quarantine ground and be visited by the health officer or his deputies, but shall not be detained beyond the time requisite for due examination, unless she shall have had on board during the voyage some case of smallpox, typhus, or other infectious or contagious disease, in which case she shall be subject to such quarantine as the health officer or his deputies shall prescribe. And it shall be the duty of the health officer or his deputies, whenever necessary for the public health, to cause the persons on board of any vessels to be vaccinated.

SEC. 951. The health officers, intendant, and wardens, or the mayor and aldermen, as the case may be, and in the port of Charleston the harbor commission, whenever in their judgment the public health shall require, may order any vessel at the wharves of either of said ports, or in their vicinity, to the quarantine ground or other place of safety, and may require all persons, articles, or things introduced into said ports from such vessels to be seized, returned on board, or removed to the quarantine ground or other place. If the master, owner, or consignee of the vessel can not be found, or shall refuse or neglect to obey the order of removal, the health officer, intendant, and wardens, or mayor and aldermen, and in the port of Charleston the harbor commission, as the case may be, shall have power to cause such removal, at the expense of such master, owner, or consignee, and such vessel or person shall not return to the port without the written permission of the health officer.

SEC. 952. If any vessel arriving at the quarantine ground subject to quarantine shall be bound to some port north of either of said ports, the health officer, after having duly visited and examined her, may permit her to pass on her voyage; but no such vessel shall be brought to anchor off either of said ports, nor shall any of her crew or passengers land in or hold any communication with either of said ports, or any persons therefrom.

SEC. 953. The master of every vessel released from quarantine and arriving at a wharf in either of said ports shall, within twenty-four hours after such release, deliver the permit of the health officer at the office of the mayor or intendant, as the case may be.

SEC. 954. Nothing in this chapter shall prevent any vessel arriving at quarantine from again going to sea before breaking bulk.

DUTIES OF PILOTS.

SEC. 955. It shall be the duty of each pilot belonging to either of the said ports to use his utmost endeavors to hail every vessel he shall discover entering the port, and to interrogate the master of such vessel in reference to all matters necessary to enable such pilot to determine whether, according to the provisions of the preceding sections, such vessel is subject to quarantine or examination by the health officer.

SEC. 956. If, from the answers obtained to such inquiries, it shall appear that such vessel is subject to quarantine or examination by the health officer, according to the preceding sections, the pilot shall immediately give notice to the master of the vessel that he, his vessel, his cargo, crew, and passengers are subject to such examination, and that he must proceed and anchor said vessel at the quarantine anchorage, there to await the further directions of the health officer.

SEC. 957. It shall be the duty of every pilot who shall conduct into port a vessel subject to quarantine or examination by the health officer—

1. To bring such vessel to anchor within the buoys marking the quarantine anchorage.

2. To prevent any vessel or boat from coming alongside of the vessel under his charge, and to prevent anything on board from being transferred to or thrown into any other vessel or boat.

3. To present to the master of the vessel a printed copy of this chapter when such copy shall have been delivered to him for that purpose.

4. To take care that no violations of this chapter be committed by any person, and to report such as shall be committed, as soon as may be, to the health officer.

5. To subject himself to such detention and delay and cleansing and purification as to his person and clothing as shall be prescribed by the health officer after having boarded or brought to the quarantine ground any vessel subject to quarantine.

SEC. 979. Every pilot or other person who shall bring, or attempt to bring, or

cause to be brought, into any port of this State any vessel, or the whole or any part of the crew, passengers, or cargo, beyond the place appointed for her examination, without such vessel being examined according to law, shall forfeit and pay, the one-half to the use of the State and the other half to the use of such person as shall sue for the same, the sum of $500; and the pilot shall, moreover, be deprived of his branch as a pilot: *Provided*, That nothing herein contained shall extend to persons who may be shipwrecked.

DUTIES OF QUARANTINE PHYSICIANS.

SEC. 958. It shall be the duty of the health officer to board every vessel subject to quarantine or visitation by him immediately on her arrival, between sunrise and sunset; to inquire as to the health of all persons on board and the condition of the vessel and cargo, by inspection of the bill of health, manifest, log book, or otherwise; to examine, on oath, as many and such persons on board as he may judge expedient to enable him to determine the period of quarantine and the regulations to which such vessel shall be made subject, and report the facts and his conclusions, and especially to report the number of persons sick, and the nature of the disease with which they are afflicted, to the mayor or intendant in writing.

SEC. 959. It shall be the duty of the health officer to reside within or near the quarantine ground; and he shall have power—

1. To remove from the quarantine anchorage ground any vessel he may deem dangerous to the public health to any place south or east of the quarantine ground, inside the bar.

2. To cause any vessel under quarantine, when he shall judge it necessary for the purification of the vessel, or her cargo, passengers, or crew, or either of them, to discharge or land the same at the quarantine grounds.

3. To cause any such vessel or cargo, or bedding and the clothing of persons on board, to be ventilated, cleansed, and purified in such manner and during such time as he shall direct; and, if he shall judge it necessary to prevent infection or contagion, to destroy any portion of such bedding or clothing, and, with the concurrence of the mayor or intendant, any portion of such cargo which may be deemed incapable of purification.

4. To prohibit and prevent all persons arriving in vessels subject to quarantine from leaving quarantine or removing their goods or baggage therefrom until fifteen days after the last case of pestilential, contagious, or infectious disease shall have occurred on board and ten days after her arrival at quarantine, unless sooner discharged by him.

5. To permit the cargo of any vessel under quarantine, or any portion thereof, when he shall judge the same free from infection or contagion, to be conveyed to the landing.

6. To cause all persons under quarantine to be vaccinated when he deems it necessary for the preservation of the public health.

7. To administer oaths and take affidavits in all examinations prescribed by this chapter and in relation to any alleged violations of quarantine law or regulation; such oath to have the like validity and effect as oaths administered by a trial justice.

SEC. 960. The health officer may direct, in writing, any sheriff or constable to pursue and apprehend any person not discharged who shall elope from quarantine, or who shall violate any quarantine law or regulation, or who shall obstruct the health officer in the performance of his duty, and to deliver him to said officer, to be detained at quarantine until discharged by said officer; but such confinement shall in no case exceed ten days. It shall be the duty of the sheriff or constable so directed to obey such direction; and every such person so eloping, or violating quarantine law or regulations, or obstructing the health officer, shall be considered guilty of a misdemeanor, punishable with fine and imprisonment, in the discretion of the court.

SEC. 961. Every vessel during her quarantine shall be designated by colors, to be fixed in a conspicuous part of her main shrouds.

SEC. 962. No vessel or boat shall pass through the range of vessels lying at quarantine or land at the quarantine grounds without the permission of the health officer.

SEC. 963. No lighter shall be employed to load or unload vessels at quarantine without permission of the health officer, and subject to such restrictions and regulations as he shall impose.

SEC. 964. All persons being on board of vessels under quarantine shall be provided for by the master of the vessel in which they shall have arrived; and if the master shall omit or refuse to provide for them, or they shall have been sent on shore by the health officer, they shall be maintained at the expense of such vessel,

her owners, consignees, and each and every one of them; and the health officer shall not permit such vessel to leave quarantine until such expenses shall have been repaid or secured; and the said health officer shall have an action against such vessel, her owners and consignees, and each and every one them, for such expenses, which shall be a lien on such vessel, and as such may be enforced as other liens on vessels.

SEC. 965. The health officer, upon the application of the master of any vessel under quarantine, may confine in any suitable place on shore any person on board of such vessel charged with having committed an offense punishable by the laws of this State or the United States, and who can not be secured on board of such vessel; and such confinement may continue during the quarantine of such person, or until he shall be proceeded against in due course of law, and the expense thereof shall be charged and collected as in the last preceding section.

SEC. 966. Any person aggrieved by any decision, order, or direction of the health officer may appeal therefrom to the governor, attorney-general, and comptroller-general, who shall constitute a board of appeal. The said board shall have power to affirm, reverse, or modify the decision, order, or direction appealed from, and the decision of the board thereon shall be final.

SEC. 967. An appeal to the board of appeal must be made by serving on the health officer a written notice of such appeal within twelve hours after (Sundays excepted) the appellant receives notice of the order, decision, or direction complained of. Within twelve hours after the health officer receives such notice (Sundays excepted) he shall make a return in writing, including the facts on which his order, decision, or direction was founded to the governor, who shall immediately call a meeting of the board of appeal, and shall be president of said board; and said appeal shall be heard and decided within twenty-four hours thereafter (Sundays excepted); and until each decision is made, the order, decision, or direction complained of, except it refer to the detention of a vessel, her cargo, or passengers at quarantine, shall be suspended.

SEC. 968. Whenever the said health officer, in the performance of the duties and in the execution of the powers imposed and conferred upon him by law, shall order or direct the master, owner, or consignee of any vessel under quarantine to remove such vessel from her anchorage, or to do any act or thing, or to comply with any regulation relative to said vessel or to any person or thing on board thereof or which shall have been brought to said ports therein, and said master, owner, or consignee shall neglect or refuse to comply with such order or direction, the said health officer shall have power to employ such persons and assistants as may be necessary to carry out and enforce such order or direction, and the persons so employed shall have a lien on such vessel, her tackle, apparel, and furniture, for their services and expenses.

SEC. 969. All masters of vessels or other persons violating any of the provisions of this chapter, or disobeying any of the published regulations of the health authorities of any port, and all persons whosoever, who shall, without permission of said authorities, invade the quarantine grounds or station of such port, or who shall hold any communication or attempt to hold any communication with any vessel, or any officer, or any passenger, or member of the crew of any vessel lying at the quarantine or under control of the said authorities, shall be guilty of a misdemeanor, and upon conviction shall be punished by fine not exceeding two thousand dollars, or by imprisonment not exceeding twelve months, or both, in the discretion of the court.

DUTIES OF MASTERS.

SEC. 974. Every master of a vessel subject to quarantine or visitation of the health officer, arriving in either of the said ports, who shall refuse or neglect either—

1. To proceed with and anchor his vessel at the place assigned for quarantine at the time of his arrival;

2. To submit his vessel, cargo, and passengers to the examination of the health officer, and to furnish all necessary information to enable that officer to determine to what length of quarantine and other regulations they ought, respectively, to be subject; or

3. To remain with his vessel at quarantine during the period assigned for the quarantine, and while at quarantine to comply with the directions and regulations prescribed by law—

Shall be guilty of a misdemeanor, and be punished by fine not exceeding two thousand dollars, or by imprisonment not exceeding twelve months, or by both such fine and imprisonment.

SEC. 975. Every master of a vessel hailed by a pilot who shall either—

1. Give false information to such pilot relative to the condition of his vessel, crew, or passengers, or of the health of the place or places from whence he came, or refuse to give such information as shall be lawfully required;

2. Or land any person from his vessel, or permit any person except a pilot to come on board of his vessel, or unlade or transship any portion of his cargo before his vessel shall have been visited and examined by the health officer;

3. Or shall approach with his vessel nearer to the wharves in said ports than the place of quarantine to which they may be directed—

Shall be guilty of the like offense and subject to the like punishment; and any person who shall land from any vessel, or unlade or transship any portion of her cargo, under like circumstances, shall be guilty of a like offense and subject to the like punishment.

SEC. 976. Any person who shall violate any provision of this chapter, or neglect or refuse to comply with the directions and regulations which any of the health officers may prescribe, shall be guilty of the like offense, and be subject for each offense to the like punishment.

QUARANTINE PORT OF CHARLESTON.

SEC. 977. The administration of quarantine of the port of Charleston shall be in charge of the board of health of the city of Charleston, subject to the advice and supervision of the executive committee of the State board of health, and they shall have full power and authority to make such rules and regulations for the institution and enforcement of quarantine as they may deem expedient and as may be conformable to law.

The quarantine officer of the port of Charleston shall be appointed by the governor on the nomination of the board of health of the city of Charleston. He shall be invested with all powers and authority heretofore conferred by law upon the health officer of the port of Charleston, and he shall exercise such powers and authority under the direction and control of the said board of health of the city of Charleston. He shall receive a salary from said board at the rate of $1,800 per annum, and he shall reside at the quarantine station. He shall be appointed during the month of January of each year and hold his office for one year and until his successor shall be appointed, unless sooner removed by the governor, at the request of the board of health of the city of Charleston, or for other reasons satisfactory to him.

For the purpose of carrying out the provisions of this chapter with regard to the port of Charleston the sum of $2,800 shall be annually appropriated, to be paid by the State treasurer on the order of the chairman of the board of health of Charleston.

QUARANTINE OF THE PORTS.

The ports of the State which are not specifically provided for in this chapter shall remain under the supervision and control of the executive committee of the State board of health, and a quarantine officer shall be appointed at each of the said ports, who shall be vested with the powers and authority heretofore by law conferred upon the health officer, and shall exercise the same under the direction and control of the executive committee of the State board of health, or of such local board as the executive committee or the State board of health may appoint for that purpose. He shall return to the said executive committee, or to the said local board, all fees collected by him, and shall receive for his services annually the following, to wit:

Quarantine officer of the port of Georgetown, $500, and $150 for boat hire.

Quarantine officer at St. Helena entrance, $800, and $150 for boat hire.

Quarantine officer at Port Royal, $800, and $150 for boat hire.

He shall be appointed by the governor, on the recommendation of the executive committee of the State board of health, during the month of January of each year, and hold his office for one year and until his successor shall be appointed, unless sooner removed by the governor at the request of the executive committee of the State board of health, and shall reside at the quarantine station.

SEC. 978. Wherever the words "health officer" occur in this chapter they shall be understood to mean the health officer or his deputies: *Provided*, That said deputies shall in all cases be graduates of a regular medical school.

SEC. 980. The officer or officers who may be intrusted with the execution of the quarantine laws are authorized and directed, in case of a violation or attempt to violate any of the said laws, to board by force of arms any vessel used in such violation or attempt to violate, and to detain her and her crew and passengers.

SEC. 981. Any vessel which shall be restrained under quarantine laws and shall attempt to violate the same may be fired upon and detained by force of arms.

SEC. 982. When the governor may deem it necessary he shall, at the expense of the State, hire and employ boats and small craft, and a sufficient number of able men well armed, to be stationed wherever he may think fit and to act under his directions, in order to enforce obedience to the laws of this State requiring the performance of quarantine, and also to arm such men, if requisite, with any fire-arms belonging to this State.

SEC. 983. All fines and forfeitures and penalties provided by the laws of the State for the violation of the quarantine laws or disobedience of the orders of the governor establishing quarantine regulations shall be recovered by indictment in the court of sessions, and all persons offending against the same, upon conviction, shall be liable to imprisonment not exceeding twelve months, in addition to such fines, forfeitures, and penalties.

SEC. 985. The following uniform schedule of charges is hereby adopted for quarantine dues for all ports of the State, the amount collected to be expended for the more effective enforcement of quarantine at each port, to wit:

For every vessel boarded and inspected, $3.

For every vessel of 100 tons or less, fumigating and disinfecting, each process, $10.

For every vessel over 100 tons and less than 250 tons, fumigating and disinfecting, each process, $14.

For every vessel over 250 tons and less than 500 tons, fumigating and disinfecting, each process, $20.

For every vessel over 500 tons and less than 750 tons, fumigating and disinfecting, each process, $28.

For every vessel over 750 tons and less than 1,000 tons, fumigating and disinfecting, each process, $34.

For every vessel over 1,000 tons and less than 1,250 tons, $40.

For every vessel over 1,250 tons, fumigating and disinfecting, according to tonnage of vessel, each process, $44 to $68.

In all cases the quarantine officer will collect the charges made against vessels before giving permission to leave quarantine, either by captain's draft on consignee or in currency, and shall return the same to the board charged with the administration of quarantine at such port, who shall be responsible for the disbursement of the same.

EXHIBIT B.

PORT OF GEORGETOWN, S. C.,
Quarantine Station, ———, *189—*.

Name, ———. Arrived, ———. Commander, ———. Days passage, ———. From, ———. Crew, ———. Passengers, cabin, ———. Passengers, steerage, ———. Cargo, ———. Bill of health, ———. Remarks, ———.

This vessel has permission to proceed.

———— ————,
Quarantine Officer.

This permit must be delivered at the mayor's office within twenty-four hours after discharge from quarantine (Sundays excepted).

CHARLESTON.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The station is in Charleston Harbor, at Fort Johnson, about 7 miles from the wharves, perfectly isolated, no communication being allowed with it save under permit of the health officer of the city. There are two wharves, one with an excellent ballast plant (hoisting engine, tubs, self-dumping cars, and track) for the discharge of ballast and one for the disinfection of vessels. The buildings comprise quarters for officers and employees and for the personnel of vessels undergoing disinfection, divided into three sets, for officers, women, and crew. These, while not elaborate, are sufficient and comfortable. There is also a bath hou

and facilities for bathing such as may require it. The limits of anchorage are not marked, but are perfectly well understood by vessels and all who have to do with the station. A vessel treated here is supposed to be infected or suspected of infection until after disinfection. She then lies either at the ballast wharf or at the disinfecting wharf. The station is so arranged that vessels can in almost every case go at once to the wharf she is ready for, and thus it is extremely rare that an infected vessel lies anywhere else save at one of the two wharves.

After disinfection the noninfected vessel is drawn off in the stream to await the expiration of her quarantine of observation. Vessels certainly infected with any quarantinable disease—those that have or have had such disease aboard—are not allowed to enter Charleston Harbor, but are sent by the pilots to the South Atlantic Quarantine. On arrival off the quarantine station, in the stream, the incoming vessel is boarded by the quarantine officer, in a yawl boat, inspected, and what disposition to make of her is determined, i. e., whether she be passed in pratique or be held for disinfection.

The apparatus for disinfection of vessels and baggage is the so-called "Holt system of maritime sanitation," established in 1890, and with all of the essential improvements since introduced added. The sulphur furnance is of the Valk & Murdoch type—I think this is the first one of the kind made—with exhaust fan, and so arranged as to be used in two compartments of a vessel at once. Rubber suction hose is used for the final distribution of the gas. Eighteen per cent SO_2 (by volume) can be obtained (in the pipe) as the product of this furnace. Pots are used for certain small spaces where it is not practicable to introduce the hose.

The bichloride solution is supplied by an elevated tank, 500 gallons' capacity, being distributed by gravity.

The steam chamber (by Valk & Murdoch) is a modification of those put up at the New Orleans Quarantine in 1889 by H. D. Coleman, but receives its steam differently, giving better circulation of steam, and has recently (1895) been fitted with a steam exhaust for the purpose of securing a vacuum. This, I am told, works well and very expeditiously, giving a 5-pound vacuum (10 inches), to which it is habitually worked. In my opinion the steam exhaust is unquestionably superior to the vacuum pump for securing the low vacuum needed in a steam chamber, though the efficiency is the same.

It is not proposed to treat quarantinable disease ashore; other diseases could in general be treated aboard ship, but could be readily landed at the wharf and treated in all comfort in one of the houses ashore. Suspects, save for the time the vessel is undergoing disinfection, forty-eight to sixty hours, are kept aboard; they are practically the crews of vessels, this not being an immigrant port.

Mail and telegraph facilities to the health officer in Charleston are of course good. Any communication needing to go to the station he sends. All communication with the station is by his order, and only by his own employees.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. H. B. Horlbeck, health officer of Charleston, S. C., is in control of the quarantine of this port; Dr. R. Lebbey, quarantine officer; R. B. Fulcha, engineer. Two boatmen are regularly employed, and acclimated negro laborers are employed as needed; these stay at the station. A captain for the launch is employed who does not remain at the station.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

The laws are the same as those forwarded with the report on Georgetown Quarantine, save the amendment noted on page 1 of the quarantine regulations of Charleston, S. C. (Exhibits A and B.)

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

The quarantine customs of this port are pretty clearly given by their regulations, which are followed very closely, and the classes of vessels inspected and disinfected and the methods of disinfection and time of detention are as indicated in the United States quarantine regulations. It is construed that "ports infected or suspected of infection with yellow fever" include all the ports not known to be free of infection in the West Indies, Mexican and Central American littoral, and the ports of South America on the Caribbean Sea and Atlantic north of the Rio de la Plata, and ports on the west coast of Africa.

Recently a fruit trade has been established and a physician, nominated by Dr. Horlbeck, accompanies the vessel to inquire into the sanitary condition of the ports to which she trades, his inspection determining whether it shall be considered free of yellow fever. The trade is with the fruit islands and part of the coast of Honduras and Jamaica. This vessel then, sailing under certain safeguards imposed by the board of health (the same as are in use in similar trade in the Gulf), is not subjected to disinfection or detention on entrance.

All vessels in ballast, no matter from what port, must discharge their ballast at quarantine, unless they can prove to the satisfaction of the quarantine officer that it comes from a healthy source. A vessel is always cleaned after ballast has been discharged in quarantine. This rule is for ballast which would be left in the city; ballast for stiffening and not disturbed is, in the winter season, less rigidly dealt with.

The acclimated laborers referred to as employed when needed are not from Charleston and are not allowed to leave the island (quarantine) until their clothing has been disinfected, and, although believed to be immune, held in observation the usual time.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

Inspection is maintained the entire year. Vessels in ballast have it discharged at quarantine, and are always washed down with bichloride. Vessels in ballast from "suspected ports" are treated at all seasons alike. Vessels without ballast from such ports are subject at all seasons to disinfection, etc., at option of health officer.

6. Are vessels from other United States ports inspected?

No; unless they are vessels which have come from a foreign port via a United States port—the so-called "via vessels"—and this whether the United States port be north or south.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

Inspection has been described under previous paragraphs. The treatment is such as is usual at plants of this character. The vessel is cleansed, fumigated, and washed down in the bichloride solution or carbolic acid, and held for observation. As a preliminary to the handling of rock ballast, Dr. Lebbey tells me that he wets it down very thoroughly with bichloride, and, if he is specially doubtful of a vessel, subjects the hold to a preliminary fumigation.

(*a*) The time from arrival, completion of inspection, and beginning of disinfection for a clean vessel without ballast is nil, unless some other vessel is at the wharf, or unless the lateness of the hour renders it inadvisable to begin. If she have ballast or is dirty, she must be cleansed. The ballast plant is an excellent

one, and but little time need be taken in its discharge from a vessel, and but little is taken.

(*b*) Two and a half to three days.

(*c*) Five days from completion of disinfection.

8. What communication is held with vessels in quarantine (and before quarantine) by pilots, etc., and how regulated? Is there any intercommunication allowed among vessels in quarantine?

Communication with vessels in quarantine is solely through quarantine officers. No one save quarantine employees are allowed aboard or close to them. There is no intercommunication between vessels in quarantine. Pilots do not board infected vessels, and may not leave the deck of vessels from suspected ports, and are retained aboard at the option of the quarantine officer.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Such a vessel would be sent to the South Atlantic Quarantine (Sapelo) if she had or had had the disease aboard, but if merely from an infected port she would be disinfected here. The ruling as to what ports are (for yellow fever) suspected as infected have been given. Vessels carrying material (fomites) or persons from such places would be treated as if the vessel were from the place itself.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Yes; in retained copy of report made to health officer on arrival of vessel and in letter book he is notified of any sickness aboard. (See rules and regulations of the quarantine service in the Georgetown report.)

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

There are no fees for disinfection. They were abolished in 1894. Inspection fees as follows: Schooner or brig, $8; bark, $10; ship or steamship, $15; ballast discharge, 40 cents per ton; no wharfage or other charges.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

[Customs records.]

Month.	Tropical ports.		Other ports.		Total.
	Cargo.	Ballast.	Cargo.	Ballast.	
January	2	7	8	2	19
February	1	2	2	1	6
March	3	5	3	----	11
April	1	2	----	1	4
May	----	1	3	----	4
June	----	----	----	1	1
July	----	----	1	----	1
August	----	1	----	----	1
September	----	1	3	2	6
October	1	----	2	----	3
November	2	5	2	1	10
December	1	3	7	----	11
Total	11	27	31	8	77

It will be seen that a very small number of vessels came directly from tropical ports during the quarantine season. The cargoes brought from tropical ports are

mainly fruit; some salt in small vessels. I would also state that many of the vessels from these ports, listed as in ballast, are really empty—American schooners with "swept holds"—the customs books making no distinction between this condition and ballast. The vessels coming from other than tropical ports are mainly steamers coming in cargo—materials for fertilizers, kainit from Germany, and sulphur ore from Italy and the Spanish Peninsula. Those in ballast are from the United Kingdom, in water ballast. A certain number of sailing vessels, however, come from transatlantic ports in cargo, the same as the steamers; none in ballast.

The appended list, obtained from the harbor master's books, gives the vessels coastwise during 1895, not including regular lines of steamers, vessels under 100 tons, nor vessels which arrived here from ports in this State:

Month.	Steamers.	Barks and brigs.	Schooners.	Month.	Steamers.	Barks and brigs.	Schooners.
January	3	3	27	August	.....	3	34
February	5	1	24	September	6	4	30
March	3	2	26	October	3	1	31
April	3	1	19	November	4	3	32
May	5	1	34	December	1	4	33
June	1	2	27				
July	3	.....	39	Total	37	25	356

These coastwise vessels are mainly from northern ports, including all of the steamers save three or four, and come mainly empty. Some of the square-rigged vessels are in ballast and a few in cargo. The steamers are for cotton.

I also submit the following table from the books of the quarantine station, which is of more sanitary interest than those preceding:

Vessels inspected at quarantine.

Month.	Tropical ports.			Other ports.			Ports in yellow fever zone, via domestic ports.			Domestic ports.	Total.
	Ballast.	Cargo.	Empty.	Ballast.	Cargo.	Empty.	Ballast.	Cargo.	Empty.		
January	1	2	6	.....	8	2	.....	.....	.....	3	22
February	2	1	.....	1	2	.....	.....	.....	.....	3	9
March	4	3	2	.....	3	.....	.....	.....	.....	2	14
April	1	1	.....	.....	1	.....	.....	.....	.....	.....	3
May	1	.....	.....	3	.....	.....	.....	.....	.....	1	5
June	.....	.....	.....	.....	.....	1	.....	.....	.....	1	2
July	.....	.....	1	.....	.....	.....	.....	.....	1	2	4
August	1	.....	1	.....	.....	.....	1	.....	1	.....	4
September	.....	.....	.....	1	2	.....	1	1	2	2	9
October	.....	1	.....	.....	2	1	.....	.....	1	6	11
November	1	2	3	.....	3	2	.....	.....	1	1	13
December	.....	4	.....	2	8	.....	.....	.....	.....	1	15
Total	11	14	13	7	29	6	2	1	6	22	111

Of these, all from tropical ports and two from ports in the yellow-fever zone via domestic ports were disinfected and detained for observation; in all, eighteen vessels. Two of the "via vessels" were not disinfected, because they had been disinfected at Delaware Breakwater and Tortugas. All of the cargoes from tropical ports were of fruit, save one of salt. It is very obvious that the main commerce of this port with incoming vessels is from European ports, due doubtless to the fact that these vessels can come in cargo with materials for fertilizers, for the manufacture of which Charleston is a center, and also to the stringent method in which the quarantine against the infected ports south is enforced.

13. State the results of your visit to (*a*) the custom-house; (*b*) immigration bureau.

Found that vessels were entering without the certificate of the quarantine officer required by the act of February 15, 1893. No immigration bureau.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

Yes; the plant here could handle double the shipping that requires it with ease. It is an excellent plant and well administered.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, are observed.

Except that the certificate of discharge is not such as is contemplated in the act of February 15, 1893, and is necessary for legal entrance at the custom-house, every regulation of the Department is, I believe, properly enforced, and the regulations regarding inspection, disinfection, and the period of observation after detention are observed.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

No. (Exhibit C.) The quarantine officer issues a "leprosy certificate," which seems to have been considered by the customs officer as the one required by the act of February, 15, 1893.

17. What disposition is made of consular bills of health?

One is filed with the entry papers at the custom-house; one at the quarantine office.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I do not know of any facts likely to be of interest to the Department not covered by the foregoing report. The fruit trade with the tropics is just starting, and while it will not likely reach the dimensions of that of Mobile and New Orleans owing to our greater distance from the supply (unless some nearer source be developed), yet it unquestionably will increase and probably be a considerable factor in the quarantine of the future. I have no recommendations to make. Dr. Horlbeck has already directed a certificate of the form contemplated by the act of February 15, 1893, to be given by the quarantine officer as a pratique to vessels. I would say that I had no opportunity of seeing a vessel disinfected, so that the description thereof and of many other things is from the statement of the quarantine officer; but I have seen the plant in operation for trial and in actual use previously; indeed, I have made myself familiar with the quarantine methods here for some years.

JUNE 13, 1896.

EXHIBIT A.

An act to render more efficient the quarantine service of the several ports of the State.

SECTION 1. *Be it enacted by the senate and house of representatives of the State of South Carolina, now met and sitting in general assembly, and by the authority of the same,* That for the more certain prevention of the introduction of disease into the several ports of this State every vessel arriving from a foreign port or from a suspected or infected port of the United States shall immediately proceed to the quarantine station of the port of arrival and display a yellow flag or the vessel's ensign in the rigging, and shall be visited by the quarantine officer, between sunrise and sunset, as soon as possible after such arrival.

SEC. 2. All vessels which have had infectious or contagious diseases on board during the voyage, or while in the port of departure, and also all vessels from infected or suspected latitudes or ports, shall be subjected to a detention of not less than five days, or for such longer time as the constituted health authorities at the port of arrival may deem requisite, and pratique shall not be given to any such vessel until such vessel shall have been thoroughly disinfected and fumigated, the cargo and ballast having been first discharged.

SEC. 3. All masters of vessels, or other persons, violating any of the provisions of this act, or disobeying any of the published regulations of the health authorities of any port, and all persons whomsoever who shall, without permission of said authorities, invade the quarantine grounds or station of such ports, or who shall hold any communication, or attempt to hold any communication, with any vessel, or any officer, or any passenger, or any member of the crew, of any vessel lying at quarantine, or under control of the said authorities, shall be guilty of a misdemeanor, and upon conviction shall be punished by fine not exceeding $2,000, or by imprisonment not exceeding twelve months, or both, in the discretion of the court.

EXHIBIT B.

OFFICE BOARD OF HEALTH,
Charleston, S. C., July 1, 1893.

From and after this date the following charges will be enforced at the quarantine station of this port:

Act of the general assembly, ratified December 17, 1889, to amend section 985, general statutes of South Carolina.

That in every port in this State where the Holt system of maritime sanitation is in use the following charges shall be enforced, to wit:

Inspection fees: Every schooner or brig, $8; every bark, $10; every steamship or ship, $15.

CITY OF CHARLESTON, S. C., *July 1, 1893.*

From and after this date, the following rules will be enforced at quarantine station, same being in accord with act of Congress, February 15, 1893.

(See "Quarantine code" in Georgetown report.)

EXHIBIT C.

Permit of discharge from quarantine.

QUARANTINE OFFICE, CHARLESTON HARBOR,
Fort Johnson, S. C., ———, *189—*.

Arrived, ———. Nationality, ———. Class and name of vessel, ———. Name of captain, ———. Number of days passage, ———. From what port, ———. Number of crew, ———. Number of passengers, ———. Healthy or sickly, ———. Disease, ———. Cargo, ———. Bill of health, ———. Quarantine officer's decision, ———. Remarks, ———.

This vessel is hereby discharged from quarantine.

———— ————,
Quarantine Officer.

This permit to be delivered at office of board of health, city hall, within twenty-four hours after discharged from quarantine (Sundays excepted).

ST. HELENA ENTRANCE.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The station, designated by a yellow flag, is on Buzzards Island, on Coosaw (or Bull) River, about 18 miles from Beaufort, and is well isolated. The buildings consist of quarters for the quarantine officer, quarters for two boatmen, and a hospital. The hospital was washed away in 1893, and a new smaller one has been erected. The anchorage is off the station, marked by buoys, no difference being made between the anchorage for infected and noninfected vessels, two vessels not

being in quarantine at one time. Vessels are inspected in a yawl boat. There is no apparatus for the disinfection of vessels or baggage. There are some sulphur pots. The sick could be treated in hospital. Suspects would have to be kept aboard. The mail and telegraph facilities poor, especially the latter.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. M. M. Sams, quarantine officer; post-office address, Chisholm, S. C. Two boatmen.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

The laws and regulations are the same as those transmitted in the report of Port Royal, and it is under exactly the same laws and regulations.

The interpretation of the regulations at the two stations is also the same, recent instructions to that effect having been given by the Beaufort board of health. As at Port Royal, vessels are considered in three classes:

(1) Vessels from ports infected with yellow fever, which are so judged (*a*) if they have a foul bill of health; (*b*) if the port is mentioned in the public health reports as having had that disease there recently; (*c*) if from any other reason the quarantine officer judges the port to be infected. Vessels which have, or have had fever aboard, are, of course, included in this class. These vessels are sent to the South Atlantic quarantine for disinfection.

(2) All other vessels from tropical ports and the Rio Plata country. These are disinfected at the station once during the winter months and twice during the summer season, and detained for observation from five to ten days after arrival in quarantine, and not less than fifteen days from the port of departure. This disinfection, as described to me by the quarantine officer, consists in (*a*) burning sulphur in pots in the closed compartments of the vessel, cabin, forecastle, and hold, for about three hours; (*b*) discharge of ballast, if it be a vessel in ballast, and (*c*) in any case a fumigation with sulphur for three hours. In case a vessel in ballast comes in the winter season, the one fumigation required by the quarantine code (Exhibit A, Georgetown report, Article VI) is given after the ballast is discharged. If there is no ballast, and two fumigations are given, they are given two or three days apart. From the statement of the quarantine officer I judge that a sufficient quantity of sulphur is placed in the cabin and forecastle, although it seems impossible to burn much in three hours, and proportionately less in the hold. These vessels do not require disinfection by the Treasury regulations.

(3) All vessels not in class 1 or 2, and with no sickness aboard, are passed in pratique. All vessels from foreign ports, all foreign vessels coastwise, and all American vessels coastwise from ports south of Port Royal are inspected.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

All foreign vessels coastwise and all American vessels coastwise from ports south of Port Royal are inspected. All vessels from tropical ports are disinfected during the entire year, and detained for observation not less than five or ten days from date of arrival. Ballast is of course discharged under water. I think there is some unnecessary detention and disinfection of vessels. Still, there are so few vessels subjected to this process, owing to lack of tropical commerce, that it does very little harm commercially.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

Treatment of vessels is the same at all seasons save the number of disinfections required.

6. Are vessels from other United States ports inspected?

All foreign vessels coastwise, and all American vessels coastwise from ports south of Port Royal, are inspected. There are very few of the latter; the former make three-fifths of the entries.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection; (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

In inspection, the bill of health, log, articles, etc., are examined; the master is questioned and the crew inspected. If infected, or with sickness aboard or en route, or from a port infected with yellow fever, she is sent to Sapelo quarantine; if from a noninfected port in the Tropics, with no sickness aboard or en route, she will be disinfected at the station. (*a*) Generally but little time if in ballast in the winter, the ballast being discharged first; (*b*) three hours' closure of hatches for each fumigation—there may be one or two fumigations, according to season; (*c*) detention is counted from arrival in quarantine, and is from five to fifteen days.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

Communication with vessels in quarantine is only through the quarantine officer; never two vessels in quarantine at once. Pilots do not board the vessels sent to Sapelo. Upon the others they are directed not to go below deck, and to stay aboard until the quarantine officer gives them permission to go ashore.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

If a vessel has, or has had en route, any of the above diseases aboard, or if from a port infected with such diseases, she would be sent to Sapelo.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage on arrival and during detention.

Such records would be kept in the retained copies of the reports of arrivals and discharges of vessels sent to the board of health of Beaufort.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Fees are given in the quarantine report for Georgetown. As stated, during the quarantine season, vessels, if fumigated, are fumigated twice; hence charged double the fee there given. No other charges.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Month.	Tropical ports.		Other foreign ports.	Coastwise vessels.
	Empty.	Ballast.		
January	1			1
February	1			1
March		1	1	1
May				2
June				2
July				1
September			1	1
October		1	2	1
December				1
Total	2	2	4	12

Vessels from tropical ports are generally, if not universally, regarded as clean by quarantine officers (Point-à-Pître and St. Lucia). Four of the above were fumigated and two of them were barks from Bahia in sand ballast. Vessels in water ballast are recorded as empty. All the coastwise vessels were steamers, and all but one from the North.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

See above. No immigration bureau; the quarantine part of the entry papers are in good shape.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Sufficient for an inspection station. There are no facilities for handling vessels which may be infected. An inspection station is all that is needed.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The interpretation of the regulations and the customs of the station, as explained to me by the quarantine officer, gives vessels pratique from ports infected with yellow fever, "where yellow fever prevails," which have not been disinfected in the way required by the United States quarantine regulations, nor, indeed, disinfected in any efficient way. Under the recent instructions of the Beaufort board of health, all the above regulations are observed for the vessels to which they apply.

16. Does the certificate of inspection or of pratique signed by the quarantine officer state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes. I could get no printed copy of the pratique, but forward a copy of one taken from the entry papers of a vessel coming from a foreign port at the custom-house. (Exhibit D.)

17. What disposition is made of the consular bills of health?

One filed with the entry papers at the custom-house and the other filed at the quarantine station.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

No facts beyond those given in the body of the report seem to need mention. Obviously, the station is an inspection station only, and its safety, should an infected vessel apply for entrance, is in the Sapelo Quarantine, and in this alone.

The commerce at this port, mainly from transatlantic ports, has been considerable, but at present, as the statistics show, is small in amount and is decreasing.

AUGUST 25, 1896.

EXHIBIT D.

QUARANTINE OFFICE,
St. Helena Sound, S. C., ———, *189*—.

Arrived, ———. Name of vessel, ———. Nationality, ———. Master, ———. Crew, ———. Passengers, ———. Cargo, ———. Ballast, ———. From ———. Sailed, ———. Fumigated, ———. Discharged from quarantine, ———, 189—.

This vessel, showing no indication of having on board any yellow fever, smallpox, or leprosy, or other infectious diseases, has permission to pass up the river and proceed to load, having complied with the quarantine regulations of the United States and State of South Carolina.

———— ————,
Quarantine Officer.

PORT ROYAL.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The station is nearly adjoining the naval reservation on Port Royal Island. The buildings consist of house, hospital, and quarters for men, boathouse, and wharf. The anchorage for vessels is off the station in Beaufort River; vessels believed to be infected are not treated here, but are sent to Sapelo. They are boarded with a yawl boat. There is no apparatus for disinfection of vessels or baggage, except with sulphur pots. Only noncontagious diseases would be treated at this station—these would in general be treated aboard, but could be moved ashore in boats and cared for at the hospital. Suspects (crew) detained aboard vessel—no other arrangements. Mail and telegraph facilities are good.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Allan Stuart, M. D., is quarantine officer. Post-office address, quarantine station, Port Royal, S. C. Three boatmen are employed.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Copies herewith transmitted with Georgetown report.

The laws and regulations transmitted are not literally carried out here, because they presuppose a provision of adequate means of disinfection at this station which does not exist. Their spirit and the requirements of the Treasury Department, however, are enforced. Vessels are considered here in three classes:

(1) Those with contagious disease aboard, or from ports believed to be infected with yellow fever, are sent to the South Atlantic quarantine for disinfection, observation, and pratique. A port is judged to be infected with yellow fever if that disease be reported on the bill of health, or in the abstract [public health report], or if from any other information the quarantine officer holds the port infected.

(2) Those from tropical ports believed to be free from yellow fever; these, mainly to comply with State regulations, are disinfected by sulphur pots and detained for observation.

(3) Those from other than tropical ports; these are passed in pratique; also from a few tropical ports known to be clean in the winter. No ballast vessels come here.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

All ballast from tropical ports is required to be discharged under water. None has come the past few years. Vessels from tropical ports, save from ports known to be clean, are disinfected in the winter season. All coastwise foreign vessels are inspected; also coastwise American vessels from the south; of the latter there are very few—two or three per annum. There has been no undue or unnecessary detention of vessels that I know of.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

Yes; and vessels from ports suspected of yellow fever are disinfected in the winter season.

6. Are vessels from other United States ports inspected?

Yes; all foreign vessels and American vessels from ports to the south of Port Royal.

7. Describe quarantine procedures in the inspection of vessels, and if inspected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The log, crew list, and ship's papers generally are examined, the master questioned, crew mustered and examined, and ship gone over. If infected, it is sent to Sapelo. Of such vessels as are disinfected here, no time beyond what is necessary to clean the vessel elapses before disinfection begins. The disinfection takes about twenty-four to thirty-six hours; the time of detention after disinfection is five days.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

Communication with vessels in quarantine is held only through the quarantine officer. Pilots do not board infected vessels, and must stay on the deck of the vessels which they board until the vessel is released by the quarantine officer, and are subject to his order. Intercommunication of vessels is not allowed.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Any such vessel would be sent to the South Atlantic Quarantine; coming from a port infected with any of the above diseases, or conveying persons or cargo capable of carrying infection from such a port, would be regarded as evidence of infection.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Such record would be kept and the report of the arrival of a vessel forwarded to the board of health of Beaufort, S. C., a duplicate being kept on file at the station. (Exhibit A.)

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Inspection, $3; disinfecting, not over 100 tons, $10; over 100 and less than 250 tons, $14; over 250 and less than 500 tons, $20; over 500 and less than 750 tons, $28; over 750 and less than 1,000 tons, $34; over 1,000 and less than 1,250 tons, $40; over 1,250, according to tonnage, $44 to $68.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months: (*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Month.	Tropical ports.		Other ports.		Total.
	Empty.	Cargo.	Empty.	Cargo.	
January			3	1	4
February			1	1	2
March	1		1		2
April					
May	1		1		2
June			1	1	2
July	1	1			2
August			1	1	2
September					
October			1	3	4
November				3	3
December					
Total	3	1	9	10	23

Of these, one vessel came via the South Atlantic station and had been disinfected; she was from an infected Cuban port. Two vessels were disinfected here, coming from tropical ports believed to be clean (the Leeward Islands and the Venezuelan coast). With one exception all the vessels in the above table were steamships, and the trade is peculiar in the entire absence of sailing vessels and ballast from tropical ports, the sanitary importance of which fact is at once seen.

Coastwise vessels.

Month.	In cargo.	Empty.	Total.	Month.	In cargo.	Empty.	Total.
January	-------	2	2	August	1	1	2
February	-------	1	1	September	1	1	2
March	1	1	2	October	1	1	2
May	-------	2	2	November	1	1	2
June	1	4	5				
July	2	3	5	Total	8	17	25

Of these only one was a "via vessel"—from Cienfuegos via Philadelphia. She had, however, been disinfected at Delaware Breakwater.

The imports are materials for fertilizers—sulphur ores, kainite, and one cargo of meat powder (from the Rio Plata), and a few cargoes of salt. The exports are cotton, phosphate, and grain. There are very few sailing vessels engaged in the coastwise trade. It is in the hands of steamships, coming via northern ports, mainly, for cargo.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The certificates of discharge from quarantine from this station are of the kind required by the act of February 15, 1893. No immigration bureau.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

With Sapelo quarantine; yes. This is simply (so far as United States Quarantine Regulations are concerned) an inspection station. For this purpose its facilities are ample and it is extremely well administered.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

All the regulations in question are enforced, including those regarding inspection. Disinfection and detention of vessels requiring it by the above regulations are not done at this station, such vessels being remanded to South Atlantic Quarantine.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes. (Exhibit B.)

17. What disposition is made of the consular bills of health?

One is kept on file at the quarantine station and one filed with the entry papers at the custom-house.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

There seems little to add to what has been written. The relation of this station and that at Hilton Head (St. Helena, or Coosaw, by all of which names it is known) to the State board of health is the same, or about the same, as that of Charleston. The report of the quarantine officer is made immediately to the health board of Beaufort, which makes a report of transactions—a summary only—to the State

board. So far as the United States quarantine regulations are concerned, this is an inspection station. All vessels requiring it are inspected under United States regulations, and all that require disinfection by said regulations are refused entrance unless they are disinfected as these regulations require, being for this purpose remanded to the South Atlantic Quarantine. This is by custom and to comply with the United States law, as the South Carolina regulations (except for Charleston) do not specify the method of disinfection to be employed.

In addition to this, certain other classes of vessels are disinfected, viz: From such tropical ports as the quarantine officer believes not to be infected, but which he believes requires disinfection by the quarantine code of this State. This disinfection is not of the same nature as that required by the United States quarantine regulations for infected vessels, but as the vessels subjected thereto are not required by these regulations to be disinfected at all, this is simply an added safeguard. I believe the station is conducted with unusual care and conscientiousness, and with good judgment.

JUNE 16, 1896.

EXHIBIT A.

THE STATE OF SOUTH CAROLINA, QUARANTINE STATION,
Port of ——, *S. C.*, ——, *189—*.

DEAR SIR: I have the honor to report the arrival of —— at this station on —— , and submit the following answers of commanding officer, over his signature:

1. From what port did your vessel clear?
2. When did you sail?
3. From what port and when did you clear prior to last clearance?
4. What was your cargo or ballast from that port?
5. Number of your crew?
6. Number of passengers?
7. What ports have you touched at during voyage?
8. Was there any infectious or contagious disease at port from which you cleared? If so, what?
9. Was there any infectious or contagious disease at any port at which you touched? If so, where and what disease?
10. Has there been any infectious or contagious disease on board this vessel during last twelve months? If so, what disease?
11. Have you a bill of health? If not, why?
12. What sickness on board while in port of clearance?
13. What sickness on board during voyage?
14. What sickness on board since arrival here?
15. What cargo?
16. What kind of ballast?
17. Where was this ballast obtained?
18. Have any of your crew or passengers come in contact during the voyage with any vessel having sickness on board, or with any vessel from an infected port?

I certify that I have truthfully answered each and every one of the above questions; also that I have received a copy of the printed quarantine regulations from the quarantine officer.

—— ——,
Captain of ship ——, *of* ——.

Having made a thorough inspection of vessel, cargo, ballast, and log book of the ——, I respectfully report ——.

—— ——, *Quarantine Officer.*

EXHIBIT B.

* * * * * * *

12. Discharged from quarantine ——, 189—.

I certify that ——, of ——, from ——, has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury and the State of South Carolina, and said vessel is this day granted free pratique.

—— ——, *Quarantine Officer.*

GEORGIA.

REPORT OF INSPECTION OF LOCAL QUARANTINES.

By Surg. H. R. CARTER, M. H. S.

SAVANNAH.

1. Describe the quarantine station, location, buildings, anchorages, etc.; give limits of anchorages for noninfected and for infected vessels: facilities for inspection of vessels; apparatus for disinfection of vessels and baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects, etc.

The station is 11 miles down the Savannah River, near its mouth, on the right bank, just below the old quarantine station. Its buildings consist of quarters for officers and attendants and for seamen during the disinfection of vessels; also long wharves; ballast trestles, engine house, and house over disinfecting plant. The anchorage for vessels coming into quarantine, not in pratique and possibly infected, is between the black buoys off the station. After disinfection the vessels move higher up the river.

Vessels are boarded sometimes in a yawl and sometimes in the tug *Theckla*, belonging to the station; the latter is especially useful in boarding vessels for orders, etc., in Tybee Roads. The plant is modeled on that of Charleston, S. C., save the sulphur furnace, which is different; nor is the steam chamber fitted for the use of a vacuum. Bichloride solution is distributed from tanks by gravity.

Sickness of an infectious character is not treated here; noninfectious disease is treated aboard ship, or, if need be, in the quarters provided for seamen. No arrangements for care of suspects needed, as they would remain aboard ship. Mail is received daily, via Savannah, in a sailboat. There is a telephone line to Savannah, but no telegraph.

2. Give personnel of the station or port; name of quarantine officer or officers; post-office address; total number of officers and subordinates.

Dr. William J. Linley, quarantine officer; post-office address, Savannah Quarantine, Savannah, Ga. Five employees stay at the station. The mail carrier is an employee of the station, but not allowed to land. The crew of the tug, five all told, are also not allowed on the wharf save when absolutely necessary and when no vessels are there.

3. Transmit copies of laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

Copies of the papers required are herewith transmitted.

The customs of the stations are as follows:

Inspection.—All vessels from foreign ports, all foreign vessels coastwise, and all American vessels coastwise which were in tropical ports during the preceding voyage are inspected, the pilots having orders to bring them to the quarantine anchorage or fly a signal in Tybee Roads.

Treatment.—For treatment vessels are considered in three classes: (*a*) Those that go to Sapelo quarantine; (*b*) those that are disinfected here; (*c*) those that are passed on their inspection. The (*a*) class at present comprises (1) all vessels with infectious disease aboard, or en route, or in port of departure; disease of uncertain nature from a suspected port is held "infectious;" (2) during the summer season, March 15 to November 1, all vessels from Habana, Rio, and Santos; (3) dur- the winter season all vessels from these ports in ballast; steamers in water ballast from Habana (there are none from the other two ports) disinfect at the Savannah Station from November 1 to March 15, and at the South Atlantic the remainder of the year. The (*b*) class, those that are disinfected here, include all (not sent to Sapelo) from ports suspected of infection with yellow fever, which are ruled to

be all ports in the so-called yellow-fever zone not known to be free from that disease. The crews of such vessels as are disinfected here during the winter are not detained, but allowed to go directly up to the city, where the disinfection of the vessel—which is complete, hold, deck houses, and dunnage—is finished. Naturally all not in the preceding two classes are passed, and are in the third (*c*) class. Until this year, 1896, the class sent to Sapelo included more than it does now, i. e., all vessels from any port considered badly infected, whether sail or steam. The quarantine of any vessel is subject to appeal by its consignee to the sanitary board. Vessels from tropical ports via ports of the United States, without disinfection, are considered as if from the tropical port. All ballast of vessels requiring disinfection here is discharged in quarantine, stiffening or ballast logs being sent down to vessels needing ballasting.

4. State what quarantine procedures, either under printed regulations or by customs, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention of vessels.

All foreign vessels, coastwise, are inspected; all vessels from ports suspected of yellow fever are disinfected and detained during the winter season unless the detention caused by disinfection is held unnecessary. There is no undue detention of vessels. The wharf room is ample, the ballast facilities good, and vessels are handled very quickly.

5. State whether inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

Inspection is maintained the entire year.

6. Are vessels from other United States ports inspected?

Foreign vessels, coastwise, and American vessels, coastwise, from tropical ports the previous voyage are inspected.

7. Describe quarantine procedures in the inspection of vessels, and, if inspected, the treatment. Give time in quarantine—(*a*) between arrival and commencement of disinfection; (*b*) time occupied by disinfection, and (*c*) time after completion of disinfection of vessels to discharge.

Vessels are inspected in the usual way. The answers to the questions on the accompanying paper are filled in by the master; it is signed by him, and the disposition of the vessel having been recorded on it by the quarantine officer, it is forwarded to the health officer at Savannah. Should the quarantine officer be in doubt of what disposition to make of the vessel, he consults the health officer, his immediate superior, by telephone. The disinfection is such as is usual with a plant of the kind here. If the vessel be in ballast, all ballast is removed, and in any case the vessel is cleansed before disinfection begins. The hold and deck houses are subjected to SO_2 by burning sulphur in pots, 25 pounds per 100 tons register being used, and at the same time the effects of the crew are disinfected (by steam for the fabrics, and bichloride for ballast, etc.). At the end of twenty-four hours the deck houses, and after forty-eight hours the hold, is washed down with bichloride solution. The vessel is detained five days after this is done.[1]

8. What communication is held with vessels in quarantine (before quarantine by pilots, etc.) and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No communication is allowed with vessels in quarantine, save by the quarantine officer and his employees. Provisions, ballast logs, stiffening, etc., are brought alongside under his direction. Pilots who board vessels which go to Sapelo must remain aboard and return with the vessel. Other vessels the pilots may board and must remain aboard until allowed to leave by the quarantine officer.

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[1] I did not see disinfection performed, but the above is the account of it given to me by the quarantine officer.

They are directed to remain on the bridge, or poop-deck, as the case may be, and not to enter any compartment of the vessel. No intercommunication is allowed among vessels in quarantine.

9. State what would be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessel carrying or not carrying immigrants) and what conditions are regarded as giving evidence of the vessel's infection in each case.

A vessel undoubtedly infected with any of the above diseases would be sent to the South Atlantic Quarantine, whether carrying immigrants or not. If the infection is not certain, the disposition of the vessel would depend, if yellow fever is the disease in question, on the degree of probability of the infection existing. If this be up to a certain degree and the vessel is reasonably supposed to be infected, i. e., from certain ports known to be badly infected, it is sent to South Atlantic Quarantine; if it be less and the suspicion of infection is not great, i. e., from less dangerous ports, it is disinfected here. I think a vessel would be sent to Sapelo with an extremely slight suspicion of cholera. Smallpox is less regarded, and unless the vessel was from a port where this disease prevailed as an epidemic, or had had a case aboard, it would scarcely be considered infected.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Such records are kept at the office of the health officer in Savannah (Exhibit A); no copy is kept at the station.

11. Transmit schedule of quarantine fees, and give fees and other expenses necessarily and usually attendant on quarantine, as tonnage ballast, wharfage charges, etc.

Fee bill is transmitted (Exhibit B). Ballast is 20 cents per ton, the station furnishing a steam hoist and crew for working on the ballast. No other charges.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels came, and whether in cargo, ballast, or empty.

From foreign ports.

Month.	Tropical ports.		Other ports.			Total.
	Empty.	Ballast.	Empty.	Cargo.	Ballast.	
January	2	4	2	10	20	38
February	2	2	1	4	4	13
March	2	4	1	6	17	30
April	1	2	----------	4	3	10
May	----------	2	----------	1	15	18
June	----------	3	----------	3	13	19
July	1	1	----------	1	7	10
August	2	5	1	2	3	13
September	2	1	6	6	13	28
October	----------	3	3	5	19	30
November	1	3	4	8	16	32
December	2	1	2	1	5	11
Total	15	31	20	51	135	252

From ports in yellow-fever latitudes via domestic ports (north): May, 1; July, 1; August, 2; December, 1; total, 5. All of these were disinfected, 3 at South Atlantic and 2 here.

From domestic ports: January, 9; February, 3; March, 3; April, 2; May, 5; June, 5; July, 4; August, 4; September, 6; October, 12; November, 7; December, 3; total, 63.

All of the vessels from tropical ports were disinfected either here or at South Atlantic Quarantine, except a few (7) calling at Tybee for orders only; two were passed, being from clean West Indian ports. Fifteen were disinfected at South Atlantic Quarantine, mainly from Habana, Rio, and Santos, and usually in ballast. Of the vessels marked "empty," practically all were steamships in water ballast.

The export trade of this port is in cotton (by steamer); some phosphate; naval stores (in which this port holds the first place in the world), and lumber. The last three items go by sail or steamer. The imports are mainly materials for fertilizer and salt. The vessels from domestic ports are almost exclusively steamers from northern ports. The direct foreign trade is for nontropical ports, principally from Germany, Great Britain, and the Mediterranean ports, and the tropical trade from Cuban and Brazilian ports, principally Habana, Rio Janeiro, Para, and Santos.

The figures for domestic ports do not show the whole number of vessels coming into Savannah coastwise; only those inspected at the quarantine station. From the books of the customs' officer, I find for 1895 for coastwise vessels:

Month.	Steamships of regular lines.	Other vessels, coastwise.	Month.	Steamships of regular lines.	Other vessels, coastwise.
January	33	28	August	30	26
February	15	10	September	31	17
March	33	15	October	32	25
April	36	22	November	29	27
May	37	9	December	34	20
June	31	20			
July	28	24	Total	369	243

13. State results of your visit to the custom-house and immigration bureau.

Vessels from foreign ports had been habitually entered without the certificate of discharge from quarantine required by law. (Act of February 15, 1893.) There is no immigration bureau and no immigrants, save an occasional stowaway.

14. State whether in your opinion the quarantine facilities are ample to care for the shipping entering the port.

As now administered, they are ample. It would be a danger, however, if vessels undoubtedly infected, such as are now remanded to Sapelo, were treated at this station, while the large number of probably clean vessels lie here. Especially would the ballast of these vessels be a danger, as it is near by the other vessels and where their crews must work. As now administered, it is a very safe quarantine, and every exertion is made, with ample facilities, to lessen the delay of vessels stopping here.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection, disinfection, and particularly the period of observation after disinfection of vessels, are observed.

Except that the form of the certificate of pratique is not that required by law and the amount of sulphur consumed is less than that required to furnish 10 per cent (by volume) of SO_2, all the above regulations are observed. The health officer, when his attention was called to it, promised to have the proper form of certificate issued, and he will increase the amount of sulphur to 35 and 40 pounds per 100 tons, which is about as much as can be burned in this manner.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1895? Transmit copy of certificate.

No. See Exhibits C and D, both of which are issued by the quarantine officer. One (C) is taken up by the harbor master, and is the evidence that the vessel has been through quarantine and can take her berth; the other (D) goes to the customs officer. A proper form of certificate will be issued in future.

17. What disposition is made of consular bills of health?

Both copies are filed in the collector's office with entry papers. One copy will hereafter be kept at the quarantine station.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

There seems to be no recommendations to make and no facts other than those already mentioned. This is an extremely safe station, and vessels are carried through with as much expedition as the regulations will allow. I have never seen a more smoothly working station.

AUGUST 24, 1896.

EXHIBIT A.

QUARANTINE STATION,
Port of Savannah, Ga., ——— *189*—.

———, *Health Officer:*

SIR: I report the arrival of ——— at this station on ———, and submit the following answers of commanding officer, over his signature:

Port of last clearance:

1. From what port did your vessel last clear? ———
2. When did you sail? ———
3. Number of crew —— and passengers —— from that port? ——
4. Is there any change in your crew or passenger list since leaving port of prior clearance? ——— Why the changes? ———
5. What is your present cargo, or ballast? ———
6. Where was this ballast obtained? ———
7. What was the character of this cargo, or ballast? ———
8. Was your vessel fumigated at port of last clearance? ———
9. Have you a bill of health? ——— If not, why? ———
10. What sickness on board while in port of last clearance? ———
11. What sickness on board during voyage to this port, or at present time? ———

Port of prior clearance:

1. From what port did you clear prior to last clearance? ———
2. When did you sail from that port? ———
3. Was there any infectious or contagious disease at that port? ———
4. What sickness on board while in that port? ———
5. What ports have you touched at during voyage from that port? ———
6. Was there any infectious or contagious disease at any of these ports? ——— If so, where, and what disease? ———
7. What sickness on board during voyage to port of last clearance? ———
8. What cargo or ballast to foreign port of clearance? ——— Where obtained? ———
9. What cargo or ballast from this foreign port to American port? ——— Where obtained? ———
10. Has there been any infectious or contagious disease on board this vessel during last six months? ———
11. Have any of your crew or passengers come in contact during the voyage with any vessel having sickness on board, or with any vessel from an infected port? ———

I certify that I have truthfully answered each and every one of the above questions.

———, *Captain, of* ———.

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[1] Having made a thorough inspection of vessel, cargo, ballast, and log book of the ———, I respectfully report ———.

———, *Quarantine Officer.*

EXHIBIT B.

Schedule of charges for vessels at quarantine station, Savannah, Ga.

[Extract from minutes of council, April 10, 1895.]

Resolution read for the first time March 27, 1895; laid on the table, taken up, and adopted.

By Alderman Carolan:

Resolved by the mayor and aldermen of the city of Savannah in council assembled, That from and after the 15th day of April, 1895, the following shall be the schedule of charges by the mayor and aldermen of the city of Savannah for vessels at quarantine station:

For inspection or boarding fees:	
For each steamship	$15.00
For each ship or bark	10.00
For each brig or schooner	7.50
For fumigating and disinfecting the charges shall be as follows:	
For every vessel of 100 tons or less	5.00
For every vessel over 100 tons and not exceeding 500 tons	10.00
For every vessel over 500 tons and not exceeding 750 tons	15.00
For every vessel over 750 tons and not exceeding 1,000 tons	20.00
For every vessel over 1,000 tons and not exceeding 1,250 tons	25.00
For every vessel over 1,250 tons and not exceeding 1,500 tons	30.00
For every vessel over 1,500 tons and not exceeding 1,750 tons	35.00
For every vessel over 1,750 tons and not exceeding 2,000 tons	40.00
For every vessel over 2,000 tons	45.00

For discharging ballast at quarantine, 20 cents per ton.

HERMAN MYERS, *Mayor.*
W. F. BRUNNER, *Health Officer.*

Attest:
A. N. MANUCY, *Clerk of Council.*

EXHIBIT C.

QUARANTINE STATION,
Port of Savannah, Ga., ———, *189—*.

———, having complied with the quarantine regulations, is permitted to proceed to the city.

———,
Quarantine Officer.

EXHIBIT D.

SAVANNAH QUARANTINE STATION, ———, *189—*.

This is to certify that no person afflicted with leprosy is, or has been, on board the ———.

———,
Quarantine Officer.

REPORT OF INSPECTION OF UNITED STATES SOUTH ATLANTIC QUARANTINE.

By Surg. FAIRFAX IRWIN, M. H. S.

The following is a report of my inspection of the United States quarantine station at Blackbeards Island, Sapelo Sound:

The difficulty of reaching this station is well known to you. I, however, reached the place without trouble or delay through the courtesy of Dr. Brunner, who furnished me transportation in the quarantine tug *Theckla*. I reached the station on the afternoon of one day and left on the afternoon of the next, not wishing to detain the tug; hence the time for inspection was shorter than I wished.

I found Acting Assistant Surgeon Geddings at the north end, in the 21-foot launch *Delta*, and we started at once for the south end. Unfortunately, the tide was very low and the boat stuck in the mud of the "cut," and there we remained four hours. Some arrangement to deepen this cut should be made.

The buildings and grounds at the south end are in good condition. The surgeon's quarters are the best I have seen; commodious and well furnished. The executive building is rather small and crowded, and storage room is badly needed. The lazaretto is too distant to be used for this purpose. There are too many cattle and horses at this station; they use a great quantity of forage and take up too much of the time of the attendants for their care. Some of them should be disposed of without delay. The boats of the station seem to be in good condition, but fear is expressed that the launch *Hygieia* will break down again. I do not know enough about launches to express an opinion, but I believe the trouble is faulty construction. At any rate, she has too much power, and, I think, will always give trouble. The 21-foot launch is needed at the station, and should be kept there.

The buildings at the north end are in fair condition. The new wharf is commodious for the treatment of one vessel, but more wharf room is imperative, owing to the number of ships coming to the station.

The machinery is in good condition, and experiment is now being made with the sulphur furnace for washing the gas. The hose for bichloride delivery is bad and the large rubber hose for sulphur worn out; the light hose lately furnished is too thin and kinks. The ideal hose for this work has not yet been found.

The water supply at both ends of the island is ample, and, except that it is very hard, of good quality.

The anchorage at this station has never been marked by quarantine buoys, and it should be done at once. Vessels anchor now too far from the wharf, and it makes the work of inspection very difficult, especially in bad weather. A request to this effect was, I believe, made last year and referred by the Bureau to the Light-House Establishment, but nothing has been done.

RECOMMENDATIONS.

A yellow-fever camp at the north end should be arranged for use until a hospital can be built. Five tents, 12 by 14, with flies, should be furnished, and a rough frame house, 16 by 22, constructed for use as a storeroom, and, when camp is opened, as a kitchen; if lumber were furnished, this storeroom could be constructed by the attendants. It is particularly needed because all supplies are brought from the north end, and a good supply of stores should be always on hand.

I think an acting steward should be appointed during the active quarantine season in order that the acting assistant surgeon may give his entire attention to the north end. Of the stock on hand, one horse (old), one colt, one cow, and four yearling calves should be disposed of at public sale.

In order to gain room for storage, I suggest that the old hospital, or lazaretto, be moved up to the station, where it can be used for the purpose. This work can be done by the attendants, and but a small amount of lumber and shingles would be needed for repairs.

A new laundry building is badly needed, with modern equipment. The present building is very old, unsuitable, and badly situated.

Slight repairs to the ballast wharf are needed, owing to the rotting of piles, and arrangements should be made to have this work done when the new wharf now contemplated is erected.

I doubt very much the advisability of building a hospital on land at the north end, owing to the danger of malaria there. It should, if possible, be built on the new wharf.

A blacksmith's outfit or portable forge is needed at this station, as the horses are in bad condition for want of shoeing; a similar forge to that furnished the Delaware Breakwater Quarantine would answer the purpose, and it costs, I think, about $50.

Finally, I am of opinion that a 40 or 45-foot seagoing naphtha launch should be furnished this station, and the *Hygeia* sent elsewhere. This would probably solve the ever-recurring difficulty of obtaining supplies.

APRIL 1, 1896.

[NOTE.—Material for temporary camp at north end authorized by Bureau; also sale of cattle authorized; blacksmith outfit to be furnished; a larger naphtha launch furnished; *Hygeia* transferred.]

REPORT OF INSPECTION OF UNITED STATES SOUTH ATLANTIC QUARANTINE STATION.

By Surg. H. R. CARTER, M. H. S.

Name of quarantine station: South Atlantic Quarantine.

When was the station last inspected? March 30, 1896.

Name of inspecting officer: Surg. Fairfax Irwin, Marine-Hospital Service.

I. PERSONNEL.

Name of officer in command: P. A. Surg. James A. Nydegger.

Date of assignment to duty: March 7, 1896.

Name and rank of assistants, including acting assistant surgeons; also give number of members in each family: E. F. Geddings, acting assistant surgeon; one member in family.

Name of steward and number of members in family: No steward.

Name and duties of each attendant: Zevaco Dominique, pilot of launch, carpenter, and engineer at south end; A. M. Dominich, engineer of launch, etc.; E. L. Floyd, gardener and cowherd; H. D. Sievers, engineer, north end; J. E. Hutson, nurse, painter, etc.; H. A. Bell, boatman and cook at north end; J. C. Deloach, hostler, etc.; L. F. Hauseman, cook, south end; C. N. Maury, nurse and outside work; Stephen Wylley, mail carrier; Sophie Bell, laundress.

II. GENERAL DESCRIPTION OF STATION.

Number of buildings: Thirteen.

Limit of anchorage for noninfected vessels: No marks for limits; vessels after disinfection dropped to east or west limit of anchorage from the wharf.

Limit of anchorage for infected vessels: Close to disinfecting wharf.

Facilities for inspection of vessels: Yawl and naphtha launch.

Apparatus for disinfection of vessels and of baggage: Steam chamber; tanks and steam force pump for bichloride solution; sulphur furnace and attachments, etc.

Facilities for removal and treatment of sick: Brought ashore in a boat in tow of launch, or in launch, and treated in temporary hospital at north end. Can be taken to the hospital at the south end, but this would not in general be advisable.

Facilities for removal and detention of suspects: No suspects come here save crews of vessels. These are detained aboard. They can, however, be brought ashore and detained in the hospital at the south end or in tents on the beach.

Mail and telegraph facilities: Mail daily except Sunday; telegraph station at Darien, 26 miles distant, reached by launch in three and one-half hours; telegrams come from Darien by mail in about thirty to forty-eight hours.

Give number of wharves: One.

What is the length of the wharf frontage? Two hundred and fifty feet.

Are the wharves in good condition? Only fair.

Are the mooring facilities ample? No; one of the dolphins, 6 piles, put down last fall, is gone, and another washed over by the force of the sea, no vessel being at the wharf; it has been pulled in place again, but is of no use as a mooring.

What is the depth of water at mean low tide along the front of the wharf? Twenty-five feet.

What is the source of water supply? Two artesian wells.

Is it sufficient? Yes.

Is it potable? Yes.

Hard or soft? Hard.

If hard, does it injuriously affect the boilers in use at the station? It is evidently not good water for a boiler.

How is it distributed and stored, if storage is necessary? Distributed direct from well in pipes to where needed.

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant: Sulphur furnace and attachments, steam chamber, steam pump, tanks, etc., for bichloride solution.

What is the general condition of all machinery? Fairly good. The lead joint of the steam chamber is not perfect, but has been upset, and will last through this season. The pump for the bichloride solution is not in order, and is too small for efficient service. Pipe for distribution of SO_2 is worthless. Bichloride hose worthless.

Does it appear well taken care of, or neglected? It appears well taken care of, save the joint of the steam chambers, which has been badly handled.

Is there a steam hoisting engine for ballast? Yes.

Are there ballast tubs and a ballast car for the distribution of ballast? Yes.

How is ballast disposed of? Dropped through the ballast gangway into deep water.

Is it disinfected prior to being discharged; and what facilities exist for supplying ballast to vessels needing it? Not disinfected prior to discharge. Vessels needing ballast get old ballast by disinfecting it; immersing in bichloride solution.

What are the dimensions of the steam disinfecting chamber? Sixteen by 7½ by 7½ feet.

Is it rectangular or cylindrical? Rectangular.

How many cars are provided? One.

Are infected articles put in at one end and brought out at the other after disinfection, or is one end of the chamber used for loading and unloading? Put in at one end and brought out at the other.

Is the chamber provided with thermometers for indicating the temperature during the process of disinfection? Yes.

Is the chamber equipped with any apparatus for the production of a partial vacuum? What is the nature of the appliance? If efficient in operation? Provided with a steam jet for vacuum; it is exceedingly efficient.

What vacuum is produced, and how long does it take to obtain it? Ten inches; less than one minute.

Is a sulphur furnace provided? Yes.

Give a diagram of the method of gas distribution, showing the number of gas outlets: Four 6-inch outlets in a 14-inch pipe, with 16 feet 8 inches between centers.

How many feet of sulphur hose are provided? One hundred feet.

What is its condition? Bad.

What is the condition of the fan and engine? Good.

What is the method of storing bichloride solution? In tanks.

What is the capacity of the tank or tanks? Two tanks of 4,500 gallons each.

Are they of wood or iron? Wood.

What is the elevation of the tanks above the wharf flooring? Twenty-two feet.

Is the solution distributed by gravity, or is there a pump for the purpose? Distributed by a pump.

How many feet of hose are provided for the distribution of the bichloride solution, and what is its size and condition? Two hundred feet of ¾-inch hose; condition bad.

How many steam boilers are provided? Two.

What is their condition, and do they supply sufficient steam for all purposes? Good; two tubes have given out (and are plugged with cement) in the boiler of the steam chamber; the chance is that others are not good for a long time. It is efficient now, however. It is exceedingly difficult to examine, and I could not do so without taking it partly apart, which was not possible without stopping the work which was going on.

Is the station provided with a steam tug or other steam vessel? No.

Is the station provided with a steam or naphtha launch? Yes; two naptha launches.

Give dimensions? One 30-foot cabin launch and one 25-foot open.

What is their condition? Open one good; cabin launch out of repair.

Give report of medical officer as to efficiency of the launch: His opinion coincides with that above expressed. Open launch is very useful; cabin launch less so; frequently out of repair.

How many small boats are provided, and what is the condition of them and their equipment? Two; good.

Are more boats necessary or desirable? Another yawl 15 feet long is desirable, and if a small 25-foot launch, with extra free board and 18 inches extra beam, decked over except a small cockpit, were furnished for boarding purposes, instead of one of the large launches, it would be of great advantage, as the two large ones are in the way. This, however, is not absolutely necessary.

Give location of building used as hospital: There are two—one at south end, one-half a mile below the station; one at north end; wood and canvas.

Give general description of the building: South end—pavilion hospital of two compartments, built of dressed pine, ceiled, with hallway which can be used as another ward; north end—wooden floors and frames, with canvas sides and roofs. One erected, and frames for four more ready to be covered, a work of a few hours, when needed.

Dimensions: South end, 72 by 25 by 14 feet; north end, four buildings 12 by 14 feet, one 14 by 16 feet, and one 8 by 10 feet.

Number of beds in each ward: At south end, 6 in each ward; 2 in hallway.

How many beds can be added for emergencies? Six or 10 more.

Cubic air space allowed each patient: With 10 beds in building, about 1,500 cubic feet.

Heating, lighting, and ventilating: Stoves, lamps, and windows, or tent flaps open.

Has the hospital sufficient furniture? Yes.

What kind of bedsteads and what kind of mattresses and bedding? Iron bedsteads and spring mattresses.

Condition of bedding occupied by patients: Bedding good; no patients.

Are the beds clean and free from vermin? Yes.

What is the condition of wards as to general cleanliness? Perfect.

Is the nursing sufficient, and is the nurse immune? Two nurses; both immune.

Does the character of the diet furnished conform to that prescribed in the diet table for marine hospitals? No relation between diet which would be given patients here and the diet table of the Marine-Hospital Service; nor between the diet of the attendants and said diet table.

Is a proper record of the patients under treatment kept? Yes.

VI. OUTBUILDINGS AND GROUNDS.

Describe general condition of outbuildings: All very good save stable and laundry.

Are the grounds well policed? Yes.

Describe officer's quarters and condition of furniture: Quarters good and furniture good; both in good order.

Describe attendants' quarters and condition of furniture: Quarters good and in good order, save that the gallery is slightly decayed and roof said to be somewhat leaky in a heavy wind and rain; furniture sufficient and in good condition; everything beautifully clean and neat.

Describe dining room, condition of table furniture, and tableware: Fifteen by 12 feet; in good condition; table furniture sufficient and in good condition.

Describe kitchen and furniture: Twelve by 12 feet; good range and fairly sufficient furniture.

Describe dispensary: A room 12 by 15 feet is used as a dispensary and office combined, and is in good order.

Describe laundry: A small building with ordinary tubs and washboards, etc., 15 by 20 feet.

Describe approaches to the station: By land, the approach is by the beach; good in low, bad in high tide; the immediate approach is deep soft sand and bad. By water, approach is by Blackbeard River, and very good at high tide.

Describe condition of fences and grounds: Fencing is good; grounds are good, except sandy; can not prevent sand from drifting, and it is a matter of no moment.

Describe drainage and condition of water-closets: All seem to be good.

Describe disposal of slops: Go by drainage pipe to the water, Blackbeard River.

State whether any animals not authorized by the Department are kept on reservation: None worth mentioning.

VII. EQUIPMENT.

State, approximately, age and condition of each horse, and how long in service at this station: One 12 years old, in bad condition, stiff and rheumatic; one 6 years old, in fair condition; one 7 years old, in fair condition. All have tender feet from driving on hard beach without shoes. One 2 years old, good colt.

Give number and character of vehicles: Two Dayton wagons, one log wagon, one cart, and one ambulance.

Are they properly cared for? They are, I think, well cared for; not in very good order, but the service is hard.

Are harnesses in good condition? In fair condition only; climate is bad for leather.

Is there a blacksmith's forge provided? No.

Are there farming implements; and if so, are they in good condition? There are gardening tools. Some are and some are not.

Is there a fire apparatus provided; and if so, is there a fire drill organized? Yes; no fire drill to date.

VIII. DISCIPLINE.

Are officers and employees supplied with uniform in compliance with the revised uniform regulations? All have uniforms, save one attendant recently employed, who has ordered one. The uniforms are not all exactly alike.

Are uniforms properly worn?

I think so.

Give method of granting leaves to officers and employees: Leaves given without any special method, under paragraph 39 of regulations, United States Marine-Hospital Service. Leaves are not given during the quarantine season.

Describe when and how inspection, muster, and fire drills are conducted: Inspection every Sunday morning, and a muster in rank once a month; no fire drills at present.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. From what countries chiefly do the vessels come? Are they in cargo, ballast, or empty?

Month.	Foreign ports.		Other ports.		Foreign ports in yellow-fever latitudes, etc.	Domestic ports.
	Ballast.	Empty.	Ballast.	Empty.		
January	3	2	6			
February			2	1		
March	4	1	4			
April	1	1	4			
May	3	2	5		1	2
June	2		1		1	1
July	3	1	1		1	
August	3	1	2		1	
September	1	4	2			
October	3		4			
November	2	1	7			
December			6			
Total	25	13	44	1	4	3

No vessel in cargo was inspected in 1895. All of the vessels from tropical ports were disinfected here save 11—3 in January, 3 in March, 1 in April, and 1 in November; 1 in September was sent to the Brunswick Quarantine for disinfection, and 2 schooners from clean West Indian ports were passed. All of the vessels under (*b*), the "via vessels," were disinfected; 31 vessels were disinfected for yellow fever. One vessel coming with several cases of typhoid had her tanks disinfected and water supply changed. Save 3, all of the vessels recorded as empty were steamships. From present indications the number of vessels for the present season requiring disinfection will be considerably greater than last year.

State whether in your opinion the quarantine facilities are sufficient to care for the shipping arriving at the station: No; with the present facilities and present clientele vessels must be kept waiting longer than is reasonable, and there is undue obstruction to commerce. The accompanying table gives the time spent by each vessel at this station in 1895.

Time spent in quarantine at the South Atlantic Quarantine by vessels during 1895.

Description of vessel.	Number of days.	Description of vessel.	Number of days.
Ballast	12	320 tons ballast	15
200 tons ballast; preliminary disinfection	17	Steamship	10
Steamship	5	Do	9
Ballast	16	Do	6
Schooner	7	100 tons ballast	12
200 tons sand	16	110 tons ballast	13
Stone ballast	19	Steamship	9
Steamship	13	90 tons ballast	12
207 tons ballast	10	Schooner	9
Steamship	7	500 tons ballast	24
Schooner	12	400 tons ballast	18
Do	6	550 tons ballast	26
200 tons ballast	19	320 tons ballast	23
116 tons ballast	17	Ballast	14
Schooner	8	200 tons ballast	22

In addition, a steamer (the *Martin Saenz*) after laying a short time for a berth at the wharf here was taken to the Brunswick station for disinfection.

Give annual amount expended at station for last three years. In 1893, $11,149.49; in 1894, $11,679.28; in 1895, $15,904.76.

Give the immediate needs of the station as stated by the commanding officer: New stables should be provided, together with the new work already provided for, viz, extension of wharf, etc. There are needed four dolphins to replace those washed away recently; an additional ballast car and two buckets, wheelbarrows, and rail for ballast track; an additional yawl, boat tackle, and some lumber, etc., hand force pump to use in emergencies; sulphur pots, and new thermometer for the steam chamber.

RECOMMENDATIONS.

Processes of disinfection: For the matter of the SO_2 I would recommend that galvanized pipe be provided for its distribution to the vessel. The cost of this pipe is trifling compared with the sulphur hose, and it is very durable. It is in use at Tortugas, the suction hose there having been discarded. The conditions here are somewhat different, but the cases in which it could not be used would be few. One length of suction hose should be kept on hand, however, in case it is needed, and enough can be cut from the hose (otherwise worthless) now on hand to make a sliding joint with the galvanized pipe. Pots can always be used in an emergency and enable us to disinfect a vessel in the stream when she can not reach or lay at the wharf. From 40 to 45 pounds of sulphur can be burned in them, and while this will not give the percentage of SO_2 required by regulations, it is, I think, efficient, and in an emergency, I think, should be allowed.

For the bichloride process the only recommendation I would make for the present is that new hose (1-inch) be obtained, and obtained immediately. This is a far more important process than the fumigation, and I doubt if it be safe to take risks on it. I would recommend that later a heavier pump, with 1½-inch delivery hose, be provided. This is not too large for easy handling, and is as small as consistent with efficient work on large vessels. The engineer says that the air pump bought for the chamber, but not used, will do for this purpose. I do not know, not knowing if it has any peculiarity of construction. It is brass lined and would not last very long. For the same reason as the sulphur pots—viz, to meet an emergency—a hand force pump, for the use of bichloride, should be furnished the station. A rotary pump is, I think, the best. It is also cheaper and more durable.

In this connection I would suggest, if the plans now under consideration by the Bureau do not give abundant wharf room, that a tank in the hold of the lighter now at this station, and a small boiler and a pump on her deck at one end for the use of bichloride, would enable a vessel to leave the wharf as soon as she was fumigated, instead of having to hold the wharf forty-eight hours longer for washing the hold. It would thus, so far as disinfection is concerned, increase two to four fold the number of vessels which would be handled in a given time. Its cost would be small and in nowise interfere with the present use of the lighter. I do not know if this be needed, because I have only a general knowledge of the plans for the improvement of the station. It is merely suggested.

For the immediate handling of ballast I would recommend the purchase of a small amount of rail for the ballast track, another car, and two more buckets. With two tracks, the ballast of a large vessel will go twice as fast as at present. Wheelbarrows, too, should be provided to carry ballast short distances where it is needed to save the wharf piling and to help out the cars in vessels with large crews. They are cheap and are needed. With these things and $20 worth of lumber the station force can lay the track and care for all the ballast likely to come this year, as well as save the back and west end of the old wharf, which are

in very a bad condition. After the wharf is secured, the ballast gangway should be extended. In one more year it will probably go as far as it can be carried.

Dolphins for mooring should also be put in place; certainly four, and six would be better. Those put in last year were, I judge, imperfectly driven. One is gone, pushed over by a vessel pressing against it, and one other was capsized by the force of the waves alone, no vessel being against it. It was, however, pulled in place, or nearly in place, with the hoisting engine. Whether the others are reliable is doubtful.

Two mooring buoys should be put in place, so as to facilitate vessels coming in to and leaving the wharf. This is at times by no means easy with the present arrangements.

As to the administration of the station, the proper recommendations therefor are difficult to make, as they involve changes more or less radical. I think that the north end should be counted "the station," and as little done at the south end as it is possible to get on with, and indeed in the future it may be possible and best to abandon it. It is not so now.

As soon as possible, all of the attendants save one man (and such as make the transfer of supplies if the present system, a bad one, be continued) should live at the north end. Several of them could then be dispensed with, together with the horses, cows, etc.

During the summer season the officer in command must also live at the station—the north end. He need not habitually sleep there, but should always be prepared to do so, and if there were work on hand would do so from preference. If Elliotts Cut in Blackbeard River be dredged, he can, when he prefers, sleep at the south end and be at the station by sunrise and stay until sunset. This is no more than was required and done during the fall of 1892 at Cape Charles. It will be better and more convenient, however, when he can live at the north end altogether. For this there should be a room fitted up for the officer in command on the pier head, and quarters and kitchen for the attendants. I believe that this would make the administration so much less laborious, more satisfactory, and efficient that it would much more than offset (for the officer) the inconvenience of this way of living, and I recommend it. There can be no question as to the increased efficiency of the service. P. A. Surgeon Nydegger agrees with me in this statement and recommendation.

I am informed that a small hospital building has already been provided for at the north end. This is needed. Tents will usually do very well to treat yellow fever in and in fine, hot weather are cooler than a house, and consequently, I think, better; but in the fall of the year, when we are most apt to have yellow fever here, the weather is apt to be cold and bad and tents are unsuitable, or less suitable than a house.

I certify that the foregoing is a careful and correct statement of the condition of the service at the South Atlantic Quarantine Station, inspected by me this 27th day of June, 1896.

H. R. CARTER,
Surgeon, M. H. S., Inspector.

DARIEN.

1. There is no quarantine station at Darien. All vessels which enter here—loading lumber and timber at Creighton Island (Sapelo Sound), Julienton, Union Island, and Darien—requiring quarantine inspection are inspected and passed on at the United States South Atlantic Quarantine Station.

2. There is no quarantine officer here.

3. There is no local quarantine maintained at Darien.

4. There are no quarantine procedures here; those at the South Atlantic Station have been described in the report of that station.

6. Are vessels from other United States ports inspected?

No; but vessels from tropical ports via United States ports are inspected at the South Atlantic, as are all coastwise vessels with sickness aboard.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

No fees relating to quarantine.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

(*a*) *From foreign ports.*

Month.	Tropical ports.		Other ports.		Total.
	Ballast.	Empty.	Ballast.	Empty.	
January			3		3
February			4		4
March	1	1	2	1	5
April		1	3		4
May	1		6		7
June			1		1
July			1		1
August	1		2		3
September		2	2		4
October	1		4	1	6
November	1		7		8
December	1		2		3
Total	6	4	37	2	49

(*b*) There is no record here of vessels in class (*b*).

(*c*) There were 131 vessels coastwise; nearly all via Doboy Sound.

The vessels from tropical ports are mainly from Cuban and Brazilian ports, steamships in water ballast being considered empty.

The commerce of the port is in lumber and timber, and mainly, as may be seen, in square-rigged vessels from transatlantic ports in ballast. There are no imports. The coastwise trade is, naturally, entirely with northern ports. The foreign exports are entirely yellow pine, but a large and rapidly increasing amount of cypress is exported coastwise.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The data in No. 12 are from the custom-house. The deputy collector is Mr. R. W. Grubb, of Darien, a subport of the Brunswick district. He takes much interest in quarantine and has rendered valuable service therein. He keeps a record of all vessels which load in his district, as well as those that make customs entry.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

The present arrangement is fairly good, but it would be better if there was an inspector at Doboy for vessels which may enter there.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection of vessels, are observed.

All regulations of the Treasury Department are carried out for this port.

16. Does the certificate of inspection or of pratique signed by the quarantine

officer state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes. See Exhibit A.

17. What disposition is made of the consular bills of health?

One kept at South Atlantic Quarantine and one filed with the entry papers.

AUGUST 22, 1896.

INSPECTION REPORT ON THE QUARANTINE OF SAPELO AND DOBOY SOUNDS.

By Surg. H. R. CARTER, M. H. S.

I beg leave to submit the following report and recommendations on the quarantine of Sapelo and Doboy sounds, which, from the nature of things, can not well be made in the forms provided for quarantine inspection.

At the custom-house at Darien, Ga., a subport of Brunswick, a considerable number of vessels engaged in the timber and lumber trade enter. These vessels load at various places—Darien, Julienton, Creighton Island (Sapelo), and Union Island. None load now at Doboy. They come in from sea by two routes, Sapelo Sound and Doboy Sound, both of which are under the same pilots' association. On the Sapelo bar is 28 feet of water. The Doboy bar has shoaled much of late years, and has now only 16 feet of water on it. Vessels that come over Sapelo bar are inspected at the South Atlantic Quarantine. There is no inspector at Doboy. The large vessels (square riggers) which load in Sapelo Sound can not now enter at Doboy, but there are a large number of vessels of light draft, mainly American schooners, which do enter there and load at Union Island or Darien.

During the calendar year 1895 121 vessels, American schooners, entered by Doboy. Of these, 71 entered during the quarantine season. These vessels were all coastwise. Vessels from foreign ports are, as will be seen, forbidden to enter by Doboy, and except for this prohibition a somewhat larger number would have come in here, it being more convenient generally for vessels to come in over this bar than at Sapelo. The arrangement at present obtaining, and a fairly good one, is this: The pilots are instructed by the collector to bring (1) all vessels from foreign ports, and (2) all vessels coastwise which have been in a foreign port within ninety days, to Sapelo Sound for inspection. Over the first-class vessels from foreign ports, as these must enter at the custom-house, the collector exercises absolute control, and such a vessel coming in by Doboy Sound can not enter the custom-house, but must proceed to the South Atlantic for inspection. Generally this requires her to put to sea again and come in by Sapelo Sound. This has happened in several instances, and has rendered pilots and towboatmen careful. American vessels coastwise do not make customs entry, and thus there is no control over the second class, "via vessels," or rather there would be no control if the collector did not inquire into the history of all vessels loading in the sounds, getting the name of the vessel from the consignees as soon as she is chartered, tracing her up in the Maritime Register, and then notifying the pilots whether she is required to go by Sapelo or not.

This he does, however, and I believe the "via vessels" are under good supervision while the present deputy is in office. It will be seen, however, that the whole arrangement depends on the fidelity and carefulness of the pilots and on the interest which the present deputy collector takes in sanitary matters; but with this there is always the risk that vessels of light draft (from the West Indies or north coast of South America) coming in by Doboy without a pilot will have to wait some time before they can get outside and go to Sapelo. During this time they would almost of necessity be in communication with the shore.

I think, then, it would be a distinct advantage, in addition to the present arrangements, to station during the quarantine season an inspector or sanitary guard at Doboy, simply to see that no vessel passes that place which should go

to Sapelo for inspection. There is no need of this man being a physician. Indeed, there is no need for him to inspect a vessel; simply to determine if she requires inspection, and if so, to send her to Sapelo.

I have therefore to recommend the appointment of P. B. Allston, aged 32 years, born in South Carolina, no service in United States Army or Navy, as sanitary guard (or inspector), at Doboy, Ga., during the quarantine season, at a compensation of $25 per month, said Allston to furnish his own boat. Mr. Allston is the care taker of the Cane Creek Mills, opposite Doboy, and is a man of intelligence and fair education, having been a shipping clerk, and I believe will make an efficient officer. If this appointment is approved by the Bureau, I would suggest that the instructions sent Mr. Allston be very definite and brief.

AUGUST 29, 1896.

REPORT OF INSPECTION OF UNITED STATES QUARANTINE STATION AT BRUNSWICK.

By Surg. FAIRFAX IRWIN, M. H. S.

I have the honor to make the following report of my inspection of the national quarantine station at Brunswick, Ga. I found Sanitary Inspector Burford, in charge of station, in Brunswick, where he resides, except during the active quarantine period. There is telephone communication between the city and station, and the place is easy of access. There are at present but two attendants properly uniformed and disciplined, and they show themselves to be familiar with their duties. The machinery is all in first-class condition, newly painted, and evidently well cared for. The steam chamber is the best I have seen anywhere and can be easily operated by one man. The contract for the new ballast wharf has just been concluded, and it is hoped that it will be ready for use by the opening of the quarantine season.

The buildings are clean, but otherwise in bad condition; most of them are old and all unpainted. I recommend that as soon as the state of the quarantine appropriation will allow sufficient paint for painting these buildings be furnished; the work can be done by the attendants of the station.

The building used as quarters for the medical officer is in a dangerous condition, very much out of plumb, and liable to be blown down; an appropriation for its repair should be asked for as soon as convenient.

A small naphtha launch is very much needed at this station for the use of the medical officer, and I recommend that one of the two 21-foot launches now at Key West be sent there.

APRIL 1, 1896.

REPORT OF INSPECTION OF UNITED STATES QUARANTINE STATION AT BRUNSWICK.

By Surg. H. R. CARTER, M. H. S.

Name of quarantine station: Brunswick Quarantine Station.
When was the station last inspected? March 27, 1896.
Name of inspecting officer: Surg. Fairfax Irwin, Marine-Hospital Service.

I. PERSONNEL.

Name of officer in command: R. E. L. Burford, sanitary inspector, Marine-Hospital Service.

Date of assignment to duty: September 1, 1893.

Name and rank of assistants, including acting assistant surgeons; also give number of members in each family: No assistants.

Name of steward and number of members in family: No steward.

Name and duties of each attendant: Vincent Penebod, engineer and headman; Pascual Salvador, boatman; Alex. Lang, night watchman; E. J. Penebod, cook and laundress.

II. GENERAL DESCRIPTION OF STATION.

Number of buildings: Four. (1) Shed for disinfecting plant; (2) quarters for officer, attendants, and seamen during disinfection; (3) kitchen and quarters for engineer; (4) shed for storage.

Limit of anchorage for noninfected vessels: Not marked.

Limit of anchorage for infected vessels: Not marked.

Facilities for inspection of vessels: Yawl boat.

Apparatus for disinfection of vessels and of baggage: An excellent plant of modern type for use of steam, bichloride, and sulphur dioxide. Except that at Fernandina (which is modeled after this), it is the best I have seen of its general plan. The ballast plant is also good; with slight expenditure would be perfect.

Facilities for removal and treatment of sick: It is not intended to treat those sick with infectious disease at this station. In such cases the vessel and sick would be sent to South Atlantic Quarantine. The island, however, is sufficiently roomy to treat such cases, in an emergency, in tents, without endangering the crews of vessels at the wharves.

Facilities for removal and detention of suspects: It is not intended, in general, to remove suspects from their vessels here; vessels with many passengers would be sent to South Atlantic Quarantine. Such could, however, be readily accommodated on the island in tents.

Mail and telegraph facilities: Good. Post-office and telegraph office in Brunswick, with which the station has telephonic communication.

Give number of wharves: Three.

What is the length of the wharf frontage? Seventy-two feet, 30 feet, 40 feet; all are 30 feet deep.

Are the wharves in good condition? The 40-foot wharf, built this spring, is in good condition; the others, especially the 30-foot ballast wharf, are not in very good condition; need slight repairs next season.

Are the mooring facilities ample? All the dolphins are new and strong; a few more may be needed.

What is the depth of water at mean low tide along the front of the wharf? Seventeen feet.

What is the source of water supply? Rain water, collected in cisterns; water is bought occasionally from water-boats for boilers; it is from the artesian well in Brunswick.

Is it sufficient? No, so far as rain water is concerned; but an unlimited quantity can be bought, and is very cheap, one-fourth cent per gallon.

Is it potable? Yes.

Hard or soft? The rain water is soft; the artesian is hard.

If hard, does it injuriously affect the boilers in use at the station? It has not so far injured them perceptibly. Generally the artesian water has to be used in the boilers.

How is it distributed and stored, if storage is necessary? Stored in cisterns; a pipe leads from cistern to boilers. Pumped from water boats into a 2,000-gallon tank. To the hoisting engine at the upper ballast wharf it is taken in buckets, generally from the vessels being unballasted.

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant: (1) Sulphur furnace, double, with connections, hose, and engine; (2) steam pump, tank, etc.,

for bichloride solution; (3) steam chamber with vacuum pump, etc., for fabrics; (4) boiler.

What is the general condition of all machinery? Good or fair. The bichloride pump is not in perfect order, but works fairly, and the cars of the steam chamber need overhauling. The pan in one furnace is badly cracked, and leaks sulphur when it is molten, a matter, however, of no importance.

Does it appear well taken care of or neglected? As well taken care of as is possible with the force at the station.

Is there a steam hoisting engine for ballast? Yes, two of them—12 and 8 horse-power.

Are there ballast tubs and a ballast car for the distribution of ballast? Yes; three cars in good order and one which can be repaired; also three tubs; tubs nearly worn out; new tubs advertised for.

How is ballast disposed of? Carried back and deposited on the marsh. The site of the station is ballast.

Is it disinfected prior to being discharged, and what facilities exist for supplying ballast to vessels needing it? It is not disinfected. Very few vessels coming here need ballast when they leave; they use ballast logs; such as do can get stone from the ballast pile and dip it in bichloride solution.

What are the dimensions of the steam disinfecting chamber? Nine feet by 5 feet 3 inches by 4 feet 6 inches.

Is it rectangular or cylindrical? Rectangular.

How many cars are provided? Two.

Are infected articles put in at one end and brought out at the other after disinfection, or is one end of the chamber used for loading and unloading? Put in and brought out of the same end; but the other method can be used, the chamber providing for it.

Is the chamber provided with thermometers for indicating the temperature during the process of disinfection? Yes.

Is the chamber equipped with any apparatus for the production of a partial vacuum? What is the nature of the appliance, if efficient in operation? Yes; vacuum pump; Worthington; 6 by 5¾ by 6 inches. It produces a vacuum certainly and quickly.

What vacuum is produced and how long does it take to obtain it? Ten pounds is the usual vacuum and it takes about five minutes to obtain it; five to seven and one-half minutes is better.

Is a sulphur furnace provided? Yes.

Give a diagram of the method of gas distribution, showing the number of gas outlets: One straight outlet pipe, 6-inch galvanized iron, to which wrecking (suction) hose is attached; diagram not needed.

How many feet of sulphur hose are provided? Two sections of 15 feet each of heavy suction hose.

What is its condition? Good; nearly as good as new, although this is the third season of use.

What is the condition of the fan and engine? Good.

What is the method of storing bichloride solution? In a tank.

What is the capacity of the tank or tanks? One thousand five hundred gallons.

Are they of wood or iron? Wood.

What is the elevation of the tank above the wharf flooring? None.

Is the solution distributed by gravity or is there a pump for the purpose? By a steam pump.

How many feet of hose are provided for the distribution of the bichloride solution, and what is its size and condition? One hundred and fifty feet of canvas; 1½-inch; condition is fair; will last this season.

How many steam boilers are provided? Three; one for disinfecting plant and two for ballast engines.

What is their condition, and do they supply sufficient steam for all purposes? Good; yes.

IV. BOATS.

Is the station provided with a steam tug or other steam vessel? No.

Is the station provided with a steam or naphtha launch? No.

How many small boats are provided, and what is the condition of them and their equipment? One good yawl and one good skiff.

Are more boats necessary or desirable? No; there is no place to keep boats.

V. HOSPITAL.

Give location of building used as hospital: There is no hospital at present; appropriation has been made for construction of one.

Is the nursing sufficient, and is the nurse immune?

There is no nurse, but every attendant is immune.

VI. OUTBUILDINGS AND GROUNDS.

Describe general condition of outbuildings: The shed over the plant is good; kitchen and quarters for engineer (one room) good; other two buildings in bad condition.

Are the grounds well policed? As well as need be.

Describe officer's quarters and condition of furniture: One room only, second story; airy and very pleasant, but insecure, would probably go down in a severe gale. Furniture sufficient and good, but should have another table.

Describe steward's and attendants' quarters and condition of furniture: No steward. Attendants' quarters good; under officer's, and will probably blow down when his do. Furniture sufficient.

Describe dining room, condition of table, furniture, and tableware: Fair-sized room; furniture sufficient and good enough.

Describe kitchen and furniture: Small room, 12 by 12 feet; cook stove, with ordinary kitchen utensils; cook stove nearly burned out and needs renewal.

Describe dispensary: None.

Describe laundry: None; washing done out of doors or in kitchen.

Describe approaches to the station: One lands on the rocks; ballast. There are no approaches.

Describe condition of fences and grounds: No fences; grounds mainly covered with good turf and a small garden.

Describe drainage and condition of water-closets: Only one water-closet; used only by laundress; condition good; over the marsh, which is covered by tide daily.

Describe disposal of slops: Thrown overboard.

State whether any animals not authorized by the Department are kept on reservation: One cow. I would recommend that this cow be allowed to stay. She is nowise in the way—indeed keeps the bermuda grass down, and all at the station use the milk.

VII. EQUIPMENT.

State approximately age and condition of each horse, and how long in service at the station: No horses.

Give number and character of vehicles: No vehicles.

Is there a blacksmith's forge provided? No.

Are there farming implements; and if so, are they in good condition? None provided.

Is there a fire apparatus provided; and if so, is there a fire drill organized? No apparatus provided for that purpose. Bichloride hose could be used on the force pump if steam was up; if not, on the tank spigot.

VIII. DISCIPLINE.

Are officers and employees supplied with uniforms, in compliance with the revised uniform regulations dated June 20, 1896? Yes.

Are uniforms properly worn? Yes, save blue dungaree is worn instead of white duck when doing dirty work.

Give method of granting leaves to officers and employees: None have ever been granted except by the Department.

Describe when and how inspection, muster, and fire drills are conducted: No regular, special inspection or muster ever held.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. From what countries chiefly do the vessels come? Are they in cargo, ballast, or empty?

(*a*) *From foreign ports.*

Month.	Tropical American.				Other ports.				Grand total.
	Cargo.	Ballast.	Empty.	Total.	Cargo.	Ballast.	Empty.	Total.	
January		13	12	25	1	4	3	8	33
February		6	1	7		4	2	6	13
March		5	1	6		2	1	3	9
April	2	4	4	10		7	1	8	18
May		5		5		4	1	5	10
June		9	2	11		5		5	16
July		6	1	7		1	1	2	9
August		1		1		7	1	8	9
September		3	1	4		3	2	5	9
October		3	3	6		6	1	7	13
November		7		7		9	3	12	19
December		5	2	7		2	2	4	11
Total	2	67	27	96	1	54	18	73	169

(*b*) From foreign ports in yellow-fever latitudes via domestic ports: June, 2, via New York; August, 1, via New York.

(*c*) From domestic ports: January, 1; June, 1; July, 1; foreign steamships coming coastwise.

(*a*) and (*b*) show that there were 99 vessels from the so-called "yellow-fever latitudes" inspected at this station, 96 coming directly and 3 via domestic ports. Of these, 37 came during the quarantine season, and 32 were completely disinfected here, as per Treasury regulations. Of the remaining 5, 3 were disinfected at the South Atlantic Quarantine, and 2 were from Kingston, a clean port. In addition, 1 vessel was disinfected, as per Treasury regulations, in December, having had fever aboard in Habana, and 4 other vessels entering here during the closed season were similarly disinfected at the South Atlantic Quarantine, having had fever aboard. In all, 37 were thus disinfected. Thirty of the remaining vessels from these ports coming in the closed season had their ballast discharged here and holds disinfected by bichloride solution, it being held unsafe to allow certain classes of ballast to be discharged in Brunswick, even during the winter season. Sixty-nine vessels, then, were disinfected more or less completely for this port, 62 here and 7 at the South Atlantic Quarantine Station.

(*c*) does not show the number of United States vessels that come to Brunswick coastwise; only those under foreign register. The books of the harbor master gives, for 1895, exclusive of regular line steamers: Barks, 18; brigs, 3; schooners, 248. Total, 269.

There are some points of special interest to the sanitarian in the commerce of this port: (1) The large proportion of its trade from the "yellow-fever zone."

Of this seven-eighths is from Cuban ports, Rio Janeiro, and Santos, Habana furnishing about one-half. This trade, too, keeps up briskly during the quarantine season, an unusual thing at a Southern port. (2) It is almost exclusively in square-rigged sailing vessels, in ballast. The sanitary import of these facts is obvious. The trade is from the most dangerous ports, in the summer season, and in sailing vessels in ballast—three factors of danger. That they not unfrequently come with yellow fever aboard the records of this station and of the South Atlantic show.

The sanitary significance of the fact that a large proportion of the Cuban trade is in Spanish bottoms—at least three-fourths of the Habana vessels are Spanish—is difficult to estimate. Many, if not most of them, belong to regular lines running from Spain to Habana, in wine, oil, tiles, etc., and thence to Brunswick to load lumber for Spain. These vessels are used to quarantine, are clean and well kept, the clothes being always clean. The masters claim to take some precautions to prevent infection in Habana by keeping the crew aboard, etc. How far this is successful is, I think, a question. Of more advantage to them is the nature of their cargo to Habana. They do not unload at the more dangerous wharves, where sailing vessels in lumber and coal must discharge. They always bring hard-rock ballast, knowing that any other kind goes to the United States quarantine at Sapelo. Taken altogether, I think that these regular liners are now less dangerous than the trade in American schooners, which come into the Gulf, having carried coals and lumber to Habana; at any rate, not more so. The Spanish vessels from Habana, other than those in the regular trade, must be less favorably regarded. They are unfamiliar with maritime sanitation, not having quarantine education, and do not take the same pains about cleanliness or to prevent infection in Habana. These are dangerous vessels, and furnish most of those that go to the Sapelo Quarantine, having fever aboard or with earth ballast, frequently both.

The exports are lumber, timber, naval stores, cotton, and phosphate. Vessels which require quarantine load mainly the first three. There are practically no imports.

State whether in your opinion the quarantine facilities are sufficient to care for the shipping arriving at the station: They are sufficient to care for the shipping, but some increased facilities should be provided for taking ballast, that vessels may be handled more expeditiously.

Give annual amount expended at station for last three years: The station was organized August 1, 1893; the amount expended during the two years to July 1, 1895, is $14,659.94, of which about $6,000 is the cost of the plant and the remainder running expenses.

Give the immediate needs of the station, as stated by the commanding officer: A launch is needed in the winter. During this season the commanding officer lives in Brunswick, and time is frequently lost getting to the station to inspect vessels. A flag pole is needed; there is none for the quarantine flag, which, consequently, can not be displayed. A boathouse and quarters for the officer are also needed, the quarters now occupied by him being insecure. Buoys are also needed to mark the quarantine limits.

REMARKS AND RECOMMENDATIONS.

When this station was equipped in 1893 it was assumed that the station would shortly be moved from the locality which it then occupied, and on this assumption the plans were based. This is still to be recommended, if a more suitable site is available, although any change would make it less easy to administer. The main disadvantage apparent to me in the present site is its proximity to the main course of traffic between Brunswick and St. Simons Sound. Steamers plying several times a day between Brunswick and St. Simons and numbers of sail and row boats pass within a few fathoms, the latter within a few feet, of vessels not disinfected at

the wharves. The small boats come close enough to expose their occupants to infection, if the vessel can convey it. The wind, however, is nearly always on shore, which greatly lessens the danger from this source, and this can be almost entirely obviated if two buoys are placed to mark the quarantine limits within which craft may not come when vessels are in quarantine. Of course, it would require some official declaration to render this enforceable. I have no chart and can get none here, but am assured and believe that this would in no wise interfere with the proper navigation of the bay.

I do not regard the danger of seamen leaving quarantine and walking to Brunswick through the marsh as a serious one. It is possible enough, but with ordinary care will scarcely happen.

Premising, then, that no immediate change is contemplated in the location of the station, I have to recommend that two buoys be placed in position marking the limits of quarantine on the water. Such work is usually done by the Light-House Establishment without expense to the service for placing.

Disinfection.—Sulphur dioxide. Twenty pounds of sulphur for 100 tons register has been the allowance here. This gives between 2½ and 3 per cent of SO_2 per volume less than the amount required by the United States Quarantine Regulations. This is burned in the furnace and the gas conveyed aboard the vessel. The sulphur delivery pipe is not long enough to properly convey a large charge of SO_2 in an ordinary-sized vessel. It reaches only a little way below the hatch, and it is not thus possible to introduce the gas in the amount required, or, indeed, to any considerable amount. The furnace is an excellent one, and the crack in one side, noted before, can be easily repaired. Some changes in the delivery pipe would be an advantage. Its present arrangement renders it difficult to fumigate steamships properly, and it is not the best for sailing vessels. I would therefore recommend a somewhat different arrangement of the sulphur pipe. This will require no more expensive sulphur hose, but about 130 feet of 8-inch galvanized pipe, 20 feet of 6-inch galvanized pipe, and a few T's and L's, and flanges of the two sizes. This pipe is worth about 70 cents per foot for 8-inch and 60 cents for 6-inch. I have given Sanitary Inspector Burford the plan. The two pieces of 6-inch pipe, 10 feet long each, must be furnished immediately if it be desired to use over 5 per cent of SO_2 with the furnace.

Bichloride solution.—The arrangements for the use of the bichloride solution leave nothing to be desired in efficiency; some little change in the piping, however, will be cheaper and more convenient. A 1½ or 2 inch pipe should be laid from the pump to the face of the wharf (75 or 85 feet). This will save that amount of hose and also save the handling of it. Hose is expensive and fragile, and pipe is cheap and lasts indefinitely.

The steam chamber.—One device used here is a distinct advantage over any I have seen elsewhere. The men are made to select a shift of clothing out of their bags before any clothing is put in the chamber; each shift is put up in a loose bundle on the top grating of the car and goes into the chamber with the first charge. It is then given to them to change in a clean place. Thus there is no delay in getting the clothes they have on ready for the second or third charge, and the handling of the clean clothing is avoided while wearing that which has not been sterilized. The saving of time is the main thing, however, and that is considerable.

All portions of the contents of the steam chamber used here did not attain a temperature of 100° C. The fabrics being stowed and the chamber used as had been habitually done, I found that the whites of eggs did not coagulate and that potatoes did not cook in all parts of it after thirty minutes' exposure to a temperature of 230° to 242° F. Only one-third of the air in the chamber was removed; this was by the vacuum pump. There was also an unusual amount of precipitation on the clothing, and some—a very little—scorching observed.

These defects can all be remedied by a different method of stowing the contents and of handling the chamber. I have shown the officer here all that I know about it. The vacuum pump works perfectly, getting a vacuum of 10 inches in from four to seven minutes; but from the directions with it we are afraid that it will be injured if it be used to exhaust the steam from the chamber when the process is completed, which would aid materially in drying the clothing. I have written to the Kensington Engine Works about it. In convenience the vacuum pump is inferior to the steam-jet exhaust. There is no difference in efficiency, and it is, I believe, decidedly more economical of steam. It is, of course, more costly and less durable. I have no recommendations to make about the steam chamber or its appurtenances; it is admirably arranged, and properly handled will do efficient, quick work and will be but little injurious to fabrics.

Two reversible-ratchet wrenches to fit the nuts of its doors should be furnished, the one on hand being nearly worn out; two are needed. It would also, I think, be well to furnish several high-register maximum thermometers to this and to every quarantine station, so that the maximum temperature attained in different parts of the chamber, under different conditions of stowing its contents and handling the steam, may be observed by the officer at the station. In no other way (unless electric thermometers be furnished) can he so well learn to efficiently use his chamber.

Let me say here how well the plant has been cared for. The sulphur hose, over two and one-half years' service, is apparently nearly as good as new; the bichloride hose (cotton), of the same age, will last into next summer, and this is used during the winter as well as the summer; the rubber hose purchased from the city of Brunswick in August, 1893, is still good; the engines, two hoisting and one for the sulphur fan, are bright and in perfect order, and, save a leak by a staybolt in one of them, the boilers seem perfectly good. The crack in the sulphur furnace came from an erroneous method of firing, and only the rust on the flat plates of the cars of the chamber can be ascribed to a lack of attention, lack of time, I presume, in this case.

As complementary to the disinfecting plant, I would recommend that a hand force pump for the bichloride solution (an iron rotary pump is probably the best) and some pots for burning sulphur be furnished. There are occasions when much delay can be saved by the use of the former and the latter are needed in the deck houses and in emergencies.

The ballast plant is an excellent one, and with a few additions already provided for will be, for this station, about perfect. There are two ballast wharves, with track, hoisting engine, tubs, and two cars for each wharf. They are separate from the disinfecting wharf, and thus a vessel discharging ballast never interferes with a vessel (steamship or empty vessel) ready for disinfection. This is a most important advantage, and markedly facilitates the work of the station. Its sanitary advantage is also plain. The disinfecting wharf is kept sterile. Nothing is needed save to move the track at the old wharf and put in a switch; this is already provided for. Two 1,000-gallon cisterns, one at each wharf, are needed; these will cost about $75 to put in place. One wharf uses water in barrels, and the other has an old iron tank which will last a short time longer.

There are a few other minor repairs and alterations needed, but which hardly call for mention in this report; but I can not stop without saying that some lumber should always be furnished a quarantine station, so that minor repairs can be done by the employees.

One more attendant should be allowed at this station during the summer. There are only two men on day duty, and they can not run two hoisting engines and attend to disinfecting a vessel at three different wharves. This extra man is needed, and should be allowed even if he has to be taken away from some other station.

The recommendations made above are to increase the efficiency of the work of the station, either in better disinfection or more rapid handling of vessels.

The buildings here also merit attention. The one over the disinfecting plant was put up as a temporary affair, cheapness being the one thing aimed at; it cost $687. Still it is good enough, and unless the joists rot will last fifteen years. A house containing two rooms, quarters of engineer and dining room, is in good order. The long building, used as a storeroom, is unfit for any purpose. Its floor is 3 feet below the level of the ground; it should be torn down and a storeroom built. A suitable one could be erected during the winter by the attendants, using the old lumber and about $30 worth of new stuff. The building the upper story of which is used as quarters for the officer in command is insecure. This was originally a one-story building of four rooms, built for quarters of crews of vessels undergoing disinfection and very cheaply built; it cost $200. The extra weight of the upper story on one end has twisted and bulged the lower story out of all shape. It will certainly go down if there comes a gale. I believe it can be so braced as to be reasonably safe. It is worth the trial, as the building is needed for many purposes. Unless this can be done, and in any case, if the station is to stay here, quarters should be built for the officer. A four-room house 40 by 50 feet with hall and galleries would be about what is needed. I am informed that this can be built for $1,000, but judge that it would take nearly as much more including gutters and cisterns.

I know the objection to putting permanent buildings on ground not the property of the United States; yet this building is not safe, and unless it can be rendered so, new quarters must be furnished; and if the station stays here, a good house should be furnished the quarantine officer. The present surgeon's quarters, or a lower room in the same house, would, if it can be rendered safe, make a good hospital for noncontagious cases, which is needed here.

There is no place to keep a boat, and a boathouse is needed. One can be built for about $60 while other wharf work is going on at the station. The boat lost last winter from not having one cost $115. If palmetto piling is used, it would cost about $75, but as it would not be affected by the teredo and would last much longer, it is to be recommended.

None of the buildings, save the engineer's quarters, have ever been painted. In the case of disinfecting house (built by myself) this was judged unnecessary, because it was believed that the station would be moved. This building should now most certainly be painted to preserve it, and as soon as it is found that the house used for quarters can be saved, it should be painted also. This is recommended not for the sake of appearances, but to preserve the buildings.

As the officer in command lives in Brunswick during the winter, it is many times difficult to get to the station promptly, and quite frequently he can only go by means of the steamer which goes down twice a day. A launch during the winter would be a decided convenience, and if one can be conveniently furnished I would recommend it. Not only is a launch not needed during the quarantine season, but, owing to the difficulty or rather impossibility of properly caring for her at the station, it would be in the way.

In addition to inspecting the classes of vessels required by the rules of the Treasury Department the officer here during the quarantine season "speaks" all coastwise vessels, without, in general, boarding them. This is done so as to inspect and, if necessary, disinfect the "via vessels." Also, in addition to the disinfection required by the above-mentioned rules during the quarantine season, all vessels in ballast from ports suspected of infection with yellow fever have their ballast discharged at quarantine and their holds washed down with bichloride solution. There is no detention of these vessels. Pilots have orders not to board vessels which have had sickness aboard, and if one does so he is sent with the vessel to South Atlantic Quarantine. They may board the other vessels, but are directed to remain on deck, and Sanitary Inspector Burford thinks this rule is generally

obeyed. They remain aboard until the vessel is inspected and then, if everything is satisfactory, are released. There seems a certain risk in this, but I have no recommendation to make on the subject. Some of the pilots are immune to yellow fever, but most of them are not.

I certify that the foregoing is a careful and correct statement of the condition of the service at the Brunswick Quarantine Station inspected by me this 11th–18th day of August, 1896.

H. R. CARTER,
Surgeon, M. H. S. Inspector.

ST. MARYS.

1. No station; all quarantine work done at the United States station at Brunswick, Ga., or occasionally at Cumberland Sound, Florida. Cumberland Sound Station is the official name of the station (State of Florida), near Fernandina.

2. No quarantine officer at St. Marys.

3. No local quarantine maintained here.

4. No local quarantine procedures enforced here; those at Brunswick and Cumberland Sound have been described.

5. No inspection of vessels here at any time; all the year at Brunswick and Cumberland Sound.

6. Vessels from other United States ports are not inspected here. Coastwise vessels with sickness aboard and "via vessels" are inspected at Brunswick Quarantine.

8. No vessels held in quarantine here; hence no intercommunication.

9. Should a vessel infected with cholera, yellow fever, or smallpox apply for entrance she would be remanded to Brunswick. Should the matter be considered doubtful, the Bureau would be wired and the vessel cut off from communication with shore.

10. No records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

11. No fees connected with quarantine.

12. Make a statement, showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Vessels entering the port of St. Marys, Ga., during the calendar year 1895.

Month.	From foreign ports (tropical American).		Coastwise (empty or ballast).
	Ballast.	Empty.	
January		3	
February	2		3
April	1		
May		1	1
June		1	2
August			2
October			1
November	1		2
December		1	3
Total	4	6	14

The entries from foreign ports are all from the West Indies, save one bark from Rio de Janeiro (via Sapelo Sound). Those marked as "in ballast" came into the Satilla empty, their ballast being discharged and their holds disinfected at the Brunswick Station. The exports are exclusively pine products—lumber and cross-ties. Of the lumber, much goes to the West Indies; this year to the Rio Plata. The cross-ties go to northern ports of the United States.

13. The above data are from the custom-house. No immigration bureau.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Yes, with the aid of Brunswick and Cumberland Sound.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state especially whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The station which inspects for St. Marys has been described. All are observed here.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes. See Exhibit A.

17. What disposition is made of the consular bills of health?

Filed with the entry papers. All are on file and in proper form. All entries during 1895 are via the Brunswick (United States) Station.

18. Mention any facts which, in your opinion, should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

St. Marys, Ga., is a port of customs entry which in its quarantine relations is analogous to Darien, Ga., and to Brunswick, Ga. There are no arrangements for maritime quarantine here, and the quarantine work is done by United States station at Brunswick, Ga. The vessels which enter here load lumber at the mills on the Satilla River. They enter by St. Simons Sound, and are inspected and passed on at the United States quarantine at Brunswick. The entrance by St. Andrews Sound is geographically more convenient to the Satilla, and the bar is perfectly practicable for the class of vessels which load here; but owing to the facts that they all expect to tow up the Satilla and that no towboat lies in St. Andrews Sound, that no pilot boat lays off St. Andrews bar, and some other conditions, practically all of the vessels come as stated. In past years some have come in by St. Andrews Sound, and some even by Cumberland Sound; in both cases mainly from stress of weather. This has not happened in the case of vessels from foreign ports for the last few years, and very rarely, if at all, for vessels coastwise.

The vessels that load on the St. Marys River load almost exclusively from mills on the Florida side, and thus make customs entry at Fernandina, and are passed on by the Cumberland Sound (Florida) Quarantine. It may happen that a vessel loading only on the Georgia side of the St. Marys requires inspection and disinfection. It occurred in 1894, in the case of a "via vessel." This was provided for by a Department order to the collector at St. Marys, directing the vessel to the Cumberland Island Station for inspection and disposition, which order the collector advises me he considers as a general ruling for all such cases. Such cases, however, are extremely rare and do not require that special arrangements be made for them. The pilots of St. Simons Sound have the same orders for the vessels coming in for the Satilla and which enter at St. Marys as for those that enter at Brunswick, i. e., all from foreign ports and all which have been in a foreign port within ninety days and all with sickness aboard come to the Brunswick Quarantine Station for inspection.

The pratique of this station, or that at Cumberland Sound, too, is required at St. Marys custom-house in the case of every foreign entry and was on file in every such case. The Satilla River country then is, so far as the St. Simons entrance is concerned, as well protected as Brunswick is. This also covers, or should cover, all vessels from foreign ports. It is, however, possible enough for "via vessels" to enter by St. Andrews Sound, and while I consider the danger from this source to be extremely slight, yet, such as it is, it can be almost entirely obviated by directing the customs officer at St. Marys to examine into the history of each coastwise

vessel which comes on the Satilla during the quarantine season and see that none are allowed to violate the quarantine regulations of the United States.

I would recommend this. It is probably not absolutely necessary, but it costs nothing, either in time or money, is no annoyance to the vessels, and is an added safeguard. The deputy collector of customs, Mr. McWhirter, I am informed, lives during the summer mainly at Fosters Mill, on the Satilla, where it will be very convenient for him to make this inquiry. I submit a map of this part of the coast which may elucidate this report.

EXHIBIT A.

BRUNSWICK QUARANTINE, ———, *189—*.

I certify that ———, of ———, from ———, has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury, and that in my opinion she will not convey quarantinable disease.

Said vessel is this day granted free pratique.

———— ————,

United States Quarantine Officer, Port of Brunswick, Ga.

FLORIDA.

REPORT OF INSPECTION OF LOCAL QUARANTINES.

By Surg. H. R. CARTER, M. H. S.

CUMBERLAND SOUND QUARANTINE—FERNANDINA.

1. Describe the quarantine station, location, buildings, anchorage, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The station is a pier head off Tiger Island, on the edge of the channel coming into Cumberland Sound, on the western side of the deep water. It is a pier head admirably constructed of palmetto piling below water and yellow pine above, 150 by 50 feet surface. On it are the buildings, a shed for the disinfecting plant and quarters for attendants and for the crew of the vessel in quarantine. The building used for this last purpose is an addition to the main pier head, of which the diagrams are given above, built on palmetto piles. It is about 2 miles from Fernandina. Part of the pier head has sheet palmetto piling for a ballast wharf. The anchorage is to the west of the station. It is not defined by buoys or any other marks, but its limits are generally understood by pilots, etc. There is no division of the anchorage for different classes of vessels and none is needed. There is an abundance of room for keeping infected and noninfected vessels apart. Vessels are inspected in a yawl.

The apparatus for the disinfection of baggage and vessels is extremely good. It is modeled after that at the Brunswick United States Station, save that a horizontal boiler is used in place of a vertical. It consists of a double sulphur furnace with fan, pipe, etc., the SO_2 finally passing through 6-inch rubber hose, a tank and steam force pump with 1½-inch hose, for the use of the bichloride solution, and a steam chamber with vacuum pump, etc., exactly of the dimensions and pattern of that at Brunswick, Ga.

There are no facilities for the care of such sick men as would require removal from their vessels on account of infectious disease. Others could be treated on the pier head, but would probably, save temporarily, be treated aboard. Infectious disease would not be treated here. No facilities for care of suspects save aboard the vessel. Mail and telegraphic facilities good to Fernandina. Communication to the station would only be by special messenger; but as the quarantine officer lives at Fernandina, such communication can easily be had with him, and through him with the station.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. J. L. Horsey, quarantine officer (assistant health officer of the State), Fernandina, Fla. Five subordinates.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Copies of laws and regulations herewith transmitted. (Exhibit A.)

Inspections as at other Florida ports. Vessels from foreign ports are inspected all the year round; those from domestic ports from May 1 to November 15. The steamer plying daily between Fernandina and Brunswick is excepted. She is under bond to stop at the station if she has any sickness aboard; otherwise is not inspected. The same is true of the steamer plying daily between Fernandina and St. Marys, Ga. All other vessels are inspected between May 1 and November 15.

All vessels coming from the geographical limits laid down in the Florida regulations between May 1 and November 15 are disinfected. During the winter vessels which have had yellow fever or come from specially infected ports are also disinfected. Those ports are designated by the health officer. This disinfection consists of mechanical cleansing, including discharge of ballast, steaming of fabrics, treating vessel with SO_2 and with bichloride solution in the manner prescribed by the United States and Florida quarantine regulations. I would state, however, that only 3 pounds of sulphur is used to 1,000 cubic feet of space, which of course gives about 4 per cent of SO_2 only. All ballast is deposited under water.

Detention is five days from the completion of disinfection. It is counted from the completion of disinfection, and not from the next day, as at Mullet Key; neither is a day required to be allowed for the mechanical cleansing, as at Charlotte Harbor.

Vessels with cases of infectious disease aboard would not be treated at this station. Such vessels would be remanded to Sapelo by the pilots before they cross the bar, or by the quarantine officer when he inspected them.

Vessels going coastwise are not, in general, inspected by the quarantine officer personally, who lives in Fernandina, but by his assistant, a nonprofessional man, who lives at the station. "Via" vessels and vessels from foreign ports and all doubtful vessels are inspected by Dr. Horsey. Disinfection is supervised sometimes by Dr. Horsey and sometimes by the assistant.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

Vessels from domestic ports are inspected between May 1 and November 15. Vessels from certain ports, usually considered clean, in suspected latitudes are disinfected and held. Both of these are, I think, unnecessary; but the former is absolutely necessary, at some Florida ports, and the State law allows of no discrimination between ports in its regulations.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

Vessels from foreign ports inspected throughout the year. Certain vessels—those that have had infectious disease aboard or from specially infected ports—are disinfected and held during the entire year.

6. During the quarantine season vessels from other United States ports are inspected.

7. Describe quarantine procedures in the inspection of vessels, and if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection; (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The inspection is made by examining papers, crew, and vessel; the statement (oath, if judged necessary) of the master is taken to certain questions, which is subscribed by him. Copy inclosed. (Exhibit B.) (*a*) Such time as is necessary to get the vessel clear, mechanically. If in ballast, this may take several days for its discharge. It is put in the ballast crib under water, being worked by the crew. (*b*) Time of disinfection is from twenty-four to forty-eight hours, according to whether it be an iron or wooden vessel. (*c*) Time of detention is, for yellow fever, five days.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

Communication with vessels in quarantine is held only through the quarantine officer or his employees. Pilots may board vessels which have had no sickness, but must stay on deck and remain aboard until released by the quarantine officer. Two pilots, however, who are not immune to yellow fever, may not go aboard without quarantine.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessel carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Any such vessel, if there were no sick people aboard, would be disinfected here. If there were, she would be sent to Sapelo. Vessels from ports where infectious disease prevails, or which have been in communication with infected places or vessels, would be considered infected. A vessel, however, from a port where smallpox existed in less than an epidemic form would not be quarantined on that account, nor would one from a yellow-fever port during the winter, unless the port were virulently infected or she had had sickness aboard.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Yes; in copies of quarantine declaration and in journal. Quarantine declaration inclosed. (Exhibit B.)

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Ballast, 25 cents per ton, for use of wharf. Schedule of fees for inspection and disinfection is found on last page of Exhibit A.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

(*a*) *From foreign ports (direct).*

Month.	Tropical (American) ports.			Other ports (empty).	Total.
	Ballast.	Empty.	Total.		
January	4	4	8	3	11
February	2	3	5	1	6
March	----	----	----	5	5
April	1	----	1	5	6
May	----	*d* 1	1	*d* 4	5
June	1	*d* 1	1	1	2
July	----	----	1	*d* 1	1
August	----	*d* 1	1	----	1
September	----	*d* 1	1	1	2
November	*d* 2	----	2	2	4
December	----	*d* 2	2	2	4
Total	10	13	22	25	47

(*b*) *From foreign ports in yellow-fever latitudes via domestic ports.*

Month.	Vessels.	Remarks.
May	2	1 via New York; 1 via Philadelphia.
June	5	4 via New York; 1 via Boston.
July	3	2 via New York; 1 via Philadelphia.
August	1	Via Salem.
September	4	2 via New York; 1 via Boston; 1 via Philadelphia.
October	1	Via New York.
November	2	1 via Boston; 1 via Philadelphia.
Total	18	

(*c*) *From domestic ports.*

Month.	Vessels.	Month.	Vessels.
January	1	August	22
March	3	September	20
April	3	October	12
May	14	November	5
June	19		
July	12	Total	111

Of the vessels marked (*d*) in table (*a*) 10 were disinfected. The 2 not from tropical America were from St. Vincents, Cape de Verde Islands. The vessel disinfected in December was from Sagua, and had sickness aboard. All of the vessels in table (*b*), the "via vessels," 16 in number, were disinfected here. Coastwise vessels being inspected only from May 1 to November 15, this table (*c*) includes only such as enter during that period.

Table (*c*) gives such coastwise vessels as enter between May 1 and November 15, and which are consequently inspected at this station, together with a few (seven) foreign vessels coming coastwise in the winter season. The customs books give as the total entries of vessels coastwise, 173. This includes Tables (*b*) and (*c*), as well as coastwise vessels coming in the winter season. There are no imports. The exports consist of phosphate, of which Fernandina is claimed to ship more than any port in the world, and lumber and timber—lumber mainly. Phosphate goes mainly to transatlantic ports, and in steamers mainly. Lumber goes principally to the smaller West Indian ports, which are in the main considered clean and coastwise. The lumber trade is, I think, increasing, but is less than it was some years ago. The same is true of that in phosphate.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

There is no immigration bureau. Fernandina being the most northern port of entry in the second great customs district and having very few vessels coming in from Georgia, the "adjoining State," or from other ports of the second district, practically all of her coastwise vessels have to enter at the custom-house. The customs books there give the coastwise vessels as well as the foreign. So far as relates to quarantine the office is well kept.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Yes. There are no means of caring for people sick of contagious disease here, but there is no need of them. Such vessels are sent to Sapelo, and it is perfectly convenient to do so.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, etc.

Every regulation, save that a less percentage of SO_2 than is contemplated in

the Treasury regulations is used, is properly enforced. The period of observation after disinfection is properly observed.

16. Yes; copy of certificates inclosed (Exhibit C).

17. One consular bill of health is retained by the quarantine officer and one filed in the custom-house.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The large proportion of vessels which are disinfected here which are "via" vessels, two-thirds of all, suggests the advisability of having the national quarantine stations which inspect for Philadelphia and Cape Charles inform such vessels of this class as are liable to go to southern ports that they are liable to quarantine at such ports. These vessels can be disinfected, not detained, at these stations as they leave port, i. e., when empty, pass their quarantine time en route, and thus enter southern ports without detention. A considerable number of vessels would be benefited thereby. Occasionally a vessel entering at St. Marys, Ga., comes in by Cumberland Sound. The Florida State board of health has, of course, no jurisdiction in such cases, but the collector at St. Marys has orders (from the Secretary of the Treasury) to remand such vessels to the Fernandina station for inspection, and if necessary, quarantine. Such cases, however, are rare. Nearly all of the vessels which enter at St. Marys load in the Satilla River, coming in through St. Simons Sound, and being inspected at the United States Quarantine Station at Brunswick.

AUGUST 10, 1896.

EXHIBIT A.

See rules and regulations State board of health, under report of Mullet Key station.

EXHIBIT B.

Inspection of vessels arriving at the ——— ———, *18*—.

1. Name and class of vessel? ———.
2. Name of captain or master? ———.
3. Tonnage of vessel? ———.
4. From what port is the vessel you command? ———.
5. How many days have you been on the passage? ———.
6. Where bound to? ———.
7. At what port or ports have you touched within the last ninety days? ———.
8. Were any contagious or infectious diseases prevailing at those ports? If so, name the ports and diseases. ———.
9. Was any freight, passengers, or ballast received at the ports at which your vessel touched? ———.
10. Had you any communication with another vessel on your passage? ———.
11. Have you received any passengers, freight, or ballast from any other vessel? ———.
12. If so, give particulars. ———.
13. Have you a bill of health? ———.
14. During the course of your cruise or passage, what cases of disease have occurred on board, and at what date? ——— .
15. Have any deaths taken place on board of your vessel since you left the last port? If so, what dates and from what causes? ———.
16. Are there any sick on your vessel at this time? ———.
17. Has yellow fever, smallpox, cholera, plague, leprosy, or other contagious or infectious diseases ever existed on this ship? ———.
18. If so, when? ———.
19. What is the number of officers and crew? ———.
20. What is the number of passengers? ———.
21. What is your cargo, and to whom consigned? ———.

22. If in ballast, what is the character of the ballast, where was it taken from, and how many tons have you on board? ———.

23. What is the present sanitary condition of the vessel, cargo, crew, and passengers? ———.

——— ———, *Master.*

STATE OF FLORIDA, *County of* ———:

Before me, ——— ———, a notary public in and for said county and State, personally came ——— ———, master of the ———, to me well known as the person named, who, after being duly sworn, deposes and says that the statements made by him in answer to the foregoing interrogatories are true.

——— ———.

Sworn to and subscribed before me this —— day of ———, A. D. 189—.

——— ———.

EXHIBIT C.

Pratique given to vessels from foreign ports.

PORT OF FERNANDINA, FLA., ———, *189—*.

I certify that ———, of ———, from ———, has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury, and that in my opinion she will not convey quarantinable disease. Said vessel is this day granted free pratique.

———, ———,

Health (Quarantine) Officer, Port of Fernandina, Fla.

EXHIBIT C.[1]

Pratique given to vessels from domestic ports.

STATE BOARD OF HEALTH OF FLORIDA,
Port of Fernandina, Fla., ———, *189—*.

This certifies that I have carefully examined the passengers and crew of the ———, from ———, and find no one affected with any quarantinable contagious disease. Permission to discharge passengers and cargo is given for the port of Fernandina, Fla.

———, ———,

Port Sanitary Inspector, State Board of Health of Florida.

MAYPORT.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The station is off a yellow flag at Mayport, near the mouth of the St. Johns River, on the right bank. No buildings save office of quarantine officer. Mail once a day. No telegraph. Telephone from Pilottown across the river to Jacksonville. It is an inspection station primarily, disinfecting vessels from suspected ports, sending to a more completely equipped station (Fernandina) those that are from ports considered infected, and those with sickness aboard do not cross the bar, being turned back by the pilots. Inspection is made in a small boat. Disinfection is by the "pot method" and vessel washed down with bichloride, pots and force pump and hose being the apparatus. No arrangements made for suspects ashore; they are detained aboard. Noncontagious disease treated aboard.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. George Macaulay, quarantine officer, Mayport, Fla. One boatman.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out

[See Mullet Key report.]

All vessels from foreign ports are inspected without regard to season. Coastwise (domestic) vessels are inspected from May 1 to November 15. The regular line of Clyde steamers from United States ports is not boarded. The master signs a certificate and throws it overboard in a bottle; this is picked up and filed. It ranks as an inspection on the books. No fee is charged vessels from Florida ports. Vessels from ports judged infected with yellow fever, either with a foul bill or the port so adjudged from other evidence (abstract), are sent to Fernandina for disinfection. Vessels from suspected latitudes, with some exceptions (which include nine-tenths of the vessels), not in the above class are disinfected here. Vessels with sick aboard are directed to Sapelo by the pilots, or would be if any came.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

American vessels coastwise are inspected from May 1 to November 15. This seems an unnecessary detention of vessels, but the detention is slight in the case of any one vessel, and it is not without some sanitary value.

State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

Inspection of vessels from foreign ports all the year round. Vessels from infected ports refused entrance all the year. Vessels with foul bill or sickness sent to Fernandina at all seasons.

6. Are vessels from other United States ports inspected?

Yes; from May 1 to November 15.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection; (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

Vessels are inspected by the examination of papers, crew, and vessel. If from infected ports, sent to Fernandina. If from suspected port and in the quarantine season, disinfected here by pots and bichloride; 10 pounds of sulphur is burned per 100 tons (1.3 per cent SO_2), the fabrics being hung up therein and the beds raised in the berths. This is left in thirty-six to forty-eight hours. The vessel is then washed down, the hold and forecastle with 1 to 800 solution of bichloride of mercury with a force pump and the cabin with carbolic acid (3 per cent) with cloths. The vessel is made mechanically clean before disinfection. Disinfection begins immediately the vessel can be cleansed. Time occupied in disinfection about forty-eight hours, and time after completion of disinfection five days to discharge.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.) and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No communication is held with vessels in quarantine. Vessels believed to be clean are boarded by pilots and brought in. Pilot remains aboard until quarantine officer releases him. Pilots are not allowed to board vessels from certain ports with sickness aboard; they simply go alongside and order her away.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

A vessel in any of the above conditions would be refused entrance to quarantine and ordered to Fernandina or Sapelo. Vessels with a foul bill of health or from a port where, from other evidence, the quarantine officer has reason to believe these diseases prevail would be held infected. A few cases of smallpox in a port would not require a vessel to be pronounced "infected;" an epidemic would.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Note would be made on the "record of vessels inspected" of such cases. None have occurred.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Schedule of fees in Exhibit C; no other charges. Such vessels as arrived in ballast requiring disinfection would make their own arrangements for removing it.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Vessels inspected at the State quarantine station at Mayport, Fla., during 1895.

Month.	From foreign ports.				From domestic ports.		
	Cargo.	Ballast.	Empty.	Total.	Clyde line.	Others.	Total.
January	2			2			
February	1		1	2			
March	2	1		3			
April	2		3	5			
May	1			1	9	31	40
June	2	*d* 1	1	4	9	7	16
July	2			2	9	23	32
August					10	18	28
September	1		*d* 1	2	10	21	31
October					11	19	30
November	2			2	5	12	17
December	3			3			
Total	18	2	6	26	63	131	194

The vessels marked *d* were disinfected here, as described in preceding paragraph, one (in June) in ballast from Ponce and the other from St. Croix. Both vessels had clean bills, and the ports were not regarded as infected, although now Ponce is listed as an infected port. All the vessels from foreign ports were schooners, save one bark, coming in March with ballast, and a few yachts. The foreign trade is almost entirely from the Bahamas, and the vessels come empty or in fruit and shells. Three vessels were from Puerto Rico, one Ponce, and two Mayaguez (in April).

The exports are yellow-pine lumber and general merchandise, principally to the Bahamas. A considerable amount of cotton and wool from Texas goes coastwise; also much yellow pine.

A glance at the tables will show that a large proportion of the inspections of this station are of coastwise American vessels, sixty-three of which are steamships of the Clyde Line.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

There is no immigration bureau. At the custom-house the certificates of quarantine discharge were all properly made out and filed with the entry papers.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

With the stations at Fernandina and Sapelo Sound they are sufficient.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

Taking the ports where yellow fever prevails to mean those of the class sent to Fernandina or Sapelo, all the quarantine regulations of the Treasury Department are properly enforced.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

It does. (Exhibit D.)

17. What disposition is made of the consular bills of health?

One retained by quarantine officer, and one filed with the entry papers at the custom-house.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

There seem to be no facts to bring to the notice of the Department other than those mentioned, and I have no recommendation to make. This is, so far as United States quarantine regulations are concerned, simply an inspection station, and is very carefully conducted.

The disinfection done here is not required by United States quarantine regulations, and that it is not the kind which would be required if it were is of no importance.

Should by any chance the vessel disinfected here require it from sanitary reasons, unquestionably the method of handling her would add to her safety very materially, and if 45 pounds of sulphur to the 100 tons were used she would get a pretty fair factor of safety.

JULY 4, 1896.

ST. AUGUSTINE.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Station is at a yellow flag off St. Augustine Inlet; no buildings; no special anchorages marked out; boarding is done in a small boat; no vessels are disinfected, or detained here; simply an inspection station.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. L. S. Alexander, quarantine officer, St. Augustine, Fla.; no subordinates; Dr. Alexander has resigned, per request of the State board of health, to take effect July 1. His successor has not been appointed. Dr. Porter states that his resignation has not been accepted.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Laws and regulations the same as those transmitted with the report for Mayport; quarantine—no copy obtainable here No vessels are disinfected here, none requiring it having ever entered. Should such arrive they would be sent to Fernandina for treatment.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

Vessels coastwise inspected from May 1 to November 15. Considering the possible communication of coastwise vessels with Cuba, directly or indirectly, this

year, I think the inspection of such vessels a wise sanitary measure, and that the detention thus caused is not "undue."

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

Inspection for vessels from foreign ports maintained throughout the year; for vessels coastwise from May 1 to November 15. No treatment of any kind here. Vessels from infected ports would be sent to Fernandina. All the year round.

6. Are vessels from other United States ports inspected?

Yes; from May 1 to November 15.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharged.

Vessels inspected by examination of papers and crew. If infected, sent elsewhere.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.) and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No communication with vessels in quarantine is allowed by regulations. Pilot brings such vessels in, and is supposed to remain aboard until they are in pratique.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Any such vessel would be ordered off by the pilots and not allowed to cross the bar; if she did, she would be ordered off by the quarantine officer. By the regulations, a vessel coming with a foul bill of health or from a place reported by any credible authority as infected is adjudged infected. None such have ever come here.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

No such cases have occurred.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Same as for Mayport. No vessels enter St. Augustine requiring disinfection. Inspection, schooners, $5 per trip; sloops, $3; square riggers, $7.50 and $10.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Vessels inspected at the State quarantine station at St. Augustine, Fla., during 1895: From foreign ports, 1; coastwise, May, 3; June, 1. These five vessels are all recorded as inspected at this station by the quarantine officer during 1895. One was a British schooner in fruit from Nassau. The three recorded as coming coastwise during May were American schooners, two empty and one in brick, all from New York. The one in June was a tug from Jacksonville. The customs books show, however, that one vessel (British schooner) from the Bahamas entered in December, 1895. She ran by, not knowing there was a quarantine here, and was not discovered by the quarantine officer. There is practically no commerce at this port, and such as there is is from the Bahamas and is in fruit and shells. A few yachts may also be expected. This year (1896) there has been one schooner from foreign port—Nassau—and one yacht, coastwise, inspected.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Such vessels as enter from foreign ports are entered without the certificate of the quarantine officer required by the act of February 15, 1893, and the United States quarantine regulations. Also, I find that nearly all of the vessels from foreign ports which are recorded have entered by St. Lucia Inlet (Gilberts Bar) and discharged at Jensen; there were twenty-two of them in 1895, against two at St. Augustine. These had also entered without the certificate mentioned above. All were from the Bahamas, all American schooners of small size, and all in fruit, shells, and pineapple slips.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

They are ample.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection of vessels, are observed.

The entry of vessels from foreign ports is made without the certificate of pratique required by the act of February 15, 1893, section 5.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

No certificate is issued.

17. What disposition is made of the consular bills of health?

One on file at custom-house with the entry papers, and one at the quarantine office. For such vessels as come in at Jensen, both bills are filed with the entry papers.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

That the foreign commerce at this port is insignificant and very safe, from the Bahama Islands altogether. Jensen has been made a subport of entry, and a deputy collector of customs appointed since July 1, 1896. As this place will enter a certain number of vessels from the Bahamas—twenty-two last year—and as there is obviously no quarantine officer, as shown by both bills of health of such vessels as enter here being filed at St. Augustine custom-house, I advised the collector of customs that if any vessel from a foreign port came in while there was no State quarantine officer on duty, as at present, to employ a physician in good standing, preferably the local health officer, and have him inspect the vessel and give the necessary certificate for entry. The chance is extremely slight that any vessel will enter in any short time. I also explained to him that the certificate of quarantine discharge was a necessary prerequisite to legal entry, and that he must require it of the vessel. I explained the same thing to the late quarantine officer, who will tell his successor.

JULY 7, 1896.

NEW SMYRNA.

I have the honor to report that I have visited this port to-day. There is no quarantine here. The inspector of customs, Mr. Sands, informs me that no foreign vessels have entered since his appointment, last October. He has no record of any during 1894, and domestic vessels are not required to report to him. New Smyrna is the port of Mosquito Inlet, 5 miles distant. The bar has 10 feet of water at low tide. The proximity of the port to the phosphate region is expected to develop foreign commerce as soon as a projected railroad is finished. I would suggest that the inspector of customs be instructed by the Department to refuse

entry to any vessel from a suspected port, and to order her to a quarantine station.

MAY 14, 1896.

[NOTE.—Inspector of customs instructed as recommended.]

JENSEN.

1. There is no station of any kind here. It is simply a subport of entry in the St. Augustine customs district, where, however, nearly all the vessels from foreign ports enter. There is naturally nothing here, save a deputy collector of customs, Mr. T. V. Moore, who up to July 1 had been customs inspector. Mail and telegraphic facilities good; at Jensen, on the E. C. R. R.

3. No quarantine is maintained here.

5. There is no inspection or treatment at any time.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessel carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

The deputy collector would refuse entry to such a vessel, put a guard over her, and forbid all communication with her. Advise her to go to Fernandina for disinfection. A foul bill of health, no bill of health, or presence of sickness aboard would be regarded as sufficient not to admit a vessel until the Department could be communicated with.

11. No fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Vessels entering the port of Jensen, Fla., from foreign ports in 1895: January, 1; February, 1; March, 2; April, 1; May, 3; June, 3; July, 3; August, 3; September, 3; November, 3; December, 1; total, 24. All of these vessels are American schooners of small size, and they came in cargo, fruit, shells, and pineapple slips, taking out general merchandise and lumber. The trade is entirely with the Bahamas, mainly Green Turtle Cay, Nassau, and Governors Harbor, and, these islands being free from yellow fever, is free from any special sanitary risk. About 25 immigrants came in the last year. Since the port has been made one of entry, the number of vessels will increase. Two with passengers entered at Palm Beach last year on account of the official difficulties of doing so at Jensen.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The above facts were learned at the custom-house; there is no immigration bureau. Twenty-five immigrants entered last year from the Bahamas.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

No. So far as sanitation is concerned there is but little need of anything more as long as the Bahamas stay healthy, but some one with authority to sign the certificate of discharge should be stationed here, because without it the vessel can not make a legal entry, and some sanitary supervision of the port would be also an advantage.

15. Vessels from foreign ports are not inspected, and hence enter with a certificate of inspection.

16. No certificate of inspection is issued.

17. What disposition is made of the consular bills of health?

Filed (both copies), with the entry papers, at St. Augustine.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

There are no facts to mention, but attention is called to the facts set forth in No. 14. I would recommend that the deputy collector of customs, Mr. T. V. Moore, be authorized and directed to exercise the functions of a sanitary inspector until the State board of health appoints some one else, and that he sign the certificate of pratique required for legal entry from a foreign port.

Although I do not apprehend that vessels from infected ports will attempt to enter here, yet I would suggest that if the foregoing recommendation be carried out, that Mr. Moore be given a list of ports from which vessels should not be allowed to enter, remembering that for one of these small vessels to go to Fernandina needlessly would be a great hardship and take the profits of many voyages. He should not go aboard until he examines the bill of health and determines that the vessel can enter. A foul bill or suspicious sickness would of course be cause of forbidding entrance. In short, the rules given him should be clear, short, and not too stringent. There is no physician nearer than Stuart, about 8 or 10 miles off, and he is not practicing (engaged in raising pineapples), and it is not certain that he is a physician, but is called "doctor" and is sent for by some when sick. Mr. Moore is well adapted for this work, and will make an efficient officer if appointed. This recommendation was made by me in the report on the east coast about July 14, 1895, and I simply reiterate it here.

JULY 9, 1896.

[NOTE.—Mr. Moore, deputy collector, has been appointed sanitary inspector, with instructions.]

PALM BEACH.

1. There are no buildings, etc.; nor are any limits of anchorage designated. Vessels are inspected in a small (surf) boat off the pier head or in Lake Worth, as they may happen to be. No apparatus for disinfection, nor facilities for care of sick or suspects. It is an inspection station established to inspect such vessels as may enter here from foreign ports, which are practically limited to the excursion steamer *Northumberland*, plying between Palm Beach and Nassau during the winter months. It was made a port of entry January 1, 1896, and the quarantine inspector then appointed.

Mail and telegraph facilities good at Palm Beach.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. R. B. Patten, Palm Beach, Fla. No assistants.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

Same as the other laws and regulations in force for the other Florida ports and already transmitted. No peculiarity of custom noted. The quarantine officer goes aboard the *Northumberland* with the customs officer when she arrives off the pier head; the conditions of weather in general prevent her making a landing; they inspect her together and give pratique.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

None. No unnecessary detention or disinfection.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

No vessels have come or are likely to come save in the winter months, but inspection would be maintained in the summer also if vessels came at that season. No treatment of vessels here at any time.

6. Are vessels from other United States ports inspected?

None have ever come; they would be.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

Described as far as need be in No. 3. No disinfection or detention here.

8. What communication is held with vessels in quarantine (and before quarantine, by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

None; the vessel comes off the pier head, and it is hard for anyone to board her. No pilots at Palm Beach. Only one vessel comes here.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessel carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Such a vessel would be ordered off to Tortugas or Fernandina. Such a case would not occur unless some small vessel from an infected American port ran into Lake Worth. Can not answer the second question. Any evidence which would satisfy the quarantine officer.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Quarantine declaration is kept and would show such cases, should they occur.

11. Transmit schedule of quarantine fees and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Same as at the other Florida ports and already transmitted; for the *Northumberland*, $10 per trip; for the two schooners inspected, $5 per trip; no disinfection.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Vessels from foreign ports inspected at the State quarantine station at Palm Beach, Fla., during 1896: January, 3; February, 9; March, 12; April, 2; total, 26. All of these inspections were of the steamer *Northumberland*, running as an excursion steamer between Palm Beach and Nassau (New Providence), save two. These were two schooners with passengers from the Bahamas, which could not enter at Jensen on account of that port not being a port of entry; they came in in March. There were no entries, coastwise or foreign, at Palm Beach in 1895, and this list in 1896 is given simply to show the class of work done here. No coastwise entries in 1896. There were five immigrants.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

That foreign entries are made without the certificate of pratique required by the act of February 15, 1893. No immigration bureau; five immigrants.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Yes.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding

inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

Entry of vessels made without the proper certificate; none other.

16. Does the certificate of inspection or of pratique signed by the quarantine officer state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

No; none of any kind issued. Customs officer and quarantine officer board together, and vessel entered on the latter's verbal assurance.

17. What disposition is made of the consular bills of health?

Filed with the entry papers.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

There seem to be none. The State health officer of Florida promised to correct the matter of the certificates. The landing of the steamer is made to a pier extending outside the reef, which is here very close—150 to 200 yards off shore—or rather is intended so to be made, as of twenty-four trips she made she was only able to get to the pier head twice, landing her passengers and baggage in a surf boat. The entrance into Lake Worth is put at 3 feet at high tide, so no vessel can habitually enter it. It is currently believed that the *Northumberland*, or some similar vessel, will run from Miami to Nassau this winter; and that Palm Beach as a port of entry will be abandoned I consider probable. If so, I presume that the customs officer will be transferred to Miami, and Dr. Jackson, the quarantine officer at Miami, who so far has had no functions save to inspect vessels from Key West, will look after the foreign entries. There are no recommendations.

JULY 11, 1896.

KEY WEST.

By P. A. Surg. G. M. GUITERAS, M. H. S.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Inasmuch as infected vessels are not treated at this port, there is no quarantine station properly so called. A buoy with a yellow flag, situated in the channel a short distance from the city front, designates the point at which vessels must lie to or anchor to await the inspection of the sanitary inspector. An employee is kept on duty for the purpose of reporting the arrival of any vessel to the sanitary inspector, who then boards the vessel and determines what action is to be taken with regard to her. Infected vessels, or those having sickness of an infectious character on board, are sent to the national quarantine station, Dry Tortugas, or the State quarantine station on Mullet Key.

The Plant Line steamers coming from Habana are allowed to enter without detention, the baggage of all passengers for Key West being disinfected by twenty-four hours' exposure to sulphur-dioxide gas. For the latter purpose a chamber has been constructed, 42 feet long by 12 feet wide. The roof, sides, and floor of the building are made up of four thicknesses of lumber, the inner two being tongued and grooved ceiling, between which is a layer of building paper. The seams of the inside ceiling are white-leaded. The inner sides of this chamber are fitted up with woven-wire racks, each one numbered and corresponding to the number of a check attached to the trunk or valise. The contents of the trunk are removed and exposed loosely upon the rack. These regular Habana steamers are accorded this special treatment so long as they comply with the provisions required by sections

39 to 43 of the rules and regulations of the State board of health of Florida, a copy of which is transmitted. (See Mullet Key report.) My observation shows that the rules referred to are enforced with the exception of the steam disinfection, in place of which sulphur disinfection is used.

2. Give personnel of the station or port, name of the quarantine officer or officers, post-office address, total number of officers and subordinates, etc.

There is one officer on duty, known as the "sanitary inspector." At present the position is occupied by Dr. Charles B. Sweeting, whose address is Key West, Fla. The total number of officers and subordinates is three.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

See Exhibit A.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

None, as far as I can learn. There is no unnecessary detention or disinfection of vessels.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

Inspection is maintained during the entire year, except that vessels from domestic ports are not inspected from November 15 to May 1. The baggage of passengers from Habana is fumigated during the entire year.

6. Are vessels from other United States ports inspected?

Vessels from United States ports are inspected during the active quarantine season.

7. Describe quarantine procedure in the inspection of vessels and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection; (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The vessel "lies to" or anchors in the stream and is boarded by the sanitary inspector, who examines the papers and crew and general condition of the vessel. If infected, the vessel is sent to the Key West Quarantine on Tortugas Island, or to Mullet Key Quarantine.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

Vessels subject to quarantine remain in quarantine at this port only when they come for orders and in distress or to coal. In such cases they are permitted to anchor about a mile below the city. There is no communication, except through the sanitary inspector. There is no communication permitted between vessels in quarantine. Pilots are not allowed to board suspected vessels.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessel carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

All such vessels are sent to the national quarantine station, or to the Mullet Key Station.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

A record is kept of diseases that have occurred during the voyage or on arrival.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

The schedules of fees will be found in section 89 of the rules and regulations of

the State board of health of Florida, transmitted herewith (see Mullet Key report). For the fumigation of baggage of passengers from Habana a further fee is charged of 50 cents for each trunk and 25 cents for each valise.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Arrivals of vessels during the calendar year 1895.

Ports.	Cargo.		Ballast.		Remarks.
	No.	Tons.	No.	Tons.	
January.					
Foreign ports:					
Cuba	13	10,270	.....	.....	General merchandise.
Honduras	2	191	.....	.....	Fruit.
Mexico	2	652	.....	.....	Do.
British West Indies	4	253	1	268	Assorted merchandise.
Ireland	.....	.....	1	639	
Cape Verde Islands	.....	.....	1	1,484	
England	.....	.....	1	1,167	
Domestic ports	23	28,647	.....	.....	
February.					
Foreign ports:					
Cuba	12	8,645	3	561	Assorted merchandise.
Honduras	2	180	.....	.....	Fruit.
British West Indies	2	153	.....	.....	Assorted merchandise.
Domestic ports	32	35,715	.....	.....	
March.					
Foreign ports:					
Cuba	10	10,168	4	2,223	Assorted merchandise.
Habana	3	254	.....	.....	Fruit.
Mexico	1	71	.....	.....	Do.
British West Indies	4	271	.....	.....	Assorted merchandise.
England	.....	.....	1	1,165	
Domestic ports	35	39,962	.....	.....	
April.					
Foreign ports:					
Cuba	10	8,710	4	1,416	Assorted merchandise.
Honduras	2	115	.....	.....	Fruit.
Do	2	170	.....	.....	Do.
British West Indies	2	84	.....	.....	Do.
France	.....	.....	1	772	
England	.....	.....	1	1,430	
Mexico	.....	.....	1	1,484	
Domestic ports	37	39,133	.....	.....	
May.					
Foreign ports:					
British West Indies	3	81	.....	.....	Assorted merchandise.
Honduras	3	197	.....	.....	Fruit.
Cuba	9	5,265	3	2,108	Assorted merchandise.
England	.....	.....	1	2,026	
Domestic ports	36	38,336	.....	.....	
June.					
Foreign ports:					
Cuba	9	4,680	1	1,135	
British West Indies	2	119	.....	.....	
Honduras	2	126	.....	.....	
Domestic ports	24	30,291	.....	.....	
July.					
Foreign ports:					
Cuba	9	4,680	3	4,421	Assorted merchandise.
British West Indies	3	125	2	98	Do.
Mexico	1	71	.....	.....	
Venezuela	.....	.....	1	424	
Honduras	2	150	.....	.....	
Domestic ports	28	30,391	.....	.....	
August.					
Foreign ports:					
Honduras	5	374	.....	.....	Fruit.
Cuba	9	4,680	3	4,456	Assorted merchandise.
England	.....	.....	1	1,363	
Domestic ports	31	35,929	.....	.....	

Arrivals of vessels during the calendar year 1895—Continued.

Ports.	Cargo.		Ballast.		Remarks.
	No.	Tons.	No.	Tons.	
September.					
Foreign ports:					
Honduras	1	74	.....	.....	Fruit.
Mexico	1	86	.....	.....	Do.
Cuba	8	4,160	2	2,496	Assorted merchandise.
Domestic ports	24	28,001	.....	.....	
October.					
Foreign ports:					
British West Indies	6	516	1	111	
Cuba	9	4,680	1	33	
Domestic ports	25	32,495	.....	.....	
November.					
Foreign ports:					
Honduras	2	149	.....	.....	Fruit.
British West Indies	4	223	.....	.....	Do.
Cuba	10	10,220	1	350	Assorted merchandise.
Domestic ports	25	32,465	.....	.....	
December.					
Foreign ports:					
British West Indies	2	109	.....	.....	
French West Indies	.....	.....	1	459	
Cuba	12	11,589	1	33	
Honduras	2	159	.....	.....	
Mexico	1	71	.....	.....	
Domestic ports	27	35,717	.....	.....	

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

There is no immigration bureau. There is an immigrant inspector, but no medical inspection of immigrants.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

The quarantine facilities are sufficient for the shipping entering the port, considering this simply as an inspection station.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The quarantine regulations of the Treasury Department are properly enforced with the exception of Article I, section 2, directing that vessels be inspected by daylight, and Article II, section 2 D, relative to vessels coming from ports where yellow fever prevails. This is not enforced in the case of the Plant Line steamers from Habana, they being operated under Article IX.*

16. Does the certificate of inspection or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Two certificates of inspection are given in every case; one of these certifies that the Treasury regulations have been complied with. Copies of both are herewith transmitted. [Exhibits B and C; also see Mullet Key report.]

17. What disposition is made of the consular bill of health?

One copy of consular bill of health is filed at the custom-house, the other by the sanitary inspector.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The work of this station, considered as an inspection station, appears to be properly and conscientiously carried out. The admission to entry of the passenger

* NOTE.—See Article IX, U. S. Quar. Reg., page 30.

steamer from Habana without disinfection of the vessel and without detention, I do not believe to be dangerous to the public health so long as the efficient inspection at Habana by the sanitary inspector of the Marine-Hospital Service is maintained and the rules of the Florida State board of health relative to the matter rigidly enforced. However, in view of the fact of the possible infection of the vessel after repeated trips to Habana, or by some violation of the rules escaping the vigilance of the sanitary inspector at Habana, or the quarantine officer at this port, I would consider it a proper precaution to have these steamers thoroughly disinfected at least once a month during the quarantine season.

The violation of Article II, section 2, in the case of the Habana passenger steamers, I do not consider to be a matter of much importance, for the reason that an inspection has been made by the United States sanitary inspector seven or eight hours before the vessel arrives at this port, and the crew and passengers have been certified by him to be immune. The principal safeguards against the introduction of yellow fever from Habana through these steamers are the precautions taken at the port of departure, and, if passenger traffic is to be carried on without serious interruption, the port of departure is the most desirable point for the application of sanitary measures.

MAY 20, 1896.

EXHIBIT A.

The Revised Statutes of the State of Florida, 1892.

[Extract.—Of the State board of health.]

760. *Governor to appoint.*—The governor shall appoint three discreet citizens of the State of Florida, who shall be confirmed by the senate, and who shall, after taking and subscribing an oath before some person competent to administer oaths faithfully to perform the duties of their offices, constitute the State board of health.

761. *Governor may convene board.*—It shall be the duty of members of said board to convene upon the call of the governor at such time and place as he may direct.

762. *Board to elect president and health officer.*—It shall be the duty of said board, at their first meeting, to elect one of their number as president of said board. At the same meeting it shall be the duty of said board to designate and employ a physician, who shall be an expert in the diagnosis of yellow fever, smallpox, cholera, and other infectious diseases, and who must be a person of recognized ability and skilled in hygiene and sanitary science, and a graduate physician of a recognized and reputable medical college, which said person shall be known as the State health officer. The State health officer shall be the executive officer of the board and secretary of the same, and shall hold the office for the term hereinafter specified, unless removed by the board for just cause.

763. *Terms of office.*—The term of office of each member of the board of health shall be four years from the date of his appointment, or until his successor is appointed and qualified, and the term of employment of State health officer shall be for four years from the date of his appointment, or until his successor is appointed and qualified: *Provided*, That should any member of the said board be and remain absent from the State for ten days after any disease has been declared epidemic, the governor may declare his office vacant and proceed to fill the same by appointment, and should the health officer be and remain absent from the State for five days after his attention has been called to the presence of any disease in the State, the board of health may declare the office vacant and proceed to fill the same by designation and employment of a suitable person to perform the duties thereof.

764. *Physicians to make certain reports.*—It shall be the duty of every practicing or licensed physician in the State of Florida to report immediately to the president of the board of health, by telegram or in the most expeditious manner, every case of yellow fever, smallpox, or cholera that comes within his practice, such telegram to be paid for out of the funds to be provided for the expenses of said board of health.

765. *Penalty for failure to report.*—Any practicing or licensed physician who shall fail to report to said president any such case, in the manner provided in the preceding section, shall be guilty of a misdemeanor, and upon conviction thereof

shall be fined in a sum of not less than $100 nor more than $1,000, or be imprisoned in the county jail for not less than three nor more than six months.

766. *Penalty for spreading false reports of disease.*—Any person or persons who shall falsely or maliciously disseminate or spread rumors or reports concerning the existence of any infectious or contagious disease shall be guilty of a misdemeanor, and upon conviction thereof shall be punished as provided by section 765.

767. *Charge to grand jury.*—It shall be the duty of the several judges of the circuit courts of this State to give in charge to the grand juries of their respective courts sections 764, 765, and 776 of this act at each term thereof, and it shall be the duty of the grand juries of the said several courts specially to investigate in their respective counties the offences therein specified, and to present impartially all offenders against the same.

768. *Duty of county solicitors.*—In the several counties of this State where county criminal courts of record exist, or may hereafter be established, it shall be the duty of the county solicitor of the said several courts to present and prosecute all offenders under sections 765 and 766.

769. *Duties of president and health officer concerning investigation and quarantine.*—It shall be the duty of the president of the board of health, immediately upon the receipt of information that there is any case of yellow fever, smallpox, or cholera in any portion of this State, to order the State health officer by telegram, if he is not at hand, to proceed immediately to said place, and there investigate the said reported case or cases of yellow fever, smallpox, or cholera, and to report to the said president by telegram the results of his said investigation; and said State health officer shall have power, and it shall be his duty, to declare said infected point to be in quarantine, and to place any and all such restrictions upon ingress or egress thereat as, in his judgment, shall be necessary to prevent a spread of the disease from the infected locality; and it shall be the duty of the said State health officer, when he shall have declared any city, town, or other place to be in quarantine, to so control the population of said city, town, or other place, and to make such disposition of the same as shall, in his judgment, best protect that population, and at the same time prevent a spread of the infection among the same. The sheriffs and constables of the several counties of this State, and the police officers of all the cities and towns of this State, shall be under the control of the said State health officer to enforce and carry out any and all quarantine regulations that he may prescribe, which said regulations shall be immediately published in the most practicable manner in the several counties, cities, towns, or other places where quarantine may be established; and said State health officer shall make immediate report of his actings and doings in the premises to the president of the board of health, and from time to time so long as quarantine shall continue.

770. *Duty of governor to furnish means of enforcing quarantine.*—It shall be the duty of the governor of this State, whenever called upon by the State health officer so to do, to furnish the said officer with all requisite means to enforce whatever quarantine regulations it may be necessary in his judgment to prescribe, including such armed force from the militia of the State as, in the judgment of the governor, may be required, upon information furnished by said officer.

771. *Regulations concerning railways and vessels.*—The board of health shall have power, and it shall be their duty at all times, to impose upon all railway and navigation companies, and upon all individuals who may own or operate steamships or other vessels plying between any of the West Indian, South American, or any other foreign ports and the ports of the State of Florida, such restrictions and regulations as to inspection, quarantine, and sanitary rules as in their judgment may be necessary to protect the health of the people of this State, and which may not be in conflict with the acts of Congress already passed, or that may hereafter be passed, and do not amount to an absolute interruption to commerce with said foreign ports: *Provided*, That whenever any case of yellow fever, smallpox, cholera, or other infectious disease shall appear, or be developed among the passengers, officers, or crew of any such steamship or other vessel, said steamship or other vessel shall be ordered in quarantine for such time and under such regulations as may be prescribed by said board of health: *Provided further*, That should said board of health at any time be convinced that yellow fever, smallpox, cholera, or other infectious disease exists in any foreign port, in such form that landing of any steamship or other vessel hailing from said infected foreign port, at any of the ports of Florida, will put in peril the health of the people of said State, it shall be the duty of said board to put all and any such steamships or vessels, their crew, passengers, and cargo in quarantine for such time and under such rules and regulations as may be prescribed by said board of health: *Provided further*, That said board of health shall charge and receive from such vessels undergoing inspection or sanitation, as provided in this section, such fee or fees as said board may prescribe.

772. *General powers of board.*—The State board of health shall have general supervision of the public health of the State of Florida, and shall have power to make, promulgate, and enforce such rules and regulations as may be necessary for the preservation of the same.

773. *Visits by health officer and condemnation of certain property.*—It shall be the duty of the State health officer, between the first of November and the first of May of each and every year, and oftener if deemed necessary by the board, to visit all the cities and towns, or other points where two or more railroads meet, in the State of Florida, which in the judgment of the board it may be necessary for him to inspect, and to thoroughly investigate the sanitary condition of said cities or towns; and he shall have the power, and it shall be his duty to condemn in any of said cities or towns any sidewalks, pavements, buildings, wharves, or other things that in his judgment shall be likely to produce or cause the spread of epidemic diseases; and he shall give notice to the mayor and council of such city or town, or other authority, to repair, remove, cleanse, or remedy the same within thirty-six hours, and if the same shall not be done as so required, it shall be his duty to have the same done himself, and the expense thereof shall be paid out of the health fund hereinafter provided, and be afterward assessed as a tax upon the assessable property of said city or town, to be assessed by the county assessor upon notification by the health officer of the amount, and collected by the county collector at the annual assessment and collection thereafter, said amount so realized to be replaced in the health fund of the State by the proper authorities: *Provided*, A list and memorandum of property to be condemned shall be made and valuation placed upon the same by three disinterested freeholders, one to be selected by said health officer, one to be selected by the owner of the property or his agent, and the third to be selected by the two freeholders already selected, before being condemned or destroyed, and the value of any private property that may be condemned and ordered to be destroyed by the health officer shall be paid to the owner thereof out of any funds provided and appropriated for the expenses of the State board of health, upon the certificate of said health officer that said property was so destroyed, approved by the board of health and endorsed by the president of the board.

774. *Board to make and publish rules.*—It shall be the duty of said State board of health to formulate such rules and regulations for the preservation of the public health as in their judgment they may deem necessary, and to meet upon the first Monday in May of each year to formulate such additional rules and regulations for the preservation of the public health as their experience may suggest; and they shall have the same published in such place and in such manner as they may deem best to give greatest publicity to the same.

775. *Health officer to act as secretary.*—It shall be the duty of the State health officer to attend all meetings of said board of health, and act as secretary of the same.

776. *President may call meetings.*—The president of said board of health shall have power to call meetings of said board at any time, and at such place as he may designate, to take measures for the public safety.

777. *Board may abrogate quarantine.*—The State board of health shall have the power, after close personal inspection, to modify or abrogate any and all quarantine regulations after they may be established by said State health officer.

778. *With consent of governor may call on General Government.*—The State board of health shall have the power, by and with the consent of the governor, when the occasion demands it, to call upon the General Government for such aid as the necessities arising out of any epidemic may require.

779. *Penalty for violating rules.*—Any person who violates, disobeys, omits, neglects, or refuses to comply with any quarantine regulations which may be established by the State health officer, or any of the rules and regulations which may be adopted by the State board of health, as hereinbefore provided, that may be duly promulgated by said State health officer or the said board of health, shall be guilty of a misdemeanor, and upon conviction thereof shall be fined in a sum not less than $100 nor more than $1,000, or be imprisoned in the county jail for not less than one nor more than six months.

780. *Compensation of members of board and health officer.*—The State health officer shall receive a salary of three thousand dollars a year, to be paid quarterly, upon his requisition, approved by the president of the board of health, out of the fund hereinafter provided, together with his actual traveling expenses while engaged in the discharge of his duties as State health officer. The members of the State board of health shall receive a per diem of six dollars for each day of actual session, with mileage to and from their homes to the place of meeting by the nearest and most practicable route, at the rate of ten cents per mile.

781. *Assistant health officer.*—There shall be designated and employed by the

State board of health an assistant State health officer, who must also be a physician of experience and skilled in the diagnosis of infectious and contagious diseases, and who shall be subject to the orders and instructions of the State health officer, and in case of sickness or disability of the State health officer he shall succeed to the duties of the office for the time being of the State health officer. The assistant health officer shall receive fifteen dollars per diem for each day that he is engaged in active service under the direction of the State health officer, and five cents per mile for every mile traveled in the performance of such service, and shall hold the appointment until removed for cause by the State board of health.

782. *Oath and bond of State health officer.*—The State health officer, before entering upon his duties, shall take, before some person competent to administer oaths, an oath to faithfully perform the duties of his office, and enter into a bond, with good and sufficient sureties, in the sum of ten thousand dollars, payable to the president of the board of health, said bond to be approved by the said president, conditioned for the faithful discharge of his duties. Said bond to be prosecuted by the attorney-general for any neglect of duty or abuse of power herein conferred, and if said bond should be forfeited, all amounts collected from such prosecution shall be placed to the credit of the before-named health fund, by said president of the board.

783. *President to certify expenses and report to governor.*—All expenditures of the board of health shall be certified by the president of the board, and he shall make an annual report to the governor of all such expenditures, in a clear and concise statement, together with any special observation, recommendations, or facts that he may present that would be conducive to the health and sanitary conditions of the State, and such annual statements shall finally be submitted by the governor to the State legislature when in regular session convened, and shall be published like other reports of State officers, and the president of said board shall hold for inspection properly certified vouchers for such expenditures, a copy of which shall be furnished the comptroller, who shall not draw his warrant on the treasurer without the proper certificates and vouchers.

784. *Special tax.*—There shall be annually levied and collected upon the assessable property of the State a tax of not more than half a mill, the revenue derived from which assessment and collection shall constitute a special fund to be used for public health purposes of the State.

785. *State board to control county boards.*—The State board of health shall have general supervision and control over such county boards of health as the legislature may establish.

Laws of Florida, 1895.

[Extract.—Chapter 4345, No. 24.]

AN ACT to increase the efficiency of the State board of health.

Be it enacted by the legislature of the State of Florida:

SEC. 1. The regular meeting of the State board of health shall be on the second Tuesday of February of each year.

SEC. 2. The State health officer, under the direction of the State board of health, shall have the general administrative and executive control of all the maritime and domestic quarantine systems of the State. He shall have the power to make arrests without warrants for any violation of the quarantine rules and regulations of the State board of health after they have been duly promulgated. He shall also have power to deputize sanitary agents for that purpose. In all such cases the person or persons arrested for violating the quarantine and sanitary rules aforesaid shall be surrendered without delay to the custody of the nearest sheriff and formal complaint made against him, her, or them in accordance with law.

SEC. 3. No quarantine regulations of commerce or travel (seacoast or inland) shall be instituted or operated by any port, place, or county of this State against any other port, place, or county in this or any other State or any foreign country except by authority of the State board of health: *Providing*, That nothing contained in this act shall give to the State board of health or to any of its members, or to the State health officers, any other or further powers than they now possess over matters now within the jurisdiction or control of the county board of health of Escambia and Franklin counties.

SEC. 4. All laws and parts of laws in conflict with the provisions hereof be, and are hereby, repealed.

SEC. 5. This act shall take effect from and after its approval by the governor.

Approved, May 31, 1895.

EXHIBIT B.

[State board of health of Florida.]

BILL OF HEALTH.

PORT OF ——, OFFICE OF AGENT STATE BOARD OF HEALTH,
—— ——, *189—*.

This is to certify that the ——, whereof —— —— is master, having a crew of —— and carrying —— passengers, leaves this port in free pratique for ——.

The crew and passengers of the above-named vessel are in good health, and the vessel is clean and in a good sanitary condition. There is no contagious quarantinable disease prevailing at this port or vicinity.

By authority State board of health of Florida.

——— ———,
Port Sanitary Inspector and Agent State Board of Health of Florida.

Fee, $1.00.

EXHIBIT C.

Inspection of vessels arriving at the port of ——, Florida.

——, *189—*.

1. Name and class of vessel. ——.
2. Name of captain or master. ——.
3. Tonnage of vessel. ——.
4. From what port is the vessel you command? ——.
5. How many days have you been on the passage? ——.
6. Where bound to? ——.
7. At what port or ports have you touched within the last 90 days? ——.
8. Were any contagious or infectious diseases prevailing at those ports? If so, name ports and diseases. ——.
9. Was any freight, passengers, or ballast received at the ports at which your vessel touched? ——.
10. Had you communication with another vessel on your passage? ——.
11. Have you received any passengers, freight, or ballast from any other vessel? ——.
12. If so, give particulars. ——.
13. Have you a bill of health? ——.
14. During the course of your cruise or passage what cases of disease have occurred on board and at what date? ——.
15. Have any deaths taken place on board of your vessel since you left the last port? If so, what dates and from what causes? ——.
16. Are there any sick on your vessel at this time? ——.
17. Has yellow fever, smallpox, cholera, plague, leprosy, or other contagious or infectious diseases ever existed on this ship? ——.
18. If so, when? ——.
19. What is the number of officers and crew? ——.
20. What is the number of passengers? ——.
21. What is your cargo and to whom consigned? ——.
22. If in ballast, what is the character of the ballast, where was it taken from, and how many tons have you on board? ——.
23. What is the present sanitary condition of the vessel, cargo, crew, and passengers?

—— ——, *Master.*

STATE OF FLORIDA, *County of* ——:

Before me, —— ——, a notary public in and for said county and State, personally came —— ——, master of the ——, to me well known as the person named, who, after being duly sworn, deposes and says that the statements made by him in answer to the foregoing interrogatories are true.

—— ——.

Sworn to and subscribed before me this —— day of ——, A. D. 1892.

—— ——.

TORTUGAS UNITED STATES QUARANTINE.

By Surg. FAIRFAX IRWIN, M. H. S.

I have to report that I left Key West for this station about 8 p. m. March 13, on a pilot boat, and arrived about dawn March 14. The inspection has taken about two full days for completion. The station is located on Garden Key, one of the Tortugas group. The key referred to consists of about 10 acres. The ground is mostly occupied by Fort Jefferson, formerly an army post. The number of buildings used by the Service, situated on southeast spit, consist of four, viz, coal shed, carpenter shop, dormitory, and buoy shed, the latter belonging to the Light-House Establishment, but with privilege allowed the Service for storage of boats and material.

The coal shed has a capacity of 150 tons, and needs no repairs. The carpenter shop requires weatherboarding on one side and one end. The dormitory is 50 years old and rather too small for the purpose, with no quarters for captains of vessels. It is thought that control of the buoy shed should be secured for the Service, in order that a proper dormitory or sleeping quarters for crews could be constructed, which would in no wise interfere with the use of the shed by the Light-House Board as a place of storage for buoys, chains, sinkers, and lumber.

The buildings inside the fort used by the Service are first officer's quarters and a building 288 by 44 feet, three stories high, containing sixty-nine rooms, used for storerooms, headquarters, and officers' and attendants' rooms. In addition there are eight kitchens, most of which are used as shops, cooking rooms, and storage. Within the parade there is a large building known as the barracks, now unused except for the storage of material belonging to the Engineer Department of the Army. There are three detached kitchens, occupied by the ordnance sergeant. Near the sally port is located the residence of the keeper of the light-house, the only wooden building inside the fort.

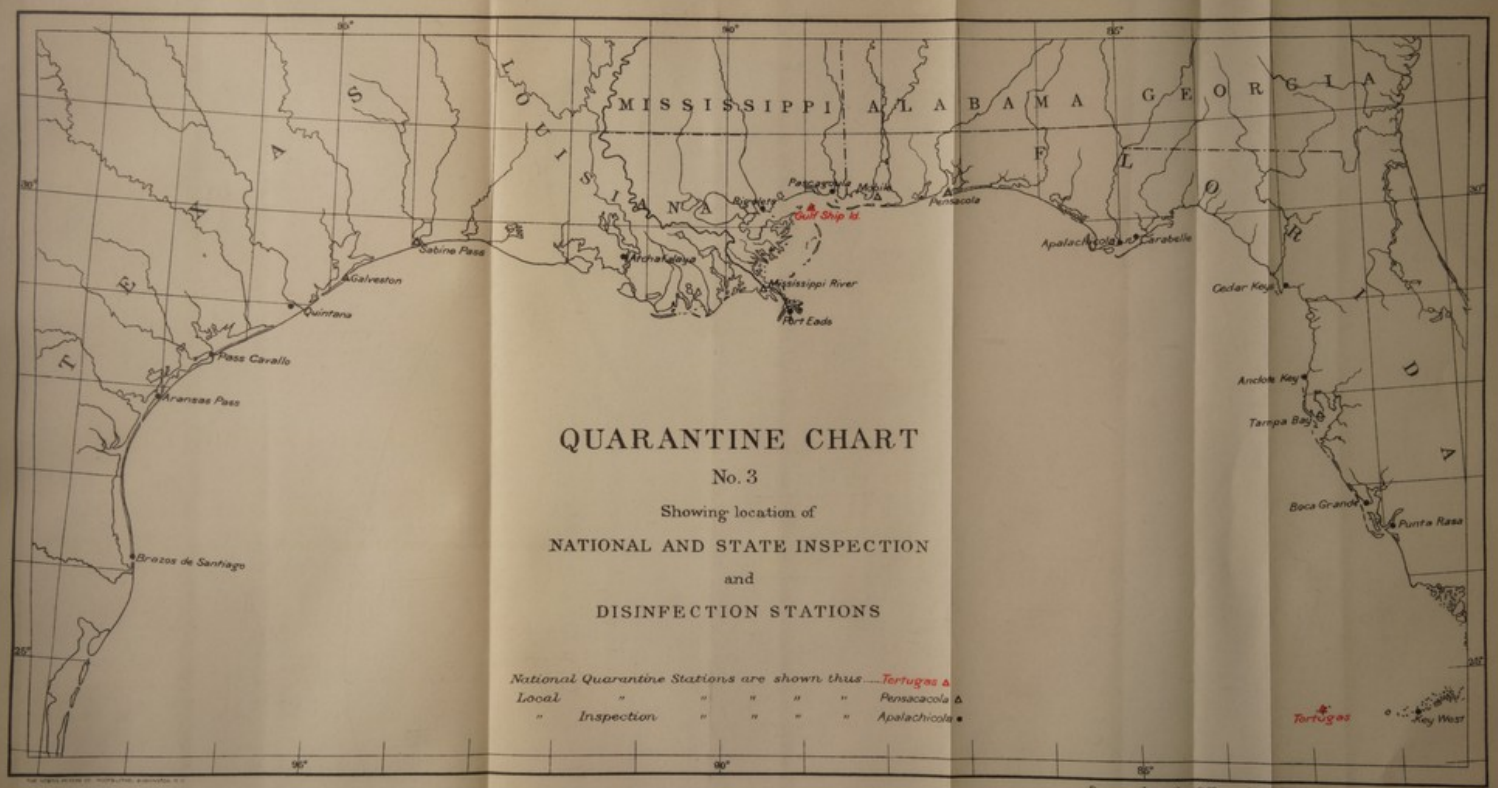
The outer anchorage is in extent about 3 by 2 miles, and this anchorage is large enough to accommodate all vessels, leaving a mile distance between noninfected and infected vessels. The holding ground or anchorage in front of the disinfecting wharf is large enough to accommodate several two-masted schooners, two three-masted schooners, but not large enough to safely anchor a 300-foot steamer. Bird Key Harbor is more capacious, but not so easy of access.

As to facilities for boarding vessels, the station is provided with a naphtha launch (unsuitable for use in rough weather), two Whitehall boats, and a whale-boat, which I regard as ample for the purpose. The steamer *Charles Foster* is a seagoing tug and principally for towing vessels to and from the disinfecting wharf provided with a life raft and rowboat. The schooner *Montross*, 30 tons burden, is provided with two dingeys, and is used for unloading and reloading ballast during the quarantine season, and for carrying supplies during the winter season.

The apparatus for the disinfection of vessels consists of sulphur furnace, steam fan, with the necessary piping, and duct ovens for small compartments, all used for the distribution of sulphur dioxide.

There is provided a steam pump for washing down a vessel with salt water and bichloride solution from a 3,000-gallon tank.

There is also a steam chamber of the Kinyoun pattern, made by Valk & Murdock in 1892, for the disinfection of clothing and bedding; size, 15 by 8 by 8. This chamber was put in operation for my observation. The thermometer showed a temperature of 105° C. in a 5-inch vacuum. The facilities for the removal of the sick of contagious disease consist of boats, inasmuch as the transfer is by water to Bird Key, distant three-quarters of a mile. The facilities for treatment consist of a hospital on the key mentioned, which is a building of wood, 30 by 34 feet, with a kitchen 16 by 8 feet, also 10 tents with floorings provided.



QUARANTINE CHART

No. 3

Showing location of

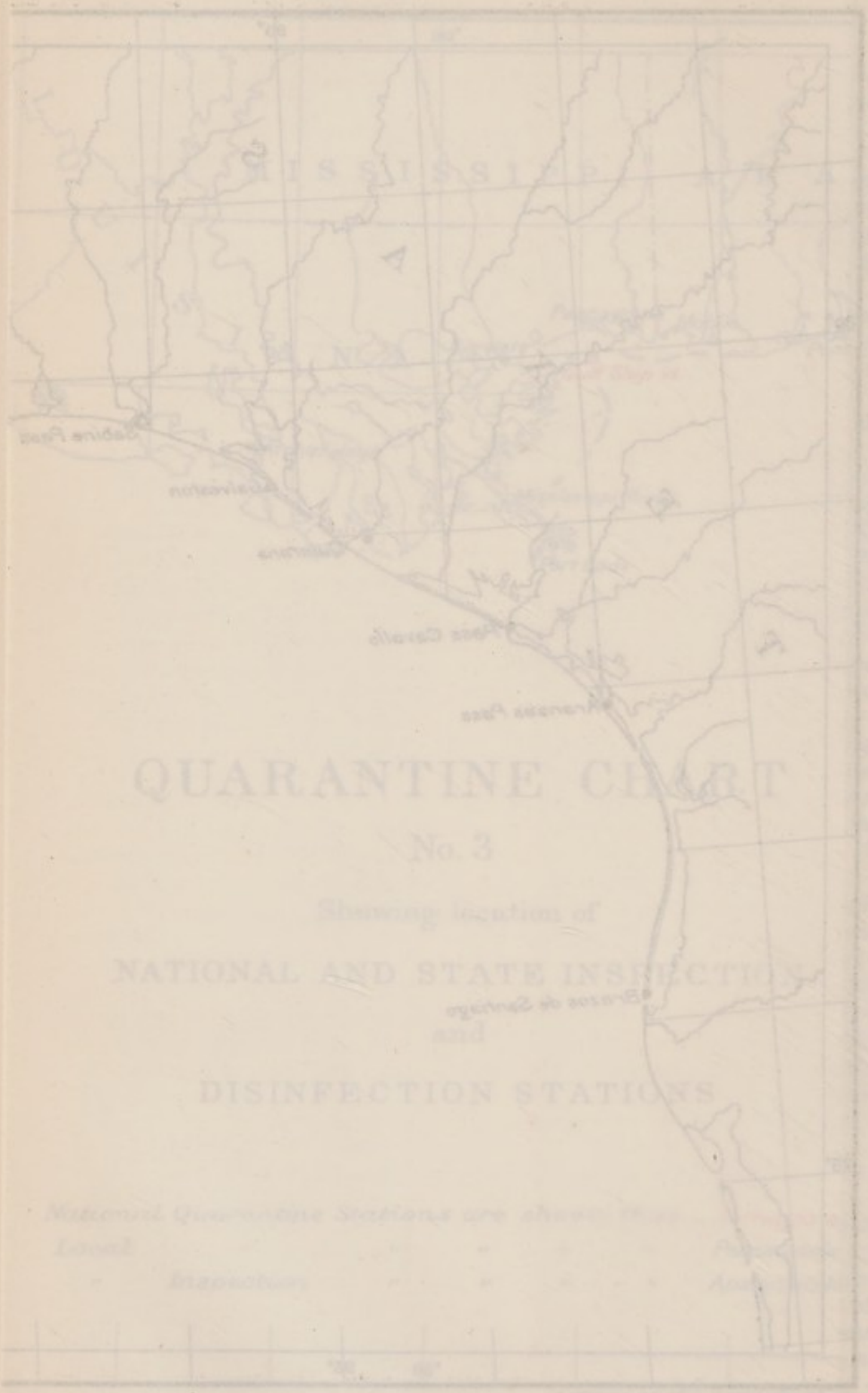
NATIONAL AND STATE INSPECTION

and

DISINFECTION STATIONS

National Quarantine Stations are shown thus.....Tortugas ▲
Local " " " " " Pensacola △
" Inspection " " " " Apalachicola •

Prepared at the Office of the U. S. Coast and Geodetic Survey.



For the removal and detention of suspects at present the main reliance for segregation will be tents.

The length of the wharf frontage is 120 feet, the wharf itself being a patent iron-piled wharf, in excellent condition, 30 feet wide, and covered by a shed its whole length and 24 feet of its width. Under the shed is placed the tanks and disinfecting machinery.

The wharf being placed between two spits and set at a wrong angle, there is not sufficient room to treat vessels of 300 feet length. It is proposed to furnish as a substitute a disinfecting barge, capable of accommodating in the stream vessels of the largest size trading in the Gulf. I can not too strongly urge the necessity of this arrangement; I can only say from my experience and observation of the station that I consider it an absolute necessity. The mooring facilities are considered sufficient, but it is considered advisable that some anchors be placed in the channel to facilitate kedging. The depth of water at mean low tide along the front of the wharf is 17 feet.

The source of water supply is from rain only, and is abundant if properly conserved. It is retained in seven cisterns, and certain repairs now in progress will insure sufficient steam water. The water is potable and soft, the rainfall being about 30 inches. This water does not affect the boilers injuriously.

The disinfecting machinery has already been enumerated; its general condition is good and presents the appearance of care and recent use. The boiler needs new tubes, which it is hoped can be supplied from the discarded tubes of the steamer *Foster*. This boiler is six years old, and needs new stay bolts and other repairs incident to service. There is provided a steam hoisting engine for ballast and ballast tubs placed on the wharf for hoisting ballast into the schooner *Montross*—or out, as the case may be. Ballast is disposed of here at this time by unloading onto the schooner *Montross* and dumping it into deep water. It is not disinfected prior to discharge, but all dipable ballast is of course treated by dipping in bichloride solution and replaced. Vessels needing ballast are supplied with sand by the schooner *Montross*.

The dimensions of the steam disinfecting chamber have been given; it is rectangular in shape, and of iron; one car only is provided, and infected articles are put in and brought out at the same end. The chamber is provided with a thermometer for indicating the temperature during the process of disinfection, an apparatus for producing a vacuum prior to the introduction of steam; and an atomizing steam chest, which is efficient in action and produces a vacuum of 5 inches in about two minutes. The usual sulphur furnace is provided, and it is used for all vessels coming to the wharf. The gas is distributed from a galvanized iron tube, which rises from the floor from 7 to 12 feet, thence over the rail to the vessel. Sulphur hose is provided, but not used. The fan and engine are in good condition. The bichloride solution is stored in wooden tanks, elevated about 1 foot (steam-pump tank). There is provided for the distribution of the bichloride solution 150 feet of 2-inch rubber hose, much worn and too short; 300 feet of hose is asked to replace it. There is one Porter Economic horizontal steam boiler, as described, which gives sufficient steam for the fan and steam chamber at the same time.

There is a steam tug, as stated, the *Chas. Foster*, built of wood, sheathed with copper, built in 1890. Engine is in good condition; boiler needs new tubing and iron for patching, which has been asked for.

The station has a naphtha launch, the *Mary Lee*. Condition is good; can make about 4 miles an hour; not of great use to the station. Three small boats are in use; all in good condition. No more boats are needed.

The officer in command of the station at this time is Surg. R. D. Murray, Marine-Hospital Service; address, Key West Quarantine, via Key West, Fla.; the number of subordinates is 1 steward and 10 attendants.

There are no quarantine procedures enforced at the station in addition to the requirements of the Treasury Department, except disinfection of clothing and bedding for Florida ports. I do not believe there is any undue detention or disinfection of vessels. The inspection is maintained throughout the year. When a vessel arrives in quarantine, she is boarded as soon as possible and disinfection is commenced as soon as she can be brought to the wharf. The time of disinfection is, for iron vessels, one day; wooden vessels, two days. After completion of disinfection vessels are discharged in five days unless there occurs sickness on board. No communication is held between vessels in quarantine. Vessels would be handled as required by the quarantine regulations for each disease. In case of disease occurring during the voyage the record is noted on the boarding book on arrival, and, during detention, in the hospital records.

The number of vessels arriving at this quarantine station during the preceding year was 61; 48 of these foreign and 13 domestic. About six or seven of these came from ports in yellow-fever latitudes via domestic ports. The majority of vessels from foreign ports are from Habana, St. Jago, and other West Indian ports, all in ballast. The quarantine facilities are, in my opinion, not entirely sufficient to care for the shipping coming to the station, but the recommendations to make the station complete have been made at the proper place in the body of this report.

MARCH 15, 1896.

TORTUGAS UNITED STATES QUARANTINE.

By P. A. Surg. L. L. WILLIAMS, M. H. S.

Name of quarantine station: Tortugas Quarantine Station.

When was the station last inspected? March 14, 1896.

Name of inspecting officer: Surg. Fairfax Irwin.

I. PERSONNEL.

Name of officer in command: P. A. Surg. L. L. Williams.

Date of assignment to duty: February 19, 1896.

Name and rank of assistants, including acting assistant surgeons; also give number of members in each family: Acting Asst. Surg. F. A. Campuzano—number of persons in family of P. A. Surg. L. L. Williams, five; in family of Acting Asst. Surg. F. A. Campuzano, four.

Name of steward and number of members in family: William W. Kolb; has no family.

Name and duties of each attendant: S. L. McDonald, carpenter, boatman, and runs disinfecting machinery and naphtha launch; John Anderson, boatman, sailmaker, and general service; Thomas A. Elvin, carpenter and general service; Calvin Nedson, nurse and general service; Ishmael Curry, cook; Charles Johnsen, general service; Austin Knowles, general service; John Hall, general service.

II. GENERAL DESCRIPTION OF STATION.

Number of buildings: Sixteen.

Limit of anchorage for noninfected vessels: Anchorage marked by two quarantine buoys three-fourths of a mile apart.

Limit of anchorage for infected vessels: Separate anchorage for infected vessels not indicated. Such vessels would be anchored not less than three-fourths of a mile from noninfected vessels.

Facilities for inspection of vessels: Naphtha launch, whaleboat, and two dingeys.

Apparatus for disinfection of vessels and of baggage: Jacketed steam chamber; bichloride tank, pump, and hose; sulphur furnace, with steam fan and galvanized-iron delivery pipe; iron pots.

Facilities for removal and treatment of sick: Removal effected in launch or dingey; patients treated in Bird Key Hospital. In heavy weather patients would be treated in tents on Garden Key.

Facilities for removal and detention of suspects: Cases suspected to be contagious are sent to Bird Key. Should cases known to be contagious be under treatment on Bird Key, suspects would be placed in tents on Sand spit at Garden Key.

Mail and telegraph facilities: No telegraph; mail by schooner *Kate* three times a month.

Give number of wharves: One.

What is the length of the wharf frontage? One hundred and twenty feet.

Are the wharves in good condition? Yes.

Are the mooring facilities ample? Yes; for size of wharf.

What is the depth of water at mean low tide along the front of the wharf? Nineteen feet.

What is the source of water supply? Cisterns.

Is it sufficient? Yes.

Is it potable? Yes.

Hard or soft? Soft.

How is it distributed and stored, if storage is necessary? One cistern on wharf and two on southeast spit are available for use at wharf. Four are available for station.

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant: Steam chamber; sulphur furnace, with steam fan; bichloride tank; bichloride pump.

What is the general condition of all machinery? Machinery is in fairly good condition.

Is there a steam hoisting engine for ballast? Yes.

Are there ballast tubs and a ballast car for the distribution of ballast? Ballast tubs; no car track.

How is ballast disposed of? It is placed on schooner *Montross* and dumped on reef or east side of harbor; small quantities (sweepings if rock dipped and retained) are deposited on shoal near wharf.

Is it disinfected prior to being discharged, and what facilities exist for supplying ballast to vessels needing it? Discharged without disinfection. Vessels are reballasted with coral sand, schooner *Montross* being employed as a ballast lighter.

What are the dimensions of the steam disinfecting chamber? Nine by 9 by 16 feet.

Is it rectangular or cylindrical? Rectangular.

How many cars are provided? One.

Are infected articles put in at one end and brought out at the other after disinfection, or is one end of the chamber used for loading and unloading? One end is used for loading and unloading.

Is the chamber provided with thermometers for indicating the temperature during the process of disinfection? It is provided with one mercurial thermometer.

Is the chamber equipped with any apparatus for the production of a partial vacuum? What is the nature of the appliance? Is it efficient in operation? Vacuum is obtained by steam exhaust. It is efficient in operation.

What vacuum is produced and how long does it take to obtain it? Five pounds; obtained in one minute.

Is a sulphur furnace provided? Yes.

How many feet of sulphur hose are provided? Thirty-five feet; also, 80½ feet galvanized-iron pipe.

What is its condition? Hose in good condition. Galvanized pipe nearly worn out.

What is the condition of the fan and engine? Good.

What is the method of storing bichloride solution? In one wooden tank.

What is the capacity of the tank or tanks? Two thousand five hundred gallons.

Are they of wood or iron? Wood.

What is the elevation of the tanks above the wharf flooring? One foot.

Is the solution distributed by gravity or is there a pump for the purpose? There is a pump for the purpose.

How many feet of hose are provided for the distribution of the bichloride solution, and what is its size and condition? Three hundred and forty feet of 1½-inch rubber hose, of which 250 feet are in good condition.

How many steam boilers are provided? One.

What is their condition, and do they supply sufficient steam for all purposes? Condition good; steam barely sufficient for all purposes; will probably be ample after boiler has been covered.

IV. BOATS.

Is the station provided with a steam tug or other steam vessel? One steam tug, the *Charles Foster*, 85.89 tons.

If so, is she of wood or iron? Wood.

Give dimensions: Depth, 11 feet; length, 93 feet; beam, 19½ feet; draft forward, 8½ feet; aft, 10½ feet.

If of wood, is the vessel sheathed with metal? Yes.

Are the engines and boiler in good condition? The boiler is in good condition. The engine is in need of repair.

Give engineer's statement as to necessary repairs and renovation: Boring out cylinders and packing for same; new sleeve on shaft; metal for stern bearing; planing off slide valves and seats; true up crossheads; new piping for wrecking; air, feed, and circulator pumps; new oil cup for main engine; new injector; new valve for sea cock; pumps to be repaired, also condenser and shoe; new propeller; new oil cups for all journals, and coppering bottom.

Is the station provided with a steam or naphtha launch? One naphtha launch.

Give dimensions: Length, 30 feet 5 inches; beam, 5 feet 4 inches; engine, 6 horsepower.

What is its condition? Hull, good; engine requires general overhauling and should be sent to makers to be repaired.

Give report of medical officer as to efficiency of the launch: The launch is efficient, except in heavy weather.

How many small boats are provided, and what is the condition of them and their equipment? Three whaleboats, one serviceable; three small boats, two serviceable.

Are more boats necessary or desirable? An able sloop-rigged centerboard boat should be provided for boarding in rough weather.

V. HOSPITAL.

Give location of building used as hospital: The hospital is a rough wooden structure located on Bird Key, 1 mile from station.

Give general description of the building: Hospital is rectangular; has a porch on each side; is constructed of rough weatherboarding; not ceiled or plastered; divided into four wards by partial partitions 10 feet high. There is a 6-foot passage between each ward.

Dimensions: Thirty by 34 feet; four porches, 6 by 10 feet; kitchen, 8 by 16 feet.

Number of beds in each ward: One.

How many beds can be added for emergencies? One in each ward.

Cubic air space allowed each patient: Three thousand five hundred cubic feet.

Heating, lighting, and ventilating: No heating apparatus; oil lamps for lighting; doors and windows for ventilation.

Has the hospital sufficient furniture? No.

What kind of bedsteads and what kind of mattresses and bedding? Cot bedsteads and moss mattresses.

Is the nursing sufficient and is the nurse immune? Nurse is immune and efficient; is disabled at present.

VI. OUTBUILDINGS AND GROUNDS.

Describe general condition of outbuildings: Good, except four kitchens, which require repair.

Describe officer's quarters and condition of furniture: Insufficiently furnished; six rooms in use.

Describe steward's and attendants' quarters and condition of furniture: Insufficiently furnished; one room in use.

Describe dining room, condition of table furniture, and tableware: Insufficiently furnished.

Describe kitchen and furniture: Additional utensils needed.

Describe dispensary: Contains counter, prescription case, instrument case, and shelving; all made at station.

Describe laundry: There is none.

Describe approaches to the station: Inner harbor is approached by a channel on the east and on the southwest. Wharf fronts inner harbor; is connected with sally port of front by a wharf bridge.

Describe disposal of slops: Thrown into sea outside of breakwater.

State whether any animals not authorized by the Department are kept on reservation: No such animals are kept.

VII. EQUIPMENT.

Is there a blacksmith's forge provided? Yes.

Are there farming implements; and if so, are they in good condition? There are a few garden tools; condition good.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year, by months: May, 8; June, 12; July, 18; August, 7; September, 3; October, 8; November, 3; December, 2. From foreign ports, 44; from foreign ports in yellow-fever latitudes via domestic ports, none; from domestic ports, 17.

From what countries chiefly do the vessels come? West Indian ports.

Are they in cargo, ballast, or empty? Most of them empty; a few in ballast; none with cargo.

State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping arriving at the station: They are sufficient with the exception of wharf facilities, which are inadequate.

Give annual amount expended at station for last three years: In 1893, $11,413.16; in 1894, $15,062.62; in 1895, $19,090.06.

Give the immediate needs of the station as stated by the commanding officer: Dredging inner harbor and extension of wharf or construction of a floating plant; repair of quarters; roofing portion of wharf bridge; construction of boat-house; equipment of Bird Key Hospital.

OCTOBER 8, 1896.

PUNTA RASSA.

By Surg. H. R. CARTER, M. H. S.

1. There are no buildings. The anchorage is marked by a yellow flag lashed to a buoy, about one-fourth of a mile below the landing at Punta Rassa. Inspection is sometimes done here and sometimes at the landing (wharf). When done at the buoy, it is done in a small boat. No apparatus for any kind of disinfection or for care of sick, it being an inspection station only. Mail and telegraph facilities good. Here is the landing end of the cable to Habana, and the quarantine officer is telegraph operator and postmaster as well as customs inspector and notary public, and, with his assistant and one cattleman, constitutes the population of Punta Rassa.

2. Give personnel of the station or port, name of the quarantine officer or officers, post-office address, total number of officers and subordinates, etc.

Mr. G. Schulze, Punta Rassa, Fla. No subordinates.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

Same laws and regulations as are common to all Florida ports and which have been sent on with previous reports. There is no peculiarity of custom. All vessels are inspected from May 1 to November 15. Vessels on their first trip stop at the buoy. Regular traders—cattle to Key West, mainly—are inspected at the wharf. The regular line—steamer *Clara*—from Myers to Punta Gorda, is not inspected. Quarantine declaration is not required save when the quarantine officer suspects a vessel.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

All vessels coastwise, the only kind that enter here, are inspected from May 1 to November 15. There is probably no special need of this, but it is common to all Florida ports and causes no trouble to the vessels.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

Inspection from May 1 to November 15; no treatment of vessels at any time.

6. Are vessels from other United States ports inspected?

Yes.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine—(*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

Vessels which stop at the buoy—all new vessels do—are there inspected; vessels which come regularly are frequently inspected at the dock. There is no time in quarantine, unless it be awaiting the inspection.

8. What communication is held with vessels in quarantine (and before quarantine, by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

It is ordered that no communication be held with vessels until released by the quarantine officer. There are no pilots taken by the vessels which come here, and, unless someone happens to be boating in the lower bay, nobody to communicate with them.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessel

carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Such a vessel would be refused entrance and doubtless go to Tortugas. Such condition will not arise unless there be some disease of these kinds in neighboring United States ports.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

The quarantine declaration is sometimes, not always, required of masters of vessels, and this would record any case of sickness. If there had been any sickness, the declaration would be required. It is required in all cases where any suspicion is felt of a vessel.

11. The schedule of fees is the same as for other Florida ports, but as all vessels which have ever entered here have been from Florida ports, no fees are collected.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Number of vessels from foreign ports, none. Number of vessels from foreign ports in yellow-fever latitudes via domestic ports, none. Vessels, coastwise, inspected at the State Quarantine Station at Punta Rassa in 1895: May, 12; June, 13; July, 7; August, 8; September, 13; October, 10; November (to the 15th), 5; total, 68. The trade is practically confined to shipping cattle to Key West; some merchandise comes by schooners from Tampa. Only a small number of vessels are engaged in the cattle trade, but they come quite often, and are thus often recorded.

13. There is no immigration bureau and no custom-house, although the quarantine officer is inspector of customs.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

Yes.

15. The quarantine requirements of the Treasury Department do not apply to the class of vessels which enter here.

16. No vessels from foreign ports enter here, and there is consequently no pratique issued.

17. No consular bills of health received.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

This is simply an inspection station for coastwise vessels, and its work is practically confined to those from Key West. It is of no great importance, but is well conducted, and should there be need, the present quarantine officer would prove a very efficient one; vigilant, conscientious, and intelligent. There are no recommendations.

JULY 25, 1896.

CHARLOTTE HARBOR.

By Surg. H. R. CARTER, M. H. S.

1. Describe the quarantine station, location, buildings, anchorage, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The station is on the south point of Gasparilla Island, on part of the old light-house reservation, and to the east of the light-house about 300 yards. The only building consists of quarters and for the quarantine officer and boatman, but a landing wharf for small boats is under contract. The quarantine anchorage is not marked by buoys, but is southeast of the station, in the harbor, about three-fourths of a mile to 1 mile therefrom. Vessels do not, in general, change their berths for loading, but load in the berth at which they came to anchor for inspection or quarantine. Vessels which require observation, however—two or three per annum—are laid in the bight to the north of usual place of loading. There is an abundance of room in the harbor for perfect isolation. No disinfecting apparatus, save pots and a hand pump. No facilities for the care of sick or suspects off of the vessel. It is an inspection station only, dependent on Tortugas and Mullet Key for disinfection. Mail and telegraphic facilities very poor. No regular communication; dependent on tugs which bring down tows to the loading vessels, etc., for communication with Punta Gorda, where there is a post-office and telegraph station.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. J. F. Cronin, quarantine officer, Charlotte Harbor Quarantine Station, via Punta Gorda, Fla. One boatman and one cook.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Same as those previously transmitted for Mullet Key Station and common to all Florida ports. This station in its theory of operation is analogous to that at Mayport, Fla., i. e., it is an inspection station primarily, but disinfects certain vessels or classes of vessels by the "pot plan." All vessels from ports believed to be infected with yellow fever, whether from fever being reported there in the sanitary reports or from other knowledge, common reputation, are refused entry unless they have been disinfected by modern methods; this is done at Tortugas or at Mullet Key. Vessels from ports within the limits prescribed by the Florida board of health, but which are not believed to be infected with yellow fever, are disinfected here. Two were disinfected in 1895, one from St. Vincent (off west coast of Africa), and one from the Venezuelan coast.

All coastwise vessels are inspected here from May 1 to November 15. Vessels from foreign ports are inspected here all the year round, by the quarantine officer in the summer, and by the boatman (assistant quarantine officer) in the winter. Disinfection as above is required only from May 1 to November 15, but if there be special reasons therefor it is also done in the winter—if a vessel has had infectious disease aboard, or by special order of the board of health, if she came from a badly infected port. In fact, however, vessels being aware of the facts as above stated, such as require steam disinfection do not come here directly, but come by Tortugas or go on to Mullet Key, and thus practically none but clean vessels for inspection apply for entrance.

4, State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

Coastwise vessels are inspected from May 1 to November 15, and vessels from some ports, as the islands off the west coast of Africa and some others, which do not require quarantine by the Treasury requirements, are quarantined and disinfected. This last seems unnecessary. Very few coastwise vessels enter.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

Inspection for vessels from foreign ports is maintained all the year; for vessels coastwise from May 1 to November 15. No treatment of vessels in the closed season save in cases where special precaution seems needed.

6. Vessels from other United States ports are inspected.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

Vessel, crew, and papers are examined in the usual way, and the master signs a quarantine clearance common to all Florida ports and previously transmitted. If vessel is believed to be infected, she is at once ordered away for disinfection to Mullet Key or Tortugas. If from an infected port, in the quarantine season she is ordered away at once without inspection. For such vessels as are disinfected here one day is required for mechanical cleansing (more if necessary) twenty-four to forty-eight hours for disinfection, and five days from completion of disinfcetion to discharge. The boarding for inspection is as prompt as the weather will allow and there is no delay here.

8. What communication is held with vessels in quarantine (and before quarantine, by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

It is ordered that no communication be held with or between vessels in quarantine. Pilots bring vessels in and remain aboard until the quarantine officer boards them, and are subject to his disposition. All pilots claim immunity to yellow fever.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessel carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Such a vessel would be sent off for disinfection. A vessel from a port infected with yellow fever, either reported in the sanitary report or so judged from other data, or with a foul bill, would be held infected with that disease. A vessel from a port where smallpox was epidemic or where any cholera existed would be held infected. A vessel from the territory rated as "suspicious" by the Florida regulations, but of which there was no other cause of suspicion, would be disinfected here by pots.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Yes; on the quarantine declarations.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Same as those at other Florida quarantines already transmitted. When ballast is discharged here, it is taken on a lighter and thrown overboard in the shallows. The contract for this is made with private parties, and the price varies according to the amount of ballast, etc. The crew works the ballast, no men from shore being allowed.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Vessels inspected at the State quarantine station at Charlotte Harbor, Florida, during 1895.

Month.	Foreign ports.				Coastwise ports.		
	Tropical (empty).	Other ports.		Total.	Empty.	Cargo.	Total.
		Empty.	Ballast.				
January		1		1			
February		1		1			
March	1	2		3			
April		2	1	3			
May	2	1		3		1	1
June	2	2		4	1		1
July	4			4	2		2
August	2	1		3	1		1
September	1			1			
November		1		1			
Total	12	11	1	24	4	1	5

Of these, all in the first column between May 1 and November 15 were disinfected at Tortugas save two—one of them (in June) at Mullet Key and one (in July) at this station. This vessel was from the Venezuelan coast. One vessel only in the second column (from St. Vincent) was disinfected. This was done at this station in June. The vessel noted as in cargo was a small schooner from the Florida Keys, in fruit.

The export trade is entirely phosphate. This has decreased from what it was some years ago, but is now on the increase. Especially has the coastwise trade in this article increased. It goes foreign almost exclusively in steamers, mainly Spanish, coming directly from the Cuban coast, Cienfuegos being the last port, and during the time from April to September. The Morgan Line enters this port from New Orleans and Tampa, but is not inspected. No spongers come in here. A few smacks enter for harbor and give considerable annoyance to the quarantine officer from their efforts to communicate with a Spanish fish ranch on an adjoining island—La Costa—and pilot boats.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

No immigration bureau. Such vessels from foreign ports as do not come by Tortugas have been entered without the certificate required by the act of February 15, 1893.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

For an inspection station they are ample. The station is dependent on Tortugas and Mullet Key for its disinfection.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection of vessels, are observed.

Save the matter of the form of the certificate of discharge, there are none.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893? Transmit copy of certificate.

No. Copies of the certificate forwarded.[1]

17. What disposition is made of the consular bills of health?

One kept at quarantine station and one with entry papers at the custom-house.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

[1] Collector of customs directed to enforce the regulations concerning certificate.

There seems to be none, and save that the deputy collector of customs should be advised of the certificate required for the entry of a vessel from a foreign port, there seems no recommendation which need be made.

JULY 22–23, 1896.

MULLET KEY.

By Surg. H. R. CARTER, M. H. S.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The station is at Mullet Key, on the west side of the entrance to Tampa Bay, about 21 miles from Port Tampa. The buildings consist of a wharf and a ballast wharf, with a gangway from each to the shore; a shed for the disinfecting plant, large enough to serve as a warehouse; quarters for the quarantine officer and attendants are on the main wharf. There is a hospital on shore about 150 to 200 yards from the shore end of the gangway. This contains a ward for six patients, and rooms for physician, nurse, kitchen, dispensary, etc. Limits of the anchorage not marked; a yellow buoy with a yellow flag gives the place for inspection, and there is an abundance of room for the anchorage of vessels in different sanitary conditions. Vessels are inspected in a yawl. The apparatus for disinfection consists of (*a*) sulphur furnace (Charleston pattern), furnished this season with light "suction hose;" (*b*) bichloride solution tank, with steam force pump and hose; (*c*) steam chamber (Charleston pattern). The sick would be removed in small boats or by bringing the vessel to the wharf, and taken to the hospital on a stretcher. Suspects would be kept on the vessel or removed to the hospital, as might seem advisable. Mail is received three times a week; no telegraph station nearer than Port Tampa or St. Petersburg.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. D. M. Echemendia, quarantine officer; post-office address, Tampa Bay Quarantine via Port Tampa, Fla.; five attendants.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

Copy transmitted (Exhibit A). The customs of the port follow pretty closely the regulations here submitted. All vessels from foreign ports are inspected, and all coastwise vessels from May 1 to November 15. The general regulations of the Florida board of health relative to the passenger traffic from Habana are too clearly set forth and too well known to require comment. During the past winter much Habana baggage has been disinfected here. This was done on account of the large immigration from that city during the winter. The disinfection of fabrics which I saw (baggage of the *Mascotte*) was undoubtedly effective and carefully done. I had no opportunity to see any other disinfection, but judge from the account given me that it all is carefully performed. The quarantine officer states that he was told to use 10 pounds of sulphur per 100 tons register, but that he used much more, venting the vessel's hold until the gas escapes freely and then closing and forcing in gas until the back pressure stops it, using 75 pounds per 100 tons. This should be efficient.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

Coastwise vessels are inspected from May 1 to November 15. During the past

winter certain baggage from Habana was disinfected here. This last is not usually done, but was required on account of the large Cuban immigration from Habana last winter. The baggage to be disinfected was designated by the United States sanitary inspector in Habana. There is no undue or unnecessary detention or disinfection of vessels here. The inspection of coastwise vessels, entirely unnecessary in most ports, is advisable here on account of the number of Spanish fishing smacks on the west coast of Florida and the communication known to exist between them and the small coasting vessels.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

Inspection for vessels from foreign ports is maintained throughout the year. No treatment of vessels, save those known to be infected, during the winter season, except as given in No. 4, during the past winter.

6. Are vessels from other United States ports inspected?

Yes; from May 1 to November 15 all coastwise vessels are inspected.

7. Describe quarantine procedures in the inspection of vessels and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The papers of the vessel are examined, and then the crew; the examination of the crew is most careful, and a careful and full record is made of it in the journal. The vessel is then gone over and decision reached. The inspection of the *Mascotte* was not very thorough; it was probably well known to the quarantine officer. The treatment of an infected vessel is that required by the United States regulations, except that in iron vessels the use of the bichloride solution precedes the SO_2, which is just as efficient and saves time. The crew is inspected each day after disinfection. There is in general no time between arrival and commencement of disinfection, save that due to accident, winds, or weather, unless the vessel has ballast, which is rare. The time occupied by disinfection is from twenty-four to forty-eight hours; the vessel is held six days after completion of disinfection, i. e., five days from the day after disinfection. I saw two vessels, one the *Mascotte*, inspected, but saw none disinfected, save her fabrics, etc.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No communication is held with vessels in quarantine save by quarantine officer and his employees. Pilots bring vessel in and remain aboard subject to orders of the quarantine officer; all pilots, he states, are immune, and unless there be sickness aboard are not subjected to quarantine. If there is sickness aboard, the pilot is held in quarantine.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Such vessels would be treated here, the sick being removed to hospital ashore and another physician sent down from Tampa to attend them. Only one vessel, the schooner *Eva Douglas*, with yellow fever, has ever been treated here.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Yes; in the journal of the quarantine officer is kept a record, the most complete and systematic that I have seen. It includes the history of the vessel, the sanitary history of the crew (as far as can be ascertained), the disposition of the vessel, and records every incident connected with her while in quarantine—disinfection, results of daily inspection, etc.—so arranged as to be readily looked over.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Schedule of fees and ballast charges submitted. (Exhibit A.)

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Arrivals of vessels from foreign ports.

Month.	Tropical ports.			Other ports (empty).	Total.
	Cargo.	Ballast.	Empty.		
January	----	----	3	1	4
February	----	----	3	3	6
March	----	----	5	3	8
April	----	----	2	----	2
May	11	----	3	----	14
June	8	----	4	----	12
July	9	----	5	2	16
August	10	1	6	----	17
September	11	----	2	----	13
October	9	----	----	1	10
November	5	1	3	----	9
December	1	----	7	----	8
Total	64	2	43	10	119

Of the vessels in the first column, fifty-six were the different entries of the steamer of the Plant Line (the *Mascotte*) from Habana, of which the baggage of the passengers was disinfected here, and six, mainly fruit vessels, from ports adjudged free from yellow fever. Of those in the third column, four were via Tortugas Quarantine and ten from ports considered free from yellow fever, and two were Spanish fishing smacks arrested and brought in from Anclote Key. The remainder, coming from May 1 to November 15, were disinfected, as were two in December.

There is very little trade from infected ports during the quarantine season via this station save the Plant steamship from Habana; such as there is mainly in American schooners for phosphate. There is some fruit trade from healthy ports, and there was one vessel running from Puerto Cortez, in the interests of the lottery there.

From domestic ports: May, 60; June, 52; July, 47; August, 47; September, 35; October, 45; November (to 15th), 18; total, 304. No coastwise vessels are inspected between November 15 and May 1. The great majority of these are small vessels, fishing, etc., plying along the Florida coast. Fifty-two, however, were steamships, plying between Tampa and New Orleans or Mobile. The import trade is almost entirely tobacco, with some fruit in small vessels. The tobacco comes via the Plant line from Habana. The export trade is phosphate, and has been decreasing the past two years.

The records of this station show that in 1895 1,613 pieces of baggage were disinfected and 4,028 passengers and 6,970 crew were inspected.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

I found that until an entry on July 20 (steamer *Kanawah*, from Tampico) the vessels had been entered without the certificate required by section 5, act of February 15, 1893, or, at least, none were on file. These certificates are now being issued, and will be required and filed by the collector of customs with the entry

papers in future. There is no immigration office here. A large number of immigants come here from Habana, but as the vessels always enter at Key West, they are handled and entered at that port. No immigrants, save an occasional stowaway, appears on the books here. The immigrants that come here officially come coastwise from Key West.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

They are sufficient.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

All except iron vessels have their holds washed with bichloride prior to treatment with SO_2. I believe that all the regulations of the Treasury Department are observed. I do not consider this variation of any sanitary importance.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes; I inclose four certificates issued at this station: (I) To all vessels from foreign ports, which is the one required by United States regulations; (II) to such vessels as require disinfection; (III) to vessels from clean ports, foreign or coastwise; (IV) certificate of disinfection of baggage, pasted on container.

17. What disposition is made of the consular bills of health?

One is filed with the entry papers in the custom-house and one kept at quarantine station.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

There seem to be none not covered by the report already made.

JULY 16–17, 1896.

EXHIBIT A.

Rules and regulations of the State board of health of Florida.

[Pursuant to "An act to create and establish a State board of health," approved February 20, 1889.]

APRIL 1, 1896.

DIRECTIONS TO MASTERS.

Vessels subject to quarantine restrictions destined to ports on the west coast of the State, between Key West and Cedar Keys, including both of these ports, will report at the Mullet Key Quarantine Station, Tampa Bay, or the United States Quarantine Station, Dry Tortugas, Florida; for points beyond and west of Cedar Keys to the Escambia County Quarantine Station on Santa Rosa Island, or the United States Quarantine Station on Chandeleur Island; for ports on the east coast to the United States Quarantine Station on Blackbeard Island, Sapelo Sound, or the Cumberland Sound Quarantine Station, Fernandina Harbor.

In pursuance of an act of the legislature of the State of Florida entitled "An act to create and establish a State board of health," approved February 20th, 1889, the State board of health hereby announces the following rules and regulations for the preservation of the public health in the State of Florida:

"Any person who violates, disobeys, omits, neglects, or refuses to comply with these rules and regulations of the State board of health is, under the law, guilty of a misdemeanor, and upon conviction thereof shall be fined in a sum not less than one hundred dollars nor more than one thousand dollars, or by imprisonment in the county jail for not less than one nor more than six months." (See section 779, Revised Statutes of Florida.)

POWERS AND FUNCTIONS OF THE HEALTH OFFICER OF THE BOARD.

SEC. 1. That, whenever the State health officer shall proceed to any portion of the State under section 9 of the act to create and establish a State board of health, he is authorized to make such quarantine and sanitary regulations as may be immediately needed to prevent the spread of the disease there prevailing, not inconsistent with said act or the rules and regulations of this board, and not already provided by this board; and he shall immediately report the same to the president of this board.

SEC. 2. That whenever the State health officer shall visit any city or town under section 12 of the act to create and establish a State board of health, and shall there discover any property or thing necessary to be condemned and destroyed under said section of said act, he is authorized to make such valuation and condemnation as is provided by said act, and shall make immediate report of same to the president of the board, or to the board, if in session, and if approved, the said property or things shall be destroyed as provided in said section of the act, and compensation made for same as provided in said section.

SEC. 3. The State health officer is hereby authorized to appoint and employ, with the approval of the president of this board, such sanitary port inspectors, sanitary guards, county sanitary agents, and such other persons as may be from time to time required for the prevention of the introduction of disease into the State, and for the preservation of the public health, such inspectors, guards, agents, and other persons to be employed only for such time as their services shall be necessary, and to be subject to removal at the pleasure of the State health officer or president of the board, said inspectors, guards, agents, and other persons so employed to be paid, according to their respective capacity and the nature of the service to be rendered, such compensation (to be agreed upon at the time of employment) as the health officer and president of the board consider just and reasonable.

SEC. 4. That whenever the sanitary agent of the State board of health for any county shall report to the State board of health that the municipal authorities of an incorporated city or the county commissioners of any county of the State refuse or fail to abate any nuisance prejudicial to the public health, it shall be the duty of the State health officer, as soon as practicable, to visit said locality and inspect the same, and, after consultation with the president of the board, to take such measures as may in their judgment be necessary either to immediately abate the causes of the trouble or to prosecute, in the proper courts, with the assistance of its prosecuting officers, the municipal or county authorities responsible therefor, and their action shall be reported to this board as promptly as practicable.

SEC. 5. The State health officer shall have the general, administrative, and executive control under the State board of health of all the maritime and domestic quarantine systems of the State.

MUNICIPAL SANITATION.

SEC. 6. All cities and towns of over 10,000 inhabitants should be provided with a system of sewerage and sufficient means for the proper collection and disposal of the filth, garbage, and refuse of every description in such cities and towns, and all cities, towns, or villages under 10,000 inhabitants having no system of sewerage shall be provided with sufficient means for the prompt, frequent, and sanitary collection and disposal of all filth, refuse, and garbage of every description in such cities, towns, and villages. The proper municipal authorities of incorporated cities and towns, or in cases of unincorporated towns and villages, the county commissioners, shall see that such system of sewerage and means of collecting and disposing of filth, refuse, and garbage are so provided, under penalties prescribed in section 15 of said act creating and establishing a State board of health above referred to.

SEC. 7. The city council, board of aldermen, or municipal authorities, charged by law with such duties, of all incorporated cities and towns in this State, or, in cases of unincorporated towns, the county commissioners, shall provide for house-to-house inspections of all such cities and towns at least once a month, between the first day of May and the first day of November of each year, and that it may be done efficiently, it is also ordered by the State board that blanks for this purpose, as prescribed by this board, shall be used, setting forth the number of inmates of the house of each sex and color, whether any sickness exists in the house at the date of inspections, or has existed since last inspected, and the nature of such sickness in either case, and the general sanitary condition of the interior of the house

and premises, especial note being made of the condition of the water-closets, cesspools, sinks, or private vaults; and the mayors of all incorporated cities and towns, and the presidents of boards of county commissioners in those towns not incorporated, are especially charged with the enforcement of this rule.

SEC. 8. That no dumping ground for refuse of any description shall be maintained at or near any city, town, or settlement in this State; and it is hereby made the duty of every mayor of a city or president of the board of county commissioners to promptly abate such a nuisance by fire (if any now exist) in cities, towns, or settlements under their jurisdiction, and to prevent the accumulation of refuse and garbage in such quantities as will threaten the health and lives of the citizens thereof.

SEC. 9. No decayed or tainted meat, fish, fruit, or vegetables will be permitted to be brought into or landed, kept, sold, or offered for sale at any of the ports, harbors, cities, or towns in the State of Florida at any season of the year; and any attempt to do so will subject such meat, fish, fruit, or vegetables to destruction, and the master of any vessel, company, corporation, or individual violating this rule to prosecution in the courts of the State thereof.

SEC. 10. No cargo consisting of green salted hides, bones, bone dust, or guano, or fertilizers of any kind that have become damaged by water so as to be offensive and detrimental to the public health, shall be permitted to be discharged or landed on any wharf or dock of any city or town in the State, or any settled port thereof.

SEC. 11. No one shall create, contribute to, or maintain a nuisance which is prejudicial to the public health, or which tends to injure the health of the citizens of this State.

SEC. 12. No draining of low lands or excavations of whatever character or grading of streets shall be made between May 1st and the 15th of November of any year, in any incorporated city or town, nor in any unincorporated town or settlement without the permission of the State board of health: *Provided*, That this is not intended to interfere with the ordinary cultivation of land in farming, the burial of the dead, nor the digging of wells, where necessary and there is no water system.

SEC. 13. No human remains shall be disinterred or removed from any place of interment in this State or brought into or carried through this State for burial without permission of the State board of health.

SEC. 14. It shall be the duty of the county sanitary agents of this board to report all nuisances or causes which threaten to create nuisances prejudicial to the public health, or infractions of the rules of this board, to the municipal authorities of any incorporated city within which the same may be located, or to the county commissioners if not within an incorporated city but within the county boundaries, and urge that the said municipal or county authorities take immediate measures to abate the same, and in case the said municipal or county authorities refuse or fail to remedy the evil within a reasonable time, or in case the danger to the public health is in the judgment of the county sanitary agent imminent, he shall report the facts at once to this board.

COMMUNICABLE DISEASES OF AN EPIDEMIC, INFECTIOUS, OR CONTAGIOUS NATURE.

SEC. 15. Whenever any physician shall know or apprehend that any person whom he is called to visit, or who is brought to him for examination, is infected with yellow fever, smallpox, cholera, diphtheria, scarlet fever, or any other disease dangerous to the public health, he shall immediately give notice thereof, in the manner provided by the statute, to the president of this board of health and to the health authorities of the city, town, or settlement in which the sick person may be; and it shall be the duty of any health officer or person acting as such, or the president of any board of health, or mayor of a city or town, to whom any disease dangerous to the public health is reported, to take such precautions, before the arrival of the State health officer, as shall be judged best for the safety of the inhabitants.

SEC. 16. It is hereby made the duty of the common council, board of aldermen, or other officers of a chartered city or town in this State, to provide for the vaccination and revaccination of the citizens residing in their several cities and towns. And it is also made the duty of every parent, guardian, or other person charged with the care of or responsibility for any child to see that said child is vaccinated, and to have said child or children vaccinated as often as the health authorities of a city, town, or county may direct: *Provided*, That the requirements of this section need not be enforced in sparsely settled communities in this State, except in a threatened epidemic from smallpox: *And provided further*, In any case, in the judgment of a reputable physician expressed in writing, such vaccination would be dangerous to the health of the person required to be vaccinated, such

vaccination will not be required to be made. Fresh bovine virus only should be used in vaccinating in this State.

SEC. 17. Superintendents of all institutions of learning, and all school boards and principals of schools in this State in incorporated cities and towns of over 2,000 inhabitants, are forbidden to admit as a pupil any child or person who can not produce satisfactory evidence of having been successfully vaccinated.

SEC. 18. No owner or manager of any manufactory in this State shall admit for employment any person who can not produce satisfactory evidence of having been successfully vaccinated.

SEC. 19. It is hereby made the duty of all mayors of towns and cities in this State, and of the boards of county commissioners, to enforce the observance of all the foregoing rules and regulations of the State board of health in the several cities, towns, and counties under their control.

COLLECTION OF VITAL STATISTICS.

SEC. 20. The State board of health of Florida shall compile accurate vital statistics of marriages, births, and deaths occurring within the State, arranged by counties and incorporated cities, with statements of the prevailing diseases and all information of a medical or sanitary nature that may be of value in the preservation of the public health, and for this purpose a State bureau of vital statistics is created, to be under the supervision of the State health officer, as registrar of said bureau, with office at the office of the State board of health. The said registrar of vital statistics shall formulate, print, and furnish suitable blanks for collecting and compiling such statistics, and he shall, as often as once a month, tabulate and publish such statistics and furnish copies of the same to the incorporated cities within the State and gratuitously distribute copies to persons and to other States of the Union, as may be deemed advisable by the State board of health.

SEC. 21. Every birth and death occurring in this State shall be reported by the attending physician, midwife, nurse, or head of family, to the State board of health, as soon thereafter as possible, on blanks furnished free and in accordance with the forms prescribed by the State board of health.

PUBLIC INSTITUTIONS.

SEC. 22. The superintendents of all State institutions of learning, or for the care of the afflicted; sheriffs of counties; the superintendent of the State prison or penitentiary, or other persons having the care or custody of prisoners or convicts, shall report to the secretary of the State board of health on the first day of each month, on blanks to be furnished, such information of a medical or sanitary nature as may be of value in the preservation of the public health.

QUARANTINE AND MARITIME MEDICAL INSPECTION.

GENERAL PROVISIONS.

SEC. 23. No quarantine regulations of commerce or travel (seacoast or inland) shall be instituted or operated by any port, place, or county of this State against any other port, place, or county in this or any other State or any foreign country, except by authority of the State board of health.

SEC. 24. The quarantine system over travel and commercial intercourse between any of the ports of the State of Florida and other ports shall be established and maintained from the first day of May to the fifteenth day of November, inclusive, of each year; except as hereinafter provided, or as may be otherwise ordered.

SEC. 25. No vessel shall be permitted to enter any of the ports, harbors, or inlets of the State of Florida, except under such restrictions and regulations as to medical and sanitary inspection as the State board of health may hereinafter and from time to time prescribe; and every master or person in charge of any such vessel violating the regulations of this board shall be subject to the penalties of section 779 of the Revised Statutes of the State of Florida.

SEC. 26. Pilots are hereby required in each case before boarding a vessel desiring to enter any of the ports, harbors, or inlets of the State of Florida, to make inquiry as to the sanitary condition of the vessel, and in no case must they "board" if the vessel has contagious or infectious sickness on board, or has had the same during the voyage. In all such cases the pilot must direct said vessel to the nearest United States quarantine or refuge station, except where it is impracticable by reason of sickness of the crew, or otherwise, for said vessel to go to such

quarantine or refuge station; then to such point as the State health officer or the port sanitary inspector of the State board of health may designate. And pilots are forbidden to leave any vessel which they have boarded until permission is granted by the port sanitary inspector, acting under authority of the State board of health.

INSPECTION.

SEC. 27. All vessels arriving at any of the ports of the State of Florida between the first of May and the fifteenth of November, inclusive, of each year, must "lie to" or anchor at a point to be designated in each harbor as the inspecting point, and marked by a buoy with a yellow flag thereon, and there remain until inspected by the sanitary inspector of the port, acting under authority of the State board of health.

SEC. 28. Vessels of the following classes arriving at any of the ports, harbors, or inlets of the State of Florida between the fifteenth day of November and the first day of May shall be subject to inspection as specified in sections 30 and 31:

(*a*) Any vessel with sickness on board at arrival or upon which sickness shall appear while in port.

(*b*) All vessels from foreign ports.

(*c*) Vessels from foreign ports having entered a port of the United States without complete discharge of passengers and cargo.

(*d*) Vessels from ports suspected of infection with yellow fever, having entered a port of the United States north of the southern boundary of Maryland without disinfection, shall be subjected to disinfection before entering any port of the State of Florida during the quarantine season.

SEC. 29. The inspection of vessels required by these regulations shall be made, as far as possible, between sunrise and sunset, except in case of vessels in distress.

(*a*) No person except the State health officer, the port sanitary inspector, and his employees shall be permitted to board or leave any vessel subject to quarantine inspection until after the vessel has been inspected by the port sanitary inspector (quarantine officer), and, if said vessel is ordered into quarantine for detention or disinfection, until after the period of detention or completion of disinfection and the discharge of said vessel: *Provided*, That after inspection and before final discharge opportunity shall be given to the official representative of the United States Marine-Hospital Service to examine the said vessel for the purpose of ascertaining whether the quarantine regulations prescribed by the Secretary of the Treasury have been or are being complied with.

(*b*) No person shall trespass upon or enter without permission of the State health officer, or attempt so to enter or trespass upon, any vessel, docks, buildings, or enclosed premises of any kind of the State board of health used by said board for disinfecting or purifying infected goods or materials of any kind.

SEC. 30. The quarantine officer shall at once demand from the master his bill of health, which in case of vessels hailing from a foreign port shall be signed by the consul, vice-consul, or medical officer properly detailed for that purpose, in the form prescribed by the Secretary of the Treasury, setting forth the sanitary history and condition of said vessel and that it has in all respects complied with the rules and regulations in such cases prescribed for securing the best sanitary condition of said vessel, its cargo, passengers, and crew; and which in case of vessels from domestic ports where cholera, yellow fever, smallpox, typhus fever, leprosy, or other quarantinable contagious or infectious disease may prevail shall be signed by the proper medical authorities of said port to a similar effect.

SEC. 31. In making an inspection of a vessel the bill of health and the crew and passenger lists and manifests, and, when necessary, the ship's log, shall be examined, together with the clinical record of all cases treated in hospital during the voyage. The crew and passengers shall be mustered and examined and compared with the lists and manifests and any discrepancies investigated.

SEC. 32. Whenever upon inspection the sanitary inspector shall find that any vessel having a proper bill of health, as specified in section 30, is free from sickness of every kind whatsoever, and has had no contagious or infectious disease on board during any part of the voyage subsequent to leaving the last port, or for three months prior thereto; and furthermore, that the vessel is in a cleanly and sanitary condition, then the said sanitary inspector shall give permission for said vessel to enter said harbor and proceed to an anchorage or dock, except as provided for in section 34: *Provided, however*, That county boards of health, appointed by the governor, may adopt rules and regulations subject to the approval of the State board of health, for the control and government of pilot boats, fishing smacks, wrecking boats, wood boats, and vessels engaged in the sponge business.

QUARANTINE.

SEC. 33. For the purpose of these regulations the quarantinable diseases are cholera (cholerine), yellow fever, smallpox, typhus fever, and leprosy, and "suspicious ports," or places suspected of being infected, are all ports in the West Indies, on the east coast of America between 23° 30′ north and 32° south latitude, and from west coast of Africa between 23° 30′ north and 10° south, except such as are known and declared by the Supervising Surgeon-General of the Marine-Hospital Service to be free from infection.

SEC. 34. Vessels under the following classifications arriving at any of the ports of the State of Florida between May first and November fifteenth, inclusive, of each year, shall be directed by the State sanitary inspector to the nearest State or United States quarantine or refuge station to undergo quarantine and disinfection:

(*a*) All vessels directly or indirectly from foreign or domestic ports where yellow fever may prevail; and

(*b*) All vessels arriving from foreign or domestic ports where cholera, smallpox, leprosy, or other contagious or infectious disease may prevail at any season of the year; and

(*c*) Any vessels in port at any season of the year upon which yellow fever, cholera, smallpox, leprosy, or other contagious or infectious disease may be developed after arrival; and

(*d*) All vessels in an unsanitary condition when inspected, or upon which there shall be sickness of an infectious or contagious nature; and

(*e*) All vessels without the required bill of health: *Provided, however*, That permission may be given to enter harbor and proceed to an anchorage at the discretion of the State sanitary inspector, when in good sanitary condition and free from sickness, and having a certificate from the medical officer in charge of the nearest quarantine or refuge station that said vessel and cargo and effects of passengers and crew have been thoroughly cleansed and disinfected according to the rules and regulations of this board, that said vessel has been detained at said quarantine or refuge station for a term of not less than five days after such disinfection, and that no case of yellow fever, cholera, smallpox, leprosy, or other contagious or infectious disease has within that time developed among any of the crew or passengers, and that the ballast of said vessel was discharged at said quarantine or refuge station before disinfection, and clean ballast, if necessary, taken at said station in lieu of the ballast discharged, which certificate shall be of a date subsequent to the leaving of said vessel from any foreign or domestic port infected with any contagious or infectious disease.

SEC. 35. A vessel from a foreign port calling at any port in the State of Florida for orders, supplies, or coaling, *only*, may be allowed to proceed, unless there is a quarantinable disease on board at the time, or such disease has been on board at ports *en route* or at ports of departure, and when she is believed to be infected, in which case coal or supplies by barge can be towed to her, and she can take the coal and supplies from the barge with her own crew; but the port sanitary inspector at the port shall allow no person or dunnage from such vessel to go ashore.

SEC. 36. Vessels engaged in the fruit trade, not carrying passengers nor having carried passengers from one port to another and having held no communication with any other vessel, carrying only fruit, unwrapped rubber, or specie from ports known to be healthy and so declared by the Supervising Surgeon-General of the Marine-Hospital Service, may be admitted to entry without detention, provided they have complied in every respect with the rules and regulations made by the Secretary of the Treasury for such ports and with the regulations of this board.

BALLAST.

SEC. 37. All vessels plying between foreign or domestic ports of the United States (declared by the Supervising Surgeon-General of the United States Marine-Hospital Service or by the State board of health of Florida as infected by yellow fever, cholera, smallpox, leprosy, or other contagious or infectious disease) and any of the ports, harbors, or inlets of the State of Florida must carry as ballast either water or clean rock or stone. If water ballast is used, it must not be changed either in any foreign port or any port in the State of Florida, but in the open sea. If rock or stone ballast is used, it must be procured from some noninfected port or place.

SEC. 38. No ballast brought to any port of the State of Florida shall be discharged in any such port except at such point as may be designated in a permit granted by the port sanitary inspector of the respective port; and in case this board or its port

inspector deem it expedient for the preservation of the public health to require fumigation and disinfection of vessels or discharge of ballast at quarantine station, the same shall be done at the expense of the vessel and in accordance with the rules and regulations of this board.

REGULATIONS APPLYING TO VESSELS IN REGULAR TRADE WITH FOREIGN PORTS.

SEC. 39. All vessels plying between foreign ports and the ports, harbors, or inlets of the State of Florida must be provided with crews acclimated to yellow fever; and between the first of May and the fifteenth of November, inclusive, of each year, such vessels plying as aforementioned, and especially between any of the ports of the Island of Cuba and the ports of Florida, must not enter any of the ports of the Island of Cuba before sunrise and must depart therefrom before sunset of the same day, and must not remain over night in any harbor of the Island of Cuba, otherwise they will be subjected to detention in quarantine at any of the ports of the State of Florida for fifteen days. Such vessels must not anchor, but may moor, in the open harbor of any of the ports of the Island of Cuba, and as far as possible from any other vessel; and while in said harbors must not, between the dates before mentioned, hold communication with the shore except under conditions and restrictions imposed by an agent of this board in said port or harbor.

SEC. 40. Steamships or other vessels plying between the ports of the State of Florida and any West Indian, South American, or other foreign port, must be kept in a cleanly and sanitary state at all times, and be subject to inspection by this board of health, and must have their bilges pumped out and thoroughly washed and cleaned at least twice a week with some powerful germicide and disinfectant (which will be designated by the health officer of this board), and it is hereby made the duty of all port sanitary inspectors of this board, or by authority of this board, to pay especial attention to this requirement and to observe on the arrival of any steamship or other vessel of any line, operating or plying between the ports as before mentioned, the condition of the cabins, staterooms, the steerage, forecastle, and water-closets, and to promptly report to the health officer of this board any deviation from perfect cleanliness as exacted by this rule, and also to promptly place in quarantine for the purpose of being disinfected and cleaned, any steamship or other vessel whose sanitary condition is not good and does not fulfill the requirements as established by the State board of health, and said steamship or vessel shall not be released from quarantine until she has been placed by her officers in a cleanly and sanitary state.

SEC. 41. Steamships or other vessels plying between any West Indian, South American, or other foreign port and any ports in the State of Florida, between the first day of May and the fifteenth day of November, inclusive, of each year, shall not be permitted to bring as passengers from any such ports where endemic or epidemic contagious or infectious diseases exist, to any port of the State of Florida, any person who is not acclimated to yellow fever by having had an attack of the disease, or by continuous residence in cities and towns, for a period of ten years or over, where such disease is endemic, and has not had smallpox or been successfully vaccinated; and masters of such steamships or vessels shall not receive for transportation any passenger without a certificate from an agent of this board in said port, stating the exemption of said passenger from contracting or developing yellow fever, cholera, or smallpox, which certificate, together with another setting forth the freedom of baggage from infection, must be produced to the port sanitary inspector at the port of arrival in this State before *pratique* can be given to said vessel or passenger. And the master of any steamship or vessel failing to observe this rule, and who shall attempt to transport passengers in defiance thereto, will subject himself, ship or vessel, crew, or passengers to quarantine and to such requirements of detention and disinfection as this State board may direct, and, in addition to the foregoing, every master of steamships or other vessels violating this rule will be prosecuted in the courts of the State, as specified in section 779 of the Revised Statutes of the State of Florida: *Provided*, That nothing in this section shall be construed as prohibiting an agent of this board of health in any foreign town or place where infectious or contagious disease exists from giving permission to anyone coming from a healthy district outside of said town or place, and who has not been acclimated to yellow fever, to pass through said town or place, if said individual does not remain over night in said town or place: *And provided further*, That the immediate destination of said individual is north of 38° 54′ north latitude.

SEC. 42. No bedding or household effects shall be brought from any port of the West Indies, South America, or other foreign port that may be infected with an epidemic contagious or infectious disease, or from any infected port or place in the United States to any port or place in the State of Florida at any season of the

year; and the master of any steamship or other vessel or any transportation company who disobeys this regulation shall be deemed guilty of violating this rule, and shall be dealt with as contemplated by section 779 of the Revised Statutes of the State of Florida.

SEC. 43. No personal baggage of the description usually carried in trunks, satchels, or handbags shall be landed at any of the ports or harbors or places in the State of Florida from any port of the West Indies, South America, or any foreign port, or any port or place in the United States where yellow fever, cholera, or smallpox prevails, between the dates of May 1st and November 15th, inclusive, of each year, without being subjected to thorough disinfection by superheated steam or dry heat of high temperature or medicated vapor, according to the nature of the fabric, or to be permitted to be transported into the State of Florida unless it has been properly and sufficiently disinfected according to these rules and regulations. Such personal baggage after being disinfected must have attached a certificate from the port sanitary inspector performing the service that such disinfection has been properly and amply performed: *Provided*, That disinfection and fumigation of all baggage arriving from infected ports or places may be ordered at all seasons of the year whenever the State health officer has reason to believe from the health condition of the port or place from which such baggage is brought, the appearance of said baggage, or from other circumstances that said baggage threatens contagion or infection: *And provided further*, That the baggage of passengers for points north of 38° 54′ north latitude (Washington, D. C.) may, at the discretion of the State health officer, be permitted to pass through the State without disinfection or fumigation when checked through according to the regulations prescribed by this board.

INTERSTATE QUARANTINE AND MEDICAL INSPECTION.

SEC. 44. Whenever yellow fever, cholera, smallpox, or any other contagious or infectious disease shall exist or prevail in any city or town of any State of the United States, Mexico, or Canada to such an extent as may be adjudged by the State health officer to endanger the health of the inhabitants of the State of Florida, through railway, stage, steamboat, or other medium of intercommunication, then all individuals entering the State of Florida from such infected locality by means of such railway, stage, and inland water navigation companies shall be detained at such points on or near the border line of Florida as may be selected by the State health officer, for observation of passengers and treatment and isolation of sick, and for fumigation of baggage, freight, and mails.

SEC. 45. Any individual or individuals found upon any railway train, stagecoach, steamboat, or other conveyance, from any city, town, or place of any other State of the United States, Mexico, or Canada, suffering from any epidemic, contagious, or infectious disease, and all such persons who, in the opinion of the medical inspector at any quarantine station, may reasonably be suspected of having been subject to infection or contagion from such individual or individuals, shall be detained for treatment and observation as specified in section 46.

SEC. 46. All passengers detained under provisions of sections 44 and 45 will be detained for such treatment and observation not less than ten days, or for such further time as the State health officer shall deem necessary for the safety of the public health.

SEC. 47. No railway or stage line, or any person, company, or corporation shall be permitted to bring any passengers from any city, town, or place in any other State of the United States, Mexico, or Canada, where epidemic, contagious, or infectious disease exists, to any city, town, or place in the State of Florida, without undergoing such detention as is specified in section 46.

SEC. 48. Persons desiring to enter the State of Florida on any railroad, steamboat, or stagecoach, or otherwise, passing any quarantine station, will be required to produce to the inspecting officer, duly appointed by the State health officer, a certificate, signed by the mayor, under the corporate seal, if the person is from a municipal corporation, and if not from a municipal corporation, then a certificate from a justice of the peace, that said person has not been exposed, either in person or baggage, to infection or contagion within fifteen days before the date of said certificate: *Provided*, Said certificate shall bear date not more than five days prior to such presentation; otherwise said person or persons and his or her baggage will be detained at such quarantine station as provided for in section 47.

SEC. 49. No bedding, household goods, or rags shall be brought from any city, town, or place of any other State or country where epidemic, contagious, or infectious disease exists into the State of Florida.

SEC. 50. No personal baggage of the description usually carried in trunks shall

be brought into this State from any city, town, or place of any other State of the United States, Mexico, or Canada where any epidemic, contagious, or infectious disease exists, without first being subjected to thorough disinfection by an agent of this board by superheated steam, dry heat of high temperature, or medicated vapor, according to the nature of the article.

SEC. 51. All day, sleeping, or other railroad cars, stage coaches or other conveyances, steamboats or other craft on which any epidemic, contagious, or infectious disease is found to exist, and all through sleeping cars coming from infected points, shall be detained and thoroughly disinfected by an agent of this board before being allowed to enter the State of Florida.

SEC. 52. No freight, mail, or other goods, not heretofore provided for, shall be brought into the State from any city, town, or place of any other State of the United States, Mexico, or Canada where epidemic, contagious, or infectious disease exists, without first being thoroughly disinfected by an agent of this board, except such freight as may in the opinion of the State health officer be deemed free from danger of infection or contagion.

TREATMENT OF VESSELS.

The following treatment in quarantine of cholera, yellow fever, and smallpox infected vessels prescribed by the United States Treasury Department is adopted and ordered enforced at all ports in the State of Florida:

FOR CHOLERA-INFECTED VESSELS.

SEC. 53. Remove all persons from the vessel (if cholera has occurred on board) save those necessary to care for her. Place the sick in hospital and carefully isolate those specially suspected. Segregate the remainder in small groups wherever it is practicable. Those believed to be especially capable of conveying infection must not enter the barracks until they are bathed and furnished with sterile clothing; nor should any material capable of conveying infection be taken into the barracks, especially food.

SEC. 54. At once proceed with the disinfection of the hand baggage, and, where practicable, bathe those detained.

SEC. 55. If cholera has occurred in the steerage, all occupants thereof must be bathed.

SEC. 56. All baggage and effects accompanying steerage passengers, and any baggage or effects that may have been exposed to infection, must be disinfected.

SEC. 57. Such articles of cargo as are liable to convey infection must be disinfected.

SEC. 58. All living apartments and furniture and such other portions of a vessel as are able to convey infection shall be disinfected.

SEC. 59. On cholera-infected vessels the water supply must be changed without delay, the casks or tanks disinfected by steam or 10 per cent solution of potassium permanganate, and after thorough rinsing refilled from a source of undoubted purity, or the water supplied be recently boiled.

SEC. 60. Nothing shall be thrown overboard from a cholera-infected vessel, not even deck sweepings. Such things shall be burned in the furnace or in a place specially designated, but not in the galley.

SEC. 61. No communication shall be allowed between any vessel in quarantine and the shore or any other vessel, except through the quarantine officer, or by his order, through his agents.

SEC. 62. The disinfection of iron vessels shall be as follows:

(*a*) *Holds.*—After mechanical cleansing, the hold to be thoroughly washed with an acid solution of bichloride of mercury 1 to 800 (mercury 1 part, hydrochloric acid 2 parts, water 800 parts), applied to all surfaces by means of a hose. If danger is apprehended from the poisonous effects of the mercury deposited on the surfaces, they can be subsequently washed down with clean water.

(*b*) *Steerage.*—The same treatment should be given the steerage as the hold, but when there are steam pipes provided for each compartment (for the prevention of fire), steam disinfection of the steerage should be practiced; the temperature in all parts of the compartments to be not less than 212° F.

(*c*) *The forecastle or apartment for crew.*—After mechanical cleansing, the application of bichloride of mercury in the manner heretofore prescribed, or steam disinfection, if facilities are provided for the same.

(*d*) *Officers' quarters, cabin, staterooms, etc.*—All compartments thereof to receive the same treatment coming under the same conditions as heretofore specified, with the following exceptions: The decorative and metal work in cabin,

saloons, etc., should, after mechanical cleansing, have an application made of 3 per cent solution of pure carbolic acid, applied by means of a brush or cloths. After remaining for two hours, wipe off with dry cloths.

(*e*) Disinfection by twenty-four hours' exposure to 10 per cent volume of sulphur dioxide, after mechanical cleansing, may be substituted in each of the above, *a*, *b*, *c*, and *d*.

SEC. 63. Leather cushions shall be wetted with 3 per cent solution of pure carbolic acid, and upholstered goods may be treated in the same way, or by steam.

SEC. 64. The water ballast of a vessel coming from a cholera-infected port should be discharged at sea, or, if discharged in fresh or brackish water, must be previously disinfected, the tanks to be refilled with sea water or disinfected.

SEC. 65. For a wooden vessel the treatment is as above, except that fumigation of the hold and living apartments with sulphur dioxide, 10 per cent volume, must precede the other treatment for the hold forty-eight to seventy-two hours; for the living apartments, twelve hours.

SEC. 66. All solid ballast should be discharged or disinfected previously to disinfection of hold. All ballast discharged ashore or in fresh water to be disinfected. Only clear, hard, close-grained rock may be permitted to remain on board after disinfection by dipping (immersing) in an acid solution, 1 to 800, of bichloride of mercury. Ballast removed from vessels must not be taken from the quarantine station.

DETENTION OF PASSENGERS ON ACCOUNT OF CHOLERA.

SEC. 67. The people detained shall be inspected by the physician twice daily, and be under constant surveillance, and no intercourse will be allowed between different groups while in quarantine.

SEC. 68. The water and food supply will be strictly guarded to prevent contamination.

SEC. 69. In any group in which cholera appears the sick will be immediately isolated in hospital, and the remaining persons in the group shall again undergo disinfection and be detained not less than five days thereafter.

SEC. 70. After five days from last exposure to infection, any group among which no choleraic disease has developed may be released from quarantine after a final disinfection of clothing.

SEC. 71. Food of a simple character, sufficient in quantity, thoroughly cooked, shall be issued to those detained in quarantine. No fruit shall be permitted.

SEC. 72. Cleanliness and disinfection of quarters and cleanliness of person shall be enjoined and enforced daily. Disinfectants shall be used where there is any possibility of infection.

SEC. 73. Water-closets, urinals, privies, or troughs shall be provided, and means used for their disinfection before their contents are discharged into pits of unslaked lime.

SEC. 74. The body of no person dead of cholera shall be allowed to pass through quarantine. The body should be cremated if practicable. If not, it should be wrapped without preliminary washing in a sheet saturated with a solution of bichloride of mercury, 1 to 500, and buried, surrounded by caustic lime.

DISINFECTION OF CARGO OF CHOLERA-INFECTED VESSELS.

SEC. 75. Articles of cargo requiring it will be disinfected by—

(*a*) Steam heat of 212° F. for not less than thirty minutes after such temperature is reached, or by boiling the same length of time.

(*b*) Wetting thoroughly with bichloride solution, 1 to 800, or with three per cent solution of pure carbolic acid.

(*c*) Exposure to sulphur dioxide, volume 10 per cent, for not less than twelve hours.

Clothing and bedding will be disinfected by—

(*a*) Exposure to steam from 212° to 220° F. for thirty minutes after such temperature is reached, or by boiling for thirty minutes.

(*b*) Immersing in bichloride solution, 1 to 800, or solution of pure carbolic acid, 3 per cent, until thoroughly wetted, and allowed to dry before washing.

This last process (*b*) to be used only for articles that will be injured by steam or boiling.

RAGS.

SEC. 76. All rags and old textile fabrics used in the manufacture of paper, and all old gunny, old jute, etc., fit only for remanufacture, gathered, collected, packed, or shipped from or via any port or place where cholera (cholerine), yellow

fever, or plague exists, or where smallpox or typhus fever prevails in epidemic form, and for thirty days after such port or place shall be officially declared free from such diseases or epidemic, shall be denied entry into any port of the State of Florida.

TREATMENT OF VESSELS INFECTED OR SUSPECTED OF BEING INFECTED WITH YELLOW FEVER.

SEC. 77. Where practicable, at once remove the sick to hospital and remove and isolate all persons not required for the care of the vessel.

SEC. 78. If the hold is deemed infected, there shall be a preliminary disinfection of the same with sulphur dioxide and bichloride solution.

SEC. 79. All ballast except close-grained hard rock must be discharged. This may be retained aboard if disinfected by dipping (immersion) in an acid solution of bichloride of mercury, 1 to 800.

SEC. 80. The bilge should be cleansed with sea water, if possible, before disinfection and the hold rendered mechanically clean.

SEC. 81. After discharge or disinfection of ballast the vessel should be disinfected as provided in section 62, paragraphs *a*, *b*, *c*, and *d*, of these regulations, treating living rooms in addition with fumigation with sulphur dioxide, 4 per cent, twenty-four hours' exposure.

SEC. 82. All baggage and clothing, bedding, hangings, etc., shall be disinfected by steam at 212° to 220° F. for thirty minutes after such temperature is reached, or boiling thirty minutes. Articles liable to injury by steam or boiling should be disinfected by immersion in solution of bichloride of mercury, 1 to 800, or solution of pure carbolic acid, 3 per cent, all articles to be wholly submerged and thoroughly wetted.

SEC. 83. Cargo shall be disinfected *in situ*, if possible, by thorough aeration, followed by fumigation with sulphur dioxide, 10 per cent strength, forty-eight hours' exposure. Where it is impossible to disinfect *in situ*, the cargo should be removed and disinfected.

SEC. 84. The personnel of the vessel shall be detained *five* days from completion of the disinfection.

SEC. 85. Persons arriving on a vessel upon which yellow fever has occurred at port of departure, on the voyage, or on arrival shall be detained not less than five days from the completion of disinfection.

SEC. 86. If disinfected under the supervision of an accredited medical officer of the United States at the port of departure, the period of quarantine may date from completion of such disinfection, and shall not be less than five days.

TREATMENT OF SMALLPOX PATIENTS.

SEC. 87. Persons who arrive on vessels coming from any port or place where smallpox is prevailing in an epidemic form, or having had smallpox on board, must be vaccinated or show satisfactory evidence of recent vaccination or of having had smallpox, or be detained in quarantine not less than fourteen days, and all effects and compartments liable to convey infection disinfected.

SEC. 88. All passengers occupying apartments other than first or second cabin shall be vaccinated prior to entry, unless they can show that they have had smallpox or have been recently successfully vaccinated, or be detained in quarantine fourteen days.

SEC. 89. Fee bill. Classification of inspection and disinfection fees to be charged at all ports in the State of Florida:

INSPECTION.

Steamships and ships	$10.00
Tugs, brigs, barks, barkentines, and three and four masted schooners	7.50
Two-masted schooners and other vessels, except sloops	5.00
All vessels making regular trips from noninfected domestic ports, except sloops	5.00
Sloops	3.00

DISINFECTION.

By steam sterilization, sulphur fumigation, and mercuric washing:	
Steamships and ships	$60.00
Barks and four-masted schooners	50.00
Tugs, brigs, and two and three masted schooners	40.00
Smacks and other vessels	25.00

By pot sulphur fumigation and mercuric washing, for vessels from "suspicious" ports only, and at ports at which no steam disinfecting plant is located:

Steamships and ships	$45.00
Barks and four-masted schooners	35.00
Brigs and two and three masted schooners	25.00
Smacks and all other vessels	20.00
Tug boats	20.00

Discharge of ballast twenty-five cents (25c.) per ton.

EXCEPTIONS.

SEC. 90. All vessels under section 39 of these regulations, making at least one regular trip per week, shall pay twelve hundred dollars ($1,200) per annum in lieu of all charges for inspection and disinfection.

SEC. 91. And it is hereby ordered that no fees shall be charged at any port in this State for inspection of vessels from any ports of the State of Florida, unless such port or ports shall have been first declared infected by this State board of health.

JACKSONVILLE, FLA., *April 1, 1896.*

The foregoing is a correct copy of the rules and regulations adopted from time to time by the State board of health of Florida and ordered printed.

WM. B. HENDERSON,
President State Board of Health.
JOSEPH Y. PORTER, M. D.,
Secretary and Health Officer of the Board.

I.

PORT OF ——, ——, 189—.

I certify that ——, of ——, from ——, has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury, and that in my opinion she will not convey quarantinable disease. Said vessel is this day granted free pratique.

——— ———,
Health (Quarantine) Officer.

[To all vessels from foreign ports.]

II.

STATE BOARD OF HEALTH OF FLORIDA,
TAMPA BAY QUARANTINE STATION,
Tampa Bay, ——, 189—.

This certifies that the ——, Captain ——, from ——, has been thoroughly cleansed and disinfected according to the rules and regulations of the State board of health of Florida; kept for observation —— days after disinfection, her ballast discharged, and that her sanitary condition to-day is good; that her crew and passengers are all healthy, and her present ballast is clean.

Permission is therefore granted to said vessel to proceed to the port of ——, and discharge and load cargo and land and take passengers in the said port of ——.

——— ———, M. D.,
Physician in Charge.

[To all vessels which have been disinfected.]

III.

STATE BOARD OF HEALTH OF FLORIDA,
Port of ——, Florida, ——, 189—.

This certifies that I have carefully examined the passengers and crew of the ——, from ——, and find no one affected with any quarantinable contagious disease. Permission to discharge passengers and cargo is given for the port of ——.

——— ———,
Port Sanitary Inspector, State Board of Health of Florida.

[Clean ports, foreign and coastwise.]

IV.

For baggage from infected ports.

I certify that the contents of this ——— have been thoroughly disinfected under my supervision.

_____ _____,

Port Sanitary Inspector, ——— Board of Health.

ANCLOTE KEY.

By Surg. H. R. CARTER, M. H. S.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

A pier head and room thereon on piles near the mouth of Anclote River, on said river. Here is a yellow flag, and all vessels of any size—smacks, sponge schooners, etc., indeed all save yawls and dingeys—are required to await inspection. The inspector lives ashore at Anclote, I judge about 3 or 4 miles from the station, to which he goes in a large catboat when he sees a vessel coming in or waiting. His house is in sight of the pier head. Nothing else at this station, it being an inspection station to watch the sponge fleet. Mail daily. No telegraph nearer than Tarpon Springs.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Mr. Robert W. Clark, quarantine inspector, Anclote, Fla.; no subordinates.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Laws and regulations the same as for other Florida ports already transmitted. The station is intended to guard against the intercommunication between the Spanish smacks and the vessels, mainly spongers, which legitimately enter Anclote River, and the crews of which live ashore. Some spongers are from Key West. The Inspector has no authority to prevent this intercommunication, nor has he any control over a vessel outside of Anclote River or Harbor (inside the keys); but if he knows of such intercommunication he has a right to prevent the vessel (American vessel, of course) from entry into the river and order her to Mullet Key Quarantine Station. He boards all vessels that stop at the quarantine (pier head) and inspects them. Rowboats from spongers he inspects at a small wharf off the house of the customs officer. These boats frequently contain six to eight men and are disinclined to stop, he having, he tells me, fired on several of them to bring them to, and has to threaten nearly all with a Winchester rifle. The inclosed declaration (Exhibit A) is required to be subscribed to, generally by the witnessed mark, by the master of each incoming vessel, and in addition to the questions therein the inspector inquires carefully if they have been aboard a Spanish (or Key West) smack, or if any of the crew of such smack has been aboard them. But save the answer and the search of the customs officer for contraband goods, he has no means of finding out. He can, however, in general, see that no member of the crew of such smack comes ashore, as none of the crew of the Anclote smacks are Spanish or Cuban. A Key West sponger can, however, bring a Cuban or Spaniard ashore, and he could not find it out, they carrying occasionally Cubans in their crew.

4. The inspection of domestic vessels, which is all that this station does, is not required by the regulations of the Treasury Department. Owing to having only

a sailboat (no yawl is furnished), there is frequently considerable delay in boarding; but time is a matter of small moment to the class of vessels boarded; and the last question is answered in the negative.

5. Inspection only from May 1 to November 15. No treatment of any kind.

6. Are vessels from other United States ports inspected?

Yes; no foreign vessels and indeed none save Florida vessels enter here.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

Vessels are boarded; the statement of the master taken; intercommunication with Spanish smacks inquired into, and the vessel passed. There is no treatment in quarantine. Should the inspector not be satisfied with the answers received, he could send the vessel to Mullet Key.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.) and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No communication held; no pilots at Anclote; no vessels in quarantine.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Any such vessel would be sent to Mullet Key Quarantine or ordered out of Anclote River. The presence of a disease which the inspector regarded as such, or which he did not believe to be something else, would be the evidence on which he would regard her infected. If the captain of the vessel objected, he would keep her in the open harbor until a doctor could be procured who would determine the matter.

10. The only records kept are the inspection report and a transcript from it in book form.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

The fees would be the same as for any other Florida port, but in fact only vessels from Florida ports have been inspected here, and consequently there are no fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months (*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

No vessels are inspected which fall in class (*a*) or class (*b*). Vessels from domestic ports: May, 8, all from Anclote, 1 in fruit, 7 spongers; June, 14, 8 from Key West, others Anclote, 1 from Nassau; July, 10, 5 from Key West; August, 5, all Anclote; September, 12, 1 Tampa, 11 Anclote; October, 4, all Anclote. The books of the customs officer are somewhat different, and I think show that all do not stop at the pierhead, doubtless coming in at night, when the inspector can not see them. He gives June, 16, 11 from Key West; August, 12, 3 from Key West. Otherwise they are the same. It will be observed that the Key West vessels only come in June and July and leave the early part of August. They claim that the water then loses its clearness and go farther up the gulf for clear water. They left Key West before smallpox became epidemic. The only business of these vessels, of course, is sponging.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

There is no custom-house or immigration bureau. There is a customs inspector here, S. E. Hope, who was quarantine inspector last year, who inspects vessels when they come in for contraband articles, and who also keeps a lookout for men aboard other than their legitimate crew. He has no boat, and generally goes with the quarantine officer, and they are of mutual assistance to each other. He, however, need only board vessels at the end of his wharf, and frequently does so.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

So far as the United States quarantine regulations are concerned, no quarantine of any kind is required at this port, but the facilities are not adequate to prevent the entrance into Anclote River of vessels which have been in communication with smacks from Habana, the purpose for which it was established. The inspector has no certain means of knowing whether the vessel he inspects has been in communication with such a smack or not; he simply takes the master's word for it, which is naturally worth little. This is slightly supplemented by the customs officer's search for contraband aguardiente, and these two men work in perfect accord, and are of considerable help to each other. A certain amount of deterrent effect may result from the knowledge that no considerable amount of aguardiente can be carried ashore, but as these vessels, especially those from Key West, are out several weeks at a time, they can use up a large amount of this without fear of the customs officer.

15. No regulations of the Treasury Department apply to this station.

16. This is not a port of entry, hence no certificate of inspection is required or issued.

17. No consular bill of health ever received.

18. Mention any facts which, in your opinion, should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

It is generally admitted that there is some danger in the intercommunication of Habana smacks and American spongers. The facts seem about as follows: The smacks are manned almost exclusively by Spaniards, not Cubans. Most of them, however, are old residents of Habana or discharged man-of-war's men, and are immune to yellow fever by previous attack. Still, newly arrived Spaniards are shipped, and these are not immune, and the smack itself may also be infected by fomites. That spongers and pilot boats habitually trade with them is an open secret. I have seen it off Tortugas. The articles taken aboard—cigars and aqua diente—are probably incapable of acting as fomites, and probably seldom reach shore. The crews of the Key West boats are nearly or quite all immune, and from them there is probably no danger. This is not true of the Anclote spongers, and I believe a slight but real danger exists in the condition of things described above.

I see no way to absolutely prevent this; but it will be lessened, and very much lessened, if the inspector can come out where he can see the fleet off Anclote. He need not be out there continuously. If he comes occasionally and is liable to come at any time, it will be sufficient. If he can get evidence to send one or two spongers to Mullet Key, the example would be very deterrent. I see no way to do this save to furnish him with a naphtha launch, in which he could get out to the fleet at any time, especially in calm weather. Most of the trading takes place, I am informed, just outside of North Anclote Key and to the north of it, out of sight of the residences of the inspector and customs officer.

I would suggest, if it be practicable, that one of the launches now at Key West and not in use be assigned the inspector of customs. He and the quarantine inspector could use this to cruise around where the fleet would be well in view, and could readily so manage it that the Anclote spongers would be afraid to go aboard the Spanish vessels. The quarantine inspector understands steam machinery and can run a launch.

I do not know that these precautions are very necessary, but if it be desired to prevent the crews of Anclote spongers from boarding Habana smacks I know of no other way to prevent them. I was told by the customs officer that 43 sail were in the sponging grounds on the 17th—23 smacks and 20 spongers.

JULY 18, 1896.

[NOTE.—A naphtha launch has been furnished by the Marine-Hospital Bureau to the deputy collector of customs, and the latter directed to assist the local quarantine officer.]

CEDAR KEYS.

By Surg. H. R. CARTER M. H. S.

1. There are no buildings. The station marked for the inspection of vessels is about 2 miles off shore, designated by yellow flags set on the shoal. Vessels are inspected in a small boat. No apparatus for disinfection of vessels, baggage, etc., nor for handling the sick or suspects. It is an inspection station only, especially designed for the supervision of the sponging fleet, from Key West and Anclote mainly, which plies its vocation off this town. Mail and telegraph facilities good at the town of Cedar Keys.

2. The personnel of the station consists in the quarantine officer, Dr. Richard T. Walker, of Cedar Keys, Fla., and one boatman.

3. The law and regulations of the station are the same as for all the other Florida ports, and have been transmitted. All vessels, save some to which special licenses are issued, are required to "come to" at the quarantine flag, about 2 miles off shore. Here they are boarded by the boatman, who, if there be any sickness aboard, directs them to stay there until they are visited by the quarantine officer. If there be no sickness aboard, they come into the harbor and are inspected there by the quarantine officer. No one is allowed to leave the vessel until the quarantine officer has inspected her, and no one but the boatman is allowed to go aboard or communicate with the vessel. A number of vessels belonging to Cedar Keys, engaged in fishing and catching turtle, receive a license to go in and out without inspection from the quarantine officer. These do not stop at the flag. There are no spongers belonging to Cedar Keys, though a fleet visits the coast.

4. All vessels coastwise, save those given license, are inspected on entry. Owing to the intercommunication believed to frequently exist amongst the Spanish fishing smacks and the sponge fleet, inspection here is necessary.

5. Inspection is from May 1 to November 15. There is no treatment of vessels at any time.

6. Vessels from other United States ports are inspected from May 1 to November 15.

7. The inspection of vessels has been described under No. 3. The master, if judged necessary by the quarantine officer, swears to a statement relative to his vessel and crew, the same as is required from all vessels entering ports of Florida, laws and regulations for which have been previously forwarded. From time of arrival at the buoy to inspection may be some hours; no other time is lost.

8. No communication is allowed to be held with a vessel, save by the boatman, until she is released from quarantine. These vessels take no pilots. That communication may take place with a vessel before inspection is, of course, possible.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessel carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

Any vessel infected with cholera, yellow fever, or smallpox would be ordered off to Mullet Key Station, as would any vessel suspected of such infection. No infected vessel has ever applied here.

10. Cases of disease that have occurred during the voyage, on arrival, and during detention would be recorded in the quarantine declaration, which the master signs on entering.

11. Quarantine fees are the same as at other Florida ports; none others. As practically all of the vessels which are inspected here are from Florida ports, very few of them pay any fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

No vessels from foreign ports; no vessels from foreign ports in yellow-fever latitudes via domestic ports; vessels from domestic ports inspected at Cedar Keys Quarantine Station during the calendar year 1895 are as follows: May, 38; June, 36; July, 49; August, 26; September, 15; October, 43; November (to the 15th), 9; total, 216. The majority of these vessels are spongers from Key West. There are also many vessels of the same kind from Anclote. The remainder is made up of fishing vessels from various points along the coast. A few are Cedar Keys vessels, but many of them have licenses and are not inspected.

13. No immigration bureau. No foreign entries at custom-house for some years. The deputy collector thinks that there is considerable intercommunication between the sponge fleet and the Spanish smacks.

14. In my opinion the quarantine facilities are sufficient to care for the shipping entering the port.

15. No quarantine requirements of the Treasury Department apply to the class of vessels entering this port.

16. As no vessels come here from foreign ports, no certificate of inspection is issued.

17. No consular bills of health are received.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The object of this station is to prevent the entrance into Cedar Keys of such coastwise vessels as may have been in communication with the Spanish smacks which fish off Cedar Keys. The same is true of the station at Anclote Key. The vessels which do this are those of the sponging fleet from Key West and Anclote, which come into Cedar Keys to spend Sunday, get water, etc. There seems no way practicable to prevent this communication and the inspection of these vessels, when they enter, and especially the examination of their stores for aguardiente, for which they mainly visit the smacks, seems about the only thing possible under the present regulations. This, by preventing the bringing of aguardiente ashore in salable quantity, materially lessens the temptation to trade with the smacks. Nor can any vessel come in which actually has sickness aboard, as they are at sea much and ashore but a short time, thus giving a considerable measure of protection.

A change (additional to the present regulations of the Treasury Department in accordance with the terms of the act of February 15, 1893) might be made which would have a deterrent effect to a considerable extent. While there is unquestionably a real danger in this intercommunication of smacks and spongers, yet to me it does not appear a very grave one, and it is to some extent met by the inspection service as now organized on this coast.

JULY 29, 1896.

ST. MARKS AND CARRABELLE.

By Surg. H. R. CARTER, M. H. S.

I would respectfully state that I inspected the ports of St. Marks and Carrabelle, Fla., and see no reason for making a report on either of these places. Indeed, had I known how they were situated as regards quarantine, I would not have visited them.

At the former there is nothing save a customs inspector. It is not a port of entry. No vessels enter there and there is no quarantine station or officer, and none is needed.

Carrabelle is in the same condition except that it has a representative of the State board of health (Dr. Anderson), who is authorized to enforce quarantine, but who does not do so; nor is it necessary. There are no entries of vessels. It is about to be made a port of entry, but the quarantine of the port will be nowise affected thereby, as the quarantine inspection will be then, as now, performed by the quarantine officer of the Apalachicola Station, which has recently come under the State board of health of Florida. Carrabelle and St. Marks really belong to the Apalachicola district.

AUGUST 10, 1896.

[NOTE.—The collector of customs at St. Marks was instructed (June 15, 1895) to send any infected vessel coming in, through stress of weather or otherwise, to the Gulf Quarantine.]

APALACHICOLA.

By Surg. R. D. MURRAY, M. H. S.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick; and for the removal and detention of suspects; mail and telegraph facilities, etc.

I think it advisable to preface my report with a short history and description of the towns comprising the port, as it is probable that few quarantine officials will ever have the opportunity to visit the locality.

Apalachicola is situated at the mouth of the river of the same name, on the north shore of St. George Sound. It is the capital of Franklin County, and has a population of 4,000. There having been no yellow fever in the place since 1854, the population should be considered nonimmune, and this idea has aided in keeping up a strict surveillance over vessels. In 1860, and for some years previous, the place was of much commercial importance, due partly to the destruction by a hurricane of St. Joseph on the bay of the same name, about 30 miles west, and chiefly, to the good draft of water and the large navigable river, which gave it a traffic of $15,000,000 per year. The war interfered with prosperity, and commerce sought deeper water ports. In 1865 over 150,000 bales of cotton were shipped. The decline has continued until no cotton is shipped, and the sole commerce is in lumber and naval stores. For the year ending June 30, 1896, the export value was $1,745,000. Vessels entered, 140; tonnage, 71,049; traffic vessels, 150; 54,220,000 feet of cypress and pine timber, lumber, ties, and shingles were shipped, with about 600,000 pounds of rosin and 65,000 gallons of turpentine. There were also shipments of lumber, shingles, fish, and oysters to inland and domestic ports of perhaps $500,000 in value. Duties paid in 1865 and 1866 amounted to about $70,000 per year, and from fifty to eighty vessels could be seen at one time. In 1895 the customhouse receipts amounted to $3,145, and but thirteen vessels, all told, were in the harbor at the time of my inspection, May, 1896. The port is the natural outlet for

a vast region of west Georgia, east Alabama, and the middle of west Florida via the Chattahoochee and Flint rivers and their combination, the Apalachicola, but modern railways, deeper water, and wharf accommodations have given other ports supreme advantages.

Eighteen miles east by north from Apalachicola lies the town of Carrabelle, at the mouth of the Crooked River. In 1894, when the Carrabelle, Tallahassee and Georgia Railroad connected it with Tallahassee, there was a population of about 300. At the present time there are about 1,400 inhabitants, practically all non-immune.

There are several settlements up the streams and some summer resorts along the coast and on adjacent islands, and eight or ten sawmills are located at most advantageous points for safety and shipment of products.

"The description of the quarantine station" is an easy matter; there is none. The entrance to St. George Sound is called East Pass, and is between Dog Island on the east and St. George Island on the west. It is 2½ miles wide, with a bar of 20 feet depth. Dog Island lies from about east to west, is 7 miles long; slightly curved, with two coves in the north line. It lies about 4½ miles off from Carrabelle, and forms a fine harbor. St. George Island lies nearly from northeast to southwest, extending from East Pass, 28 miles, to West Pass, which latter is formed by St. Vincent Island, and has 13 feet of water. St. George Sound is thus formed by Dog and St. George islands, and is about 4 miles wide opposite Carrabelle, expanding to 6 miles opposite Apalachicola, having a length of about 35 miles.

Inside of the west end of Dog Island is the cove of the same name, where square-rigged and deeper-draft vessels are loaded. The dimensions of the harbor are about 1 mile from east to west and 1½ miles from north to south, extensible in any direction at the will of the harbor master or the requirements of the shipping. Inside of the east end of St. George Island, and about 1 mile to the north and west, is the upper anchorage, where schooners and light-draft vessels are loaded; sometimes called Pilot Cove. The two loading anchorages are about 4 miles apart. The former is safer for the large rafts of timber, while the latter permits a less towage for the lumber barges. There are 5 fathoms in the former and 3 to 4 in the latter, the holding ground being mud and excellent.

The Eastern Cove of Dog Island is the quarantine anchorage, where vessels discharge ballast and undergo such treatment as is decided upon. "The limits of this anchorage" are ample, say, 1½ miles north to south by 2 miles from east to west, leaving a long mile open to the nearest loading vessel. This is the safer of the two coves, having wider island protection and some woods protection, necessary points when the conditions of a vessel without ballast are considered. Vessels usually sail to their ballast berth; sometimes are towed to the loading cove or berth.

"The facilities for the inspection of vessels" consist of a sloop boat. Vessels arrive off the bar and are questioned by the pilots as to sailing port and condition. If hailing from an infected port, they are directed to go to Ship Island Quarantine for treatment. In former years only vessels from, say, Habana, Colon, Vera Cruz, etc., were thus warned off. If there are no reasons for the vessel to go to an equipped station, the vessel is brought in and anchored; if a schooner, at any place inside; if a ballast vessel, she is taken to the quarantine anchorage—in both cases to await the arrival of the quarantine officer, who lives in Apalachicola, a distance of 17 to 23 miles.

Flags: (1) One on trees on Dog Island, 1 mile east of channel; (2) one on pole one-half mile west of channel on St. George Island; (3) one on pole at the mouth of river, 2 miles from Apalachicola; (4) one at West Pass, 10 miles from Apalachicola.

There is no "apparatus for disinfection of vessels and baggage" except shallow

galvanized-iron pans and a small hand force pump, with sulphur and solution of mercuric bichloride.

There are no "facilities whatever for the removal and treatment of the sick or for the removal and detention of suspects."

"The mail and telegraph facilities" are: Carrabelle, daily mail from Tallahassee, 50 miles northeast, by the Carrabelle, Tallahassee and Georgia Railroad; Apalachicola, daily mail from Carrabelle, 28 miles off, sailing distance, and three times a week by steamer from Chattahoochee, Fla., 150 miles north. Telegraph lines at both places.

2. Give personnel of the station or port, name of the quarantine officer or officers, post-office address, total number of officers and subordinates, etc.

When, in 1893, the Florida county boards of health were abolished, Escambia (Pensacola) and Franklin (Apalachicola) were excepted, as it was claimed that State supervision would injure the ports, and also that the quarantines were self-supporting. The Franklin County board of health consisted of Dr. J. D. Rush, president; John G. Ruge, secretary, and J. H. Lockwood. Charles H. Lind was the quarantine officer, who furnished a boat and a boatman. Owing to the gradual lowering of the fees by the dominant State board, and the increased amount of disinfecting done by equipped quarantines, through the operations of the act of Congress of 1893, the income fell off materially. The board feared that the fees would still further be lessened and about April 1, 1896, dissolved and called on the State to assume control. The board before closing up spent about $800 to make some ditches in the city, and also to make a clean balance sheet. The following is from the Apalachicola Times of May 26, 1896:

As much criticism has been made, and justly so, upon the action of our county board of health in surrendering their functions and powers to the State board without consulting the people, it is well enough that the public know the facts and see how the people's money has been squandered.

In 1893 an attempt was made by the State board of health to gain control of the boards of health of Franklin and Escambia counties, and also in 1895, but the need and value of these two local boards to the counties named were so plainly shown, and also that they were more than financially able to take care of themselves, that the legislature refused to take away the control of health matters from Escambia and Franklin counties.

In April, 1893, when the first attempt was made, the county board of Franklin had on hand in cash $1,388, and has since collected up to November, 1895, $3,700, making in all over $5,000, which is a large sum of money. Of this sum of money the county board, without a right, spent on the city $1,000, of which the city refunded them $240, and but for this unlawful extravagance $760 on this matter alone should now be in the treasury. Then, again, over $800 was paid out as salaries to the members of the board of health, of which the secretary alone received $500 or more. The records show that the secretary and treasurer charged $10 to $12 per month for every month for his salary; also $2 for every meeting; $20 at times for clerical services, and $25 to $40 for making up reports.

Please note that all these charges are in addition to his salary, and it is no wonder that the finances were wrecked. * * *

The personnel of the port at present is as follows: J. D. Rush, M. D., agent of the State board of health, has supervision of the inspection service, under the direction of the State health officer, at a salary of $10 per month (J. D. Rush, M. D., aged 49, Mobile Medical College 1873, born in Alabama, nonimmune); T. S. Anderson, M. D., at Carrabelle, is to be made a subagent of State board of health to serve under Dr. Rush; Charles H. Lind, quarantine officer, born in Florida, aged 45, nonimmune, salary $60 per month for the season, he furnishing a boat, a 4-ton sloop. He employs a man to assist in managing the boat, who gets shares from extra duties performed for vessels in the fleets. Mr. Lind receives 50 cents for inspection of small crafts near the town, $2 for inspections at the channel flag, about 2 miles from town, $4 for same at upper anchorage, and $5 for same at Dog Island or at quarantine anchorage, in addition to his regular summer pay. John

R. Blocker, aged 50, Florida, nonimmune, customs inspector, with quarters at Carrabelle, at $3 per day for himself and boat, is instructed by the collector of customs to aid and assist the quarantine officer in all ways possible, which good scheme, so far as it goes, is an additional safeguard.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

The rules and regulations of the Franklin County board, the fee bill of the State board of health, the "interrogatories" to be answered by masters, the certificate of pratique, and the rules and regulations of the State board are inclosed. It will be observed that the ordered fees are reduced by State board rules to three-fourths their amounts, and that the fee for ballast discharge is reduced from 75 to 25 cents. It will be noticed also that the county board gave prominence to the use by vessels of United States quarantines; in fact, Apalachicola was a patron of Ship Island Quarantine as long ago as 1884. The pratique is formally correct. It is not possible to properly describe "the quarantine proceedings," as changes are being made at the present time. But, in short, Mr. Lind goes on board as soon as he can after the vessel anchors and makes a careful search for sickness in the crew and dirt in the vessel. If he finds sickness in any of the crew that is not supposedly quarantinable, he either conveys the patient to town or sends for Dr. Rush. If the case is suspicious, or if any cases have occurred on the voyage from an infected port, he orders the vessel to Ship Island Quarantine. Under the orders of the Treasury Department all vessels from infected ports have for two summers been required to first go to an equipped quarantine. Now vessels from south of 25° north latitude are given pan fumigation and hand-pump sprinkling, even if the ports are reported as clean. It is apparent that the quarantine officer makes a ship clean, although it is necessary for him to be watchful and alert. This cleaning up of vessels is not quarantine, but may serve a good purpose in marine æsthetics.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

The discharge of all ballast from whatever place into the sea by means of barges or schooners and the cleaning and fumigation of all "below the line" vessels are "requirements," perhaps, "in addition to the Treasury regulations." Sand-ballast vessels must "discharge all and whitewash hold before taking cargo." The "detention" is due to the care and time needed to clean up. It appears to me that much of the formality and sulphuring, with the consequent detention, could be omitted, to no prejudice to the port. The vessels are about 4 miles from any settlement, in any case, but the stevedores' crews must live aboard most of the time while loading. The American schooner *Edna*, Kelly, from Habana, with a clean bill of health (for a few weeks last winter it was possible to give clean bills in Habana), arrived April 13, 1896, was quarantined, fumigated, etc., and held a total of sixteen days, at a cost of $42.50.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

Inspections have been maintained by the county board for only the Florida board of health rule, i. e., from May 1 to November 15. During the past winter, the county board having ceased to make inspections, the collector of customs, by direction of the Surgeon-General Marine-Hospital Service, instituted an inspection service, employing Mr. Lind for the duty. Thus, in all, twelve inspections were made of vessels from foreign ports at a cost to the United States of $120. That this action was proper is shown by two instances, viz:

First. The Swedish bark *Maria Margaretha*, from Para, arrived March 25, 1896.

At Para two of the crew and the captain's wife died with yellow fever and two men were left in hospital. The bill of health states that "yellow fever prevails in a mild form, but is not contagious—four or five cases per week and two or three deaths." She had two or three men sick on the voyage up and one man yet very feeble, which the master thought had been a case of yellow fever. She was sent to Pensacola Quarantine (the nearest equipped station), and returned to Apalachicola April 10. The vessel paid a total of $388 for pilotage, ballast discharge, disinfection, and towing, besides being liable for double pilotage at Apalachicola. This vessel lost about two weeks in time over what she would have lost had she stopped at Tortugas.

Second. The Norwegian bark *Linnea* left Para on March 12. The consular bill of health states: "A few cases of yellow fever and smallpox; yellow-fever cases, 20 or 30 per week; deaths, 4 or 5; smallpox, a few cases. Remarks: Fever mild; not contagious." The vessel put into Barbadoes, having lost two men with fever (one of them a son of the master), and having on board four sick men, who were suffering, according to the health officer's (Dr. Thomas Bowen's) statement, "one with rheumatism, one with diarrhea, and two with fever." In four days the diarrhea and fever cases were quite well, "and the man with rheumatism improving." The quarantine period would be up on the 6th of April, and on the 2d she sailed with a bill of health stating in full the ship's history. She arrived at Apalachicola on April 17. By the local law the vessel was not subject to inspection and, moreover, the county board had disbanded. The collector of customs, acting under Article II of the United States regulations, ordered her to the nearest equipped quarantine (Pensacola) to be "satisfactorily disinfected," from which station she returned on May 13, having paid $345 for pilotage, ballast discharge, disinfection, and towing, besides losing about three weeks in time. The quarantine officer at Pensacola did not give a certificate of pratique, and the vessel was only admitted on the proof shown by bills for pilotage, towing, and disinfection.

The consul at Para seems to have tried in both instances to give a clean bill of health. Such efforts in the past have made consular bills ridiculous. Every man on board the *Linnea*, except the master (whose son died), had the fever, and the vessel put into Barbadoes in distress, where, presumably—but the bill of health does not say so—more men were shipped. The consul at Barbadoes should have directed the captain to stop at Tortugas or Ship Island, Tampa, or Pensacola. Stopping at Tortugas would have cost him about three days in time only, in the winter season; Ship Island, a longer time with pilotage. By going direct to Tampa or Pensacola there would have been a saving of about two weeks in time; not much in money.

The "treatment" common throughout the year is: All ballast is discharged in Upper Dog Island Cove, and so far none is permitted to come into Apalachicola or Carrabelle. This rule is uselessly strict, and I am aware that good rock or rubble is needed in both places, and its entry would be a benefit if transportation was reasonable.

6. Are vessels from other United States ports inspected?

Vessels from all United States ports are inspected during the quarantine season only. Note the scheme for inspections at four different points in the sound.

7. Describe quarantine procedures in the inspection of vessels and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The quarantine procedure in the inspection of vessels has been given, but in case the pilot or quarantine officer suspects the vessel is infected, she is ordered to a State or United States quarantine, where there is a fully equipped plant. It is the intention of the community to permit noninfected vessels to enter within

thirty days after infection. For ordinary ballast vessels the time is consumed in getting rid of ballast which must be sailed or towed to sea, and usually takes a week. The vessel is then washed by the crew, and a ten or twelve hour fumigation with sulphur in flat pans is given. The vessels are held five days after the fumigation, during which time she is sprinkled in cabin and forecastle with mercuric solution. If the ballast was sand, she must have the hold whitewashed.

8. What communication is held with vessels in quarantine (and before quarantine, by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

The communication held with vessels in quarantine is solely through the quarantine officer and his boatman. The pilots generally guide vessels from "south of the line" into the harbors. They are prohibited from going on board any suspicious vessels. Violations are looked after by pilots, the inspector of customs, and stevedore bosses, and are punished by the justice's court quite promptly and efficiently. No intercommunication of any sort, except through the quarantine officer, is permitted between vessels in quarantine. The quarantine officer remains in the fleet about all the time while vessels are undergoing treatment.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

A vessel infected with yellow fever, smallpox, or cholera would be ordered to a State or United States quarantine, all relief being absolutely refused. It is rather difficult to say what would be the condition as to evidence in either case, as neither pilot, quarantine officer, nor port physician would go aboard, and no one who had gone aboard would be allowed to publicly leave the vessel, except, perhaps, the quarantine officer.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

The only records kept of the cases of disease that have occurred during the voyage or on arrival are the "interrogations" which are answered by the master. These have been filed with the secretary of the county board. At present they are filed by the agent of the State board. Hereafter, when the new residence is built on Dog Island, there will be complete records kept. Heretofore there has been no disease on vessels during detention.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

The schedule of State board fees is inclosed, which see. The charges for carrying mails, provisions, etc., to vessels in quarantine are arranged between the quarantine officer's boatman and the master. The vessels pay for removal of ballast such sum as is agreed upon between masters and owners of vessels and ballast schooners in addition to the tax of 25 cents, as allowed in the State board of health regulations. It is thought a change will be made in this matter when the State health board gets properly in charge of the station.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

I find it of no service to make a table showing the arrivals from foreign ports in yellow-fever latitudes via domestic ports, as there were none, except those via United States quarantines. I have made instead a table showing arrivals from clean foreign ports, i. e., Europe; yellow-fever latitude ports, i. e., south of 25° 30'

north latitude, and domestic, i. e., United States ports, and a subtable dividing the first class into Cuba, West Indies, and Brazil; the second into United Kingdom and Continent, and the third into New England and New York and Galveston. Also a table showing that 50 vessels carried ballast and 79 came with swept holds. Except coasters which did not enter at the custom-house, no vessel brought cargo. Apalachicola has a ballast quarantine, and is exclusively a lumber exporting port, and it is probable that the character of its commerce will not change for a hundred years.

Arrival of vessels at Apalachicola during the year 1895.

Month.	Clean foreign ports.	Yellow-fever ports.	Domestic ports.	Ballast.	Empty.
January	8	10	3	9	12
February	7	9	2	7	11
March	5	8	3	8	8
April	2	8	4	6	8
May	1	1	4	2	4
June	1	3	4	2	6
July	0	3	3	2	4
August	0	0	2	0	2
September	2	0	4	2	4
October	2	0	6	2	6
November	1	5	3	3	6
December	4	8	3	7	8
Total	33	55	41	50	79

Arrivals of vessels by countries.

Month.	Cuba.	West Indies and Spanish main.	Brazil.	United Kingdom.	Continent.	New England and New York.	Galveston.
January	5	4	1	5	3	1	2
February	7	2	0	5	2	1	1
March	5	2	1	2	3	2	1
April	5	3	0	2	0	2	2
May	0	0	1	0	1	2	2
June	2	0	1	1	0	1	3
July	1	2	0	0	0	3	0
August	0	0	0	0	0	2	0
September	0	0	0	1	1	0	4
October	0	0	0	2	0	1	5
November	3	2	0	1	0	0	3
December	5	1	2	3	1	2	1
Total	33	16	6	22	11	17	24

Small schooners were inspected between May 1 and November 1, 1895, viz: Mobile, 14; Pensacola, 2; St. Andrews, 11; Cedar Keys, 4; Tarpon Springs, 13; Tampa, 6; Key West, 2; New Orleans, 1—a total of 53. The 88 foreign-port vessels had a tonnage of 43,912, and crews, 869. The 41 domestic-port vessels (all United States bottoms) had a tonnage of 19,898, and crews, 326. The flags of the foreign-port vessels were: United States, 27; Norwegian, 19; Swedish, 3; Italian, 2; British, 18; Russian, 17; Danish, 1; German, 1.

The 33 clean foreign-port vessels all carried ballast, as follows: Gravel and sand, 845 tons; stone, 1,065 tons; sand, 4,145 tons; "rubbish," 1,285 tons—a total of 7,340 tons. Of the 55 yellow-fever latitude vessels, 40 had no ballast; 15 carried "rubbish," 150 tons; stone, 470 tons; and sand, 1,490 tons—a total of 2,110 tons. Some trimming and stiffening ballast (all rock) was carried in some of the yellow-fever latitude vessels, which was not put out and is not reported here. One Norwegian bark brought 250 tons of stone and "rubbish" from Habana. It is presumed that the "rubbish" was from old buildings; the stone might have been

dipped in safety. One Norwegian bark brought 170 tons of sand from Matanzas; this could properly have been called suspicious ballast. One Swedish bark brought 180 tons sand from Bahia; suspicious only. A German bark brought 258 tons sand from Para, fully suspicious.

There are in ordinary no good reasons for living in dread of ballast from Guatemala, Venezuela, Guadeloupe, Jamaica, and some other of the "under the line" countries, but owing to the difficulty of immersing sand, as well as injury to the vessel, it is better in general to put it out and reballast or tow to the loading berth. Just what is meant by "rubbish" is difficult to say; in propriety, the word means the useless bricks, mortar, etc., from old buildings. Frequently ballast is taken in Bristol, Greenock, Liverpool, and other United Kingdom ports, which is city garbage from the dumping scows. I believe I was the first quarantine officer to insist on all such filth being put out in quarantine; perhaps I made a precedent that has been too irksomely followed. It is proper to state that the British board of trade has a rule advising against the practice, not so much in the interest of outland ports as in favor of the vessels and their crews.

The first vessel quarantined during the year was a Norwegian bark from Matanzas, which arrived April 24, 1895, with 170 tons sand ballast; schooners with swept holds at the same time were passed. Two vessels were admitted from Habana which had cases of yellow fever at Tortugas United States Quarantine. The American schooner *Nimrod*, which arrived on July 12, having had two cases and spent twenty-three days at Tortugas, was only admitted after telegraphic consultation with the State health officer, Dr. Porter. The second arrived November 11, and perhaps would have been pratiqued in case a long trip had given the 3 sick men a chance to recover. Eight vessels were fumigated in addition to those which discharged ballast and whitewashed holds—1 from Matanzas, 1 from Bahia, 2 from Sagua, 1 from Ceara, 2 from La Guayra, 1 from Pointe a Pitre. It will be observed that the only vessels arriving from Habana in the Florida quarantine season had luckily passed their days at Tortugas.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The results of my visit to the custom-house convinced me that the collector is a zealous conserver of the public health, and that the sanitary interests of the port might well be left in his hands. There being no immigration through the port, there is no immigration bureau.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

In my opinion the quarantine facilities are sufficient to care for the shipping of the port. Mr. Lind is an earnest, sober, and observant officer. It would be better if the quarantine officer were a medical man, with Mr. Lind's zeal. It is proposed now by the State health board, which since May 1 has had charge of the port, to erect a dwelling on the eastern and wooded portion of Dog Island, and to have a medical inspector live there during the active season. This will be more formal, and will look better, but I doubt if the income from inspection fees will pay the necessary cost. There will be some additional income from pot fumigations of vessels from south of 25° and from discharge of ballast, under restrictions. I think it possible for all the work necessary to be done by the custom-house officials.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The Treasury regulations which have not been properly enforced were those relating to inspection of vessels from foreign ports in the winter season. This was corrected by orders from Washington to the collector of customs and the

employment of a temporary sanitary inspector, as before stated. At present, however, the State board has full control and will, in my opinion, properly carry out the United States and State laws throughout the year. The disinfection procedures are not worthy of commendation, but as they have been enforced against practically safe vessels, they constitute "additional rules," and therefore are beyond comment, except, as a hint, there is too much routine quarantining done in all ports. The period of observation is kept to the Treasury Department minimum and frequently runs over. There have been no special examinations for leprosy in winter or summer.

16. Does the certificate of inspection or of pratique signed by the quarantine officer state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893? Transmit copy of certificate.

The certificate of pratique conforms to the act of February, 1893. (Copy inclosed.)

17. What disposition is made of the consular bills of health?

One copy has been filed with the secretary of the county board. Hereafter it will be filed with the agent of the State board of health. The other copy is filed by the customs collector as a part of the vessel's entry record. No notes are set in the entry book as to whether a bill was presented or not.

18. Mention any facts which, in your opinion, should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I have stated all the facts which, in my opinion, should be known to the Department, bearing directly or indirectly upon the quarantine service at Apalachicola. The shifting of the port from the county board to the State board control will result in some changes and will give definiteness to the work performed. I can only recommend that an inspection be again made in August or September, in order that the methods of the State health officer may be reported upon. That all vessels from actually infected ports should call at Tortugas is, however, patent to anyone; but as to whether all vessels carrying sand ballast could be satisfactorily treated at Tortugas or not is a question. My opinion is that sand and earth can be successfully treated without removing all of it, and that efforts in that direction should be made.

MAY 14–16, 1896.

PENSACOLA.

By Surg. R. D. MURRAY, M. H. S.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Pensacola Quarantine Station consists of a shore station, a crib for noninfected and one for infected vessels. The shore portion is located on a narrow spit of sand and marsh between Little Sabine Bayou, to the south and east, and Santa Rosa Sound, to the north, on Santa Rosa Island. The island is 35 miles in length and runs from west to east, beginning at the mouth of Pensacola Bay. The island consists of silex blown into dunes, partially covered with scrubby live oaks and pines, bay cedar, and other low growths; there are numerous marshy spots on it besides the salt-water indentations. The sound is about 1 mile wide at narrowest place, widening to 2 miles to the east of the station. From southerly points the protection is as perfect as possible. The mainland of Escambia County gives good protection from the north and is about 1½ miles from the shore and 1 mile from the fleet. The quarantine has been called Leonard Quarantine Station, in honor of Dr. Leonard, who for several years had charge of it and Santa Rosa Island

Quarantine, but the proper title is Pensacola, which is geographical and will lead to no blunders on the part of masters. It is situated 7 miles east of Fort Pickens, which is located on the west end of Santa Rosa Island. Pensacola is 5 miles (air line) distant to the northwest, the sailing distance being 7 miles.

The shore buildings are seven in number. Three were built by the National Board of Health in 1881. Prior to this date the crib for ballast was on north side of the sound and the employees lived in small shanties on the mainland, but in 1882 the physician and assistants moved to the island and rowed across to attend to vessels. One of the buildings is used as an office; one as quarantine officer's residence, four rooms; one as employees' quarters, 20 by 50 feet (former National Board of Health Hospital); one as pilot's and customs officer's quarters; one as engineer's residence; one as hospital, 35 by 80 feet, and one as smallpox hospital. The hospital was built in 1893 and will accommodate twenty patients and the necessary attendants. The smallpox hospital is to be moved farther back from the water's edge, as the washing makes it insecure, or perhaps it will be torn down and replaced by a larger one to the east of the station. It is a single room suitable for six to ten patients. The station is inclosed by a low board fence, and narrow walks connect all the buildings. The irregular group of buildings and the natural tree growth make a pretty picture, but the comforts dreamed of are disturbed by the intense glare of the sun and the reflection from white sand and water and the buzzing of mosquitoes. Prior to 1882 the shore station was on the north side of the sound near where a crib was filled with ballast; the working force moved to the new buildings in 1882, continuing the use of the imperfect north-side crib. In 1883 the Marine-Hospital Service constructed a new and improved crib of 400 by 300 feet, about a half mile from the south shore; this crib had a large area inclosed with sheet piling surrounded by a 20-foot fender. Rock was carefully thrown outside of the sheet piling to protect it, and rock, sand, rubbish, and garbage were thrown inside to fill up the entire area. Here many thousand tons of ballast have been thrown and by judicious additions the pile has increased in size and solidity until the north face has a length of 1,500 feet and the ends are about 500 feet long. Five vessels can discharge at once from the front and one at the east end, leaving the west end for use of vessels desiring fumigation only. Seven vessels can be accommodated at one time. Considering the method of construction of the original crib of 1883 and the additions to it, it is safe to assume that the new island will remain as long as the adjacent island. The first movers in the plan had experience in tumbledown cribs and builded well—I think for all time.

On the west end of this ballast pile is located the boiler house and machinery; toward the east end are the stables and quarters for the ballast crew. This season a dormitory has been built on the west end, south of the boiler house, for accommodation of crews while vessels are undergoing sulphur burning. The ballast is hoisted by the vessels' winches or by horsepower, thrown into carts, and hauled away and dumped to the best advantage for island building, i. e., rock on the margins, sand inside. At present the old and newly arriving rock is being laid in parallel rows from the ends of the crib inshore, so as to make bulkheads for the retention of earth, general rubbish, sand, and garbage in the central portion. This is a scheme for the discharge of countless tons of the land and trash of other portions of the globe.

Inshore are two short landing wharves, opposite the officer's office; the longer one has a launch house on the outer end; the other has a sailboat house. In 1883 and 1884 there was an isolated pier head with a small house on it for deposit of mail and provisions; now there is a larger pier head with a house on it located nearly one-half the distance from the west end of the crib and the shore, where landings are made by the mail launch and where mails and supplies are left to be distributed to station and vessels. A short mile to the east of the main crib is a new crib, 300 by 200 feet, built in 1893, for infected port or ship ballast. This crib gives

excellent chance to separate the dangerous vessels and ballast from healthy vessels without detention or risk to either class.

The limits of anchorage for noninfected vessels are 1 mile or more from east to west and a half mile from south to north. The limits for infected vessels are of the same dimensions to the east, leaving a good mile between the classes. A mile between vessels at sea is greater than necessary for actual safety if nonintercourse is assured. The holding ground is good through the whole area of the sound, and vessels of 20 feet draft can be cared for.

The facilities for inspection of vessels are a naphtha launch, *Uncle Dan* (named in honor of the late secretary of the board, now collector of customs), 27 feet long, which is used for visiting vessels and visiting the storehouse and crib. A good sailboat and several small boats are also at hand—the former in case of very rough weather, the latter in case the launch should be out of order.

The apparatus for disinfection of vessels consists of 5 and 10 gallon pots, in which sulphur is burned, and a hand force pump for such vessels as do not come to the wharf. Those that do come to the wharf are treated with salt water from a steam pump and the solution of bichloride from a tank elevated about 30 feet from the ground.

The apparatus for the disinfection of baggage consists of a Valk & Murdoch steam chamber, cylindrical, 8 by 30 feet, and a hand sprinkler for baggage that can not be put into the steam chest. There is no vacuum gauge or apparatus for making a vacuum in the steam chest. The steam chest has a high-degree thermometer for noting the temperature, located at the closed and hot end of the cylinder. The steam cylinder is five years old, and somewhat rusty. The boiler is of same age, and, although in good condition, can not last much longer without extensive repairs. There is no clock or timepiece for noting the time after reaching the proper temperatures. There is no chamber for sulphur dioxide for treating such containers as are brought to the boiler house or for treating articles from on board that should have such treatment.

The facilities for removal and treatment of the sick consist of numerous boats, already referred to, and a hospital capable of accommodating twenty patients. At present the hospital is not furnished, but I gave advice as to where and what to purchase.

The facilities for removal and detention of suspects are none. Suspects will be kept on board. The managers of the station have never considered the subject of cholera or passengers, as has been done at New York and Delaware Breakwater.

The mail facilities are daily from Pensacola by means of the cabin launch (naphtha) *Genevieve*, about 40 feet long, which leaves Pensacola every morning, except Sunday, at 7 o'clock, bringing mail and supplies to the station. Extra trips are made when necessary. The telegraph facilities are by the same means, extra trips of the launch being paid for by the party favored. The launch is well suited for the purpose, being capable of carrying a large load, as the cabin is strong and the room ample.

The water supply is from the roofs of buildings, saved in wood cisterns; sufficient for station. At times it is necessary to send for a Pensacola water boat to supply vessels and to replenish the cistern on the crib. In 1882 on shore and in 1883 at the crib ineffectual efforts were made to drive wells. A local supply of potable and boiler water would be a great convenience.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

When the county boards of health were abolished by State law in 1891, Escambia and Franklin counties were exempted by a proviso permitting ports that had 100 sail vessels in the preceding year to continue to have local boards and to conduct their own quarantines, only being subject to the State board laws as to fees and general regulations. The Escambia County board of health consists of B. R.

Pitt, president, at $100 per month; Alexander Grant, secretary and treasurer, at $75 per month, and F. G. Renshaw, member, all appointed by the governor. Extract from a special to the Citizen (newspaper) of June 8, 1896: "The Escambia County board of health is composed of three members, B. R. Pitt, Capt. Alexander Grant, and Dr. F. G. Renshaw. Mr. Pitt is president and Captain Grant is the secretary and treasurer. The annual meeting and election of officers was held yesterday. All of the members were present, but when the election of officers was declared to be in order, Dr. Renshaw's request to be excused was granted, and he retired. Captain Grant then nominated Mr. Pitt as president for the ensuing year. Mr. Pitt seconded the nomination and declared himself elected. Captain Grant then took the chair, and Mr. Pitt nominated him for secretary and treasurer. Captain Grant seconded the nomination, and then declared himself elected." This body has an office and a force of clerks, and sanitary inspectors to attend to the quarantine records and vital statistics and the condition of the city. The expenses are borne by the surplus receipts from the quarantine and ballast cribs. Using the receipts from the vessels for the sustentation of the local board and for the sanitation of the city has been a cause of outside criticism and local wrangling for years. The policy is doubtful, even if the justice of the practice can be maintained. It is hardly probable that so thriving a place as Pensacola gets her prosperity from the $4,000 to $7,000 profits of quarantine fees, and it is fair to believe that if the proceeds had been annually applied to the improvement of the station the fame of the port would be world-wide as having a cheap, expeditious, and perfect system of maritime sanitation.

R. C. White, M. D. (Kentucky, aged 64, immune, University of Louisville, at $225 per month, with subsistence during season), is quarantine officer. He lives at the station during the six and one-half months and visits vessels from the city during the winter. E. S. Buckingham (New York, aged 55, immune, at $50 per month, without subsistence) is the engineer of the disinfecting plant. A competent man. He lives at the station the year round, and has his wife and two children with him, who cook for other employees. The board of health allows him $10 per month for subsistence for each of five employees. Henry Phillips (Florida, aged 23, nonimmune, at $30 per month for season and subsistence) serves as captain of station launch and is foreman of the fumigation and cleaning of vessels. Charles Harris (Florida, aged 23, nonimmune, at $35 per month, with subsistence) serves as engineer of the station launch. Frank Phillips (Florida, aged 21, nonimmune, at $30 and subsistence) is boatman and assistant in fumigation. John Ketchum (Florida, aged 22, nonimmune, at $30 per month, with subsistence) is fireman. Frank Pericola (Italy, aged 38, immune, at $30 per month, with subsistence) is boatman and ballastman; has wife and child at station. Baldore Landseller (Louisiana, aged 50, immune, at $10 per month, with subsistence) is quarantine officer's orderly. Two colored women are at the station, one of whom cooks for the quarantine officer and customs inspector; the other does washing for all who wish it done, including masters of vessels, on her own account. At present two men are employed in shifting rock from the crib to extend the ends inshore. These do other station work when they are so directed. Antony Riera (Florida, aged 50, immune, at $50) is captain of the cabin launch *Genevieve*, which makes the trip from Pensacola. Richard Guino (Florida, aged 40, immune, at $75 per month) is engineer of the *Genevieve*, and also, on occasion, repairs the launch *Uncle Dan*. All employees except Buckingham are discharged at close of the season. Ballast shifters: Russell Robinson has charge of Wood & Northrup's contract at, $45 per month, for discharging ballast from vessels. He has seven men employed now, with eleven horses and ten or twelve serviceable carts. The men are colored boys, picked up anywhere, and are well off employed on the crib, but are frequently dissatisfied with the isolation. They are supposed to be nonimmune. They get $25 per month and "chip in" for their food. The total

number of officers and employees at this date is twenty, including the very necessary ballast shifters.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Inclosed are the rules and regulations of the Escambia County board of health and of the State board of health, with the master's declaration. The quarantine customs of the port as they are carried out are that every vessel which arrives must in summer go to the station for inspection. If from an infected port, or from south of 25° 30′ north latitude, or has been in an infected port within sixty days, the vessel must be disinfected. If unclean or garbage ballast is carried it must be put out in quarantine even if the vessel is from the United Kingdom or Continent. All ballast of whatever kind from "south of the line" must be put out at quarantine the year round, as a rule. During the winter all foreign port vessels are inspected from the city wharves. Vessels with offensive ballast or from infected ports are remanded to the station to be put in good sanitary condition. The quarantine officer is given almost complete authority as to the disposition of a vessel, and he is exceedingly strict in his notions of what constitutes a "clean" vessel.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

The discharge of ballast from many noninfected southern ports in wintertime in quarantine; the holding in quarantine of vessels from South Africa; the discharge of sand ballast from vessels from continental ports which suffered with cholera three years ago; the remanding to quarantine or holding of vessels from northern European ports carrying garbage ballast, and the requirement of lime washing of all wooden holds and most of the iron holds are procedures enforced at the port in addition to the requirements of the Treasury Department. It is not always a hardship for a vessel to go to the ballast crib, even in winter, as there the vessel can be discharged of ballast and cleaned up quickly, and usually at lower price than in the city. The crew is compelled to remain with the vessel, and there are no delays attributable to the desire of the merchant to delay the vessel for his own convenience. In fact, many masters request to be "sent over," being willing to pay the towage in order to gain dispatch. It must be noted, however, that it is to the advantage of the local board to have vessels discharge at the crib, as thereby the receipts are increased and the crib island is made larger.

I think there is undue and unnecessary detention and disinfection of vessels in many instances, but it would require a long residence at the port to state the full reasons for my belief. Whether there is an average of needless "detention" or not is doubtful, for consignees are not given to hastening the preparation of a vessel for a cargo when said cargo is not in sight. The cost of towage from the city to quarantine varies with competition, but will average $25 per vessel.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

Inspection of vessels is maintained throughout the year, except that those from United States ports are exempted during the winter (five and one-half months), unless they have been in an infected port within ninety days. The treatment of vessels enforced throughout the year has been answered under No. 4. The ballast disposition is in the greatest measure left to the discretion of the quarantine officer, in summer at the station and in winter at the city; but his actions are subject to the approval or dissent of the board of health.

6. Are vessels from other United States ports inspected?

Vessels from other United States ports are inspected during the quarantine season. Those from Florida pay no fee if one has previously been paid in the State.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection; (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The quarantine procedure in the inspection of a vessel consists of a careful examination of the vessel (the doctor goes through all parts of a ship) and a view of everyone on board. The bill of health is read, the crew list read, and compared with bill of health as to number of men. The mate's and the official logs are glanced over for the past sixty days to verify master's statements as to ports visited and cases of sickness which may have occurred. All this is very complete and should give the best results; unfortunately no notes are made and subsequent disputes must be settled by memory—which is not always a good dependence. If the vessel is infected the vessel will be sent to the upper crib for discharge of ballast, if she has any, or near there, if she has no ballast, for separation from the fleet. The sick will be carefully carried ashore to the yellow-fever hospital. As late as 1893 such vessels were ordered to Ship Island, and it is probable that public commotion will compel such action now in case more than one or two men are sick or more than one infected vessel arrives. The time in quarantine between arrival and disinfection for ordinary vessels is from arrival until next morning, the quarantine officer disliking to put in the pots in the afternoon; but a ballast vessel is put to the wharf at once, or as soon as possible for discharge of ballast, which will take more or less time, varying with the character of the flags and mates. If infected and with ballast, after the sick men are removed a preliminary fumigation will be given; the clothing and bedding will be put in the steam chest at the first chance to stop work on the vessels that are discharging ballast, so as to have all men away from the boiler house or to insist on no loafing around the crib during the steam process.

The time occupied by disinfection is, for clothing and bedding, about three hours for each vessel; generally for square riggers 2 chestfuls will suffice, but for steamers with crews of 25 to 40, always 3, sometimes 4, steam charges are necessary. The burning of sulphur in the pots is begun as early in the morning as possible, generally by 7 o'clock, and is kept up till sundown. If infected, the hatches will be kept on until the expiration of the time prescribed in the Treasury regulations. The time after completion of disinfection until discharge is strictly five full days after, and discharges are given for the very hour the time is up. For other suspected diseases than yellow fever the times prescribed in the Treasury regulations will be given. The chief work is done early in the morning, so that the men may have plenty of time to spray the containers and articles that will not bear steam or sulphur dioxide during the afternoon. It will be noticed that the available station force consists of but five men, and of these the engineer and fireman must remain in the boiler house. The excellent arrangements for ballast discharge enable from five to seven vessels to unload at one time. There is rarely more than a half a day lost to any vessel after arrival, and that will be on account of her arrival too late for treatment that day.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

The communication held with vessels in quarantine is solely through the quarantive officer or his boatmen. Persons of one vessel are prohibited from visiting any other vessel. Masters of vessels which have been treated are allowed to visit

the office to procure their mail and telegrams. The matter is regulated by definite orders and close watching. The communication of pilots before quarantine is prohibited if the vessel has sickness on board, the pilot guiding the vessel in. Nearly if not all the Pensacola pilots are immune, and if one goes on board he is detained at the station until his clothing has been disinfected. If perchance he is nonimmune, he will be detained from five to seven days at the expense of the vessel. There is no intercommunication allowed among vessels in quarantine except that masters may meet on shore after their vessels have been treated.

Every morning when the mail and supplies arrive on the launch *Genevieve* the mail is assorted by the quarantine officer; that for vessels not disinfected is given to men on the launch *Uncle Dan*, who take it and the supplies and deliver the same to the proper vessels. In case of vessels undergoing detention, the vessels' boats go to the supply pier head for the respective supplies, and the masters go to the office for mail and orders. Crews are forbidden to get in each other's boats. If a crew is given permission to stroll on the beach, no other crew can go at the same time.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

A vessel infected with cholera would be treated in accordance with the Treasury regulations, but it is probable that public clamor would compel a resort to a Government station. A vessel infected with yellow fever would have her sick men taken ashore and cared for in the yellow-fever hospital, and the vessel would be sent to the upper ballast crib, where she would receive a preliminary fumigation. Suspects or nonimmunes would be left on board. After the ballast was put out the vessel would be thoroughly washed, refumigated, and have her hold lime washed. At a convenient time the clothing would be disinfected with steam. A vessel infected with smallpox would be treated in a similar manner, with the addition of vaccination of crew, as soon as virus could be obtained, and an increased detention. The conditions regarded as giving evidence of the vessel's infection in each case would be the existence of sickness on board at the time, or that such sickness had occurred on board in the last port or on the voyage since the last quarantine treatment. But vessels are held coming from ports where yellow fever at least has not been known.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

No records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention. The declarations of masters as to circumstances occurring on the voyage are sent to the office at Pensacola. No medical officer's journal is kept, and the only records at all are the daily reports of the quarantine officer to the board of health. When the new yellow-fever hospital is fully furnished it is probable that a system of records will be instituted. The quarantine officer has, however, a wonderful memory and can quite accurately recount the disabilities of a vessel for several years after. The records in the office of the county board are admirably kept, and transcripts of the work of the quarantine are sent monthly to the State board as a compliment to that body.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

The schedule of fees as allowed by the State board of health is inclosed. In addition, vessels pay 8 cents per ton for hoisting ballast, if a horse is preferred to making the crew work on winches. About three-fifths of the vessels hire the hoisting done. A charge of 17 cents per ton is made for hauling the ballast from the ship's

side to the south side of the crib; this is compulsory, as no master could afford to have his crew carry off the ballast in baskets or wheelbarrows. This ballast money goes to Wood & Northrup, who got the privilege under proposals, and keep the men, horses, and carts at the crib. Three years ago the rates were 10 cents for hoisting and 15 cents for cartage. The vessel is required to pay for a barrel of lime with which to lime wash the hold. All supplies brought out by the launch *Genevieve* have freight charged to the vessel for which they are destined. Extra trips of the launch are charged for, but I did not learn the amount.

Vessels requiring part of their cargo as stiffening must pay for the towage of the lumber from the city to the quarantine and for return of the barge. Vessels requiring ballast logs must pay from $10 to $15 for the use of the logs. The station and board have nothing to do with the last two items. There are no harbor dues for vessels coming for quarantine treatment only. The charge for towing a vessel from the city to quarantine in winter is from $20 to $40, but the quick handling generally compensates the owners. There are no tonnage dues or wharfage charges per se. Vessels which go to the upper crib do not pay for hoisting or hauling, but are charged as the others, 25 cents per ton for the privilege of discharging ballast.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

I find it useless to make a statement giving only the three classes mentioned, as Pensacola has few vessels from yellow-fever latitudes via domestic ports. I have, therefore, made a table showing the number of vessels from Europe, i. e., clean foreign; from the Mexican Gulf, South America, and Africa, i. e., yellow-fever latitudes, and from United States ports, i. e., domestic; and another table subdividing the clean foreign into United Kingdom and Europe; the yellow-fever latitudes into Cuba, West Indies, and Spanish Main, or the west and south shores of the Gulf of Mexico and the Caribbean Sea, Brazil and below, and Africa. Other tables are given, showing the flags, rigs, crews, and tonnage, to indicate in a poor way the character of the commerce. As footnotes to the tables I give a résumé of each month's quarantine work, which should be read in connection with the tables.

TABLE 1.

1895.	Clean foreign.	Yellow fever.	Domestic.	Ballast.	Cargo and empty.
January	38	9	12	48	11
February	22	18	9	34	15
March	17	20	9	33	13
April	14	8	17	27	12
May	17	20	17	39	15
June	19	17	17	40	13
July	8	12	9	22	7
August	5	11	5	19	2
September	12	4	11	20	7
October	18	7	10	28	7
November	19	13	14	36	10
December	19	19	10	34	14
Total	208	158	140	380	126

NOTE.—The domestic port entries exceed the domestic entries of United States bottoms by 26, that number of foreign vessels having called to complete cargo or to procure bunker coal. "Cargo and empty" column is given to show the quarantine work. All steamships (97) had water ballast, but are classed as ballast vessels.

TABLE 2.

1895.	Cuba.	West Indies and Spanish Main.	Brazil and below.	Africa.	Continent.	United Kingdom.	Domestic.	Total.
January	3	3	4	1	15	21	12	59
February	6	7	4	2	4	17	9	49
March	8	9	2	1	9	8	9	46
April	3	1	4	0	13	1	17	39
May	2	10	3	5	10	7	17	54
June	1	7	4	5	11	8	17	53
July	3	2	3	4	2	6	9	29
August	3	1	6	1	3	2	5	21
September	1	1	1	1	7	5	11	27
October	1	3	3	0	7	11	10	35
November	2	5	6	0	4	15	14	46
December	5	6	7	1	8	11	10	48
Total	38	55	47	21	93	112	140	506

TABLE 3.

1895.	Steamships.	Ships.	Barks.	Schooners.	Tugs and barges.	Passengers.	Crews.	Tonnage.
January	6	1	41	9	2	5	772	44,114
February	4	6	26	12	1	8	651	34,379
March	4	2	29	10	1	12	609	31,961
April	10	2	20	6	1	3	615	34,434
May	10	4	32	14	4	16	750	44,268
June	15	2	27	9	0	7	780	51,796
July	8	4	15	2	0	7	530	31,503
August	8	2	9	2	0	2	364	19,843
September	9	2	12	2	2	3	440	26,416
October	8	2	19	6	0	28	514	30,265
November	8	4	27	7	0	3	690	33,831
December	7	2	28	11	0	5	627	35,066
Total	97	33	275	90	11	99	7,342	417,876

NOTE.—It is worthy of notice that nineteen-twentieths of the vessels, crews, and tonnage of this table represent original work, but few vessels returning the same year. Pensacola has no regular lines to give frequent inspections to and thus increase the number of crews and tons, as is done at stations where there can be frequent duplication with little anxiety or care on the part of the officer. The passengers listed were nearly all the wives and children of masters.

TABLE 4.

1895.	United States.	British.	Norwegian.	Swedish.	Danish.	Russian.	German.	Italian.	Spanish.	Austrian.	Others.	Total.
January	9	10	13	1	1	8	1	13	0	2	1	59
February	12	7	16	1	4	2	0	5	1	1	0	49
March	12	5	10	4	2	6	1	1	2	3	0	46
April	8	8	5	0	1	1	0	11	2	3	0	39
May	19	12	12	2	0	1	0	7	0	1	0	54
June	8	21	7	2	0	2	1	9	1	1	1	53
July	7	14	2	1	0	1	0	2	0	0	2	29
August	3	2	10	0	0	0	1	2	3	0	0	21
September	5	7	11	0	2	0	0	0	0	2	0	27
October	7	7	13	0	0	2	1	3	0	2	0	35
November	11	13	11	0	0	2	0	9	0	0	0	46
December	15	5	7	0	0	4	0	16	1	0	0	48
Total	116	111	117	11	10	29	5	78	10	15	4	506

QUARANTINING AND BALLAST, 1895.

January.—23 vessels brought 2,255 tons stone ballast, 28 vessels brought 6,656 tons earth and sand ballast, 12 vessels brought 3,100 tons rubbish and garbage ballast, 5 vessels put out 1,500 tons rubbish and garbage ballast from the United Kingdom, in quarantine; 1 vessel put out 330 tons sand from Vera Cruz, in quarantine; 3 vessels from Rio discharged ballast in quarantine and were fumigated. Steamers all came with water ballast or transit cargo.

February.—17 vessels brought 2,718 tons stone ballast, 20 vessels brought 4,804 tons earth and sand ballast, 8 vessels brought 2,250 tons rubbish and garbage ballast, 7 vessels put out 2,000 tons rubbish and garbage ballast from the United Kingdom and Continent in quarantine; 1 vessel had to put out 100 tons Bahia sand in quarantine, although she hailed from the United Kingdom; 2 vessels from Cuba were disinfected.

March.—17 vessels brought 1,800 tons stone ballast, 24 vessels brought 4,000 tons earth and sand ballast, 6 vessels brought 1,180 tons rubbish and garbage ballast, 6 vessels put out 1,180 tons rubbish and garbage ballast in quarantine, 5 vessels put out 830 tons earth and sand ballast in quarantine, 5 vessels put out 305 tons stone ballast in quarantine, 8 vessels were disinfected in quarantine; 1 vessel from St. Thomas was put in quarantine.

April.—13 vessels brought 1,891 tons stone ballast, 12 vessels brought 3,089 tons earth and sand ballast, 4 vessels brought 760 tons rubbish and garbage ballast, 7 vessels put out in quarantine 810 tons rock, 300 tons earth and sand, and 766 tons rubbish and garbage; 9 vessels were subjected to quarantine; 3 steamships called for bunker coal.

May.—17 vessels brought 2,160 tons stone ballast, 12 vessels brought 2,616 tons earth and sand ballast, 13 vessels brought 3,220 tons rubbish and garbage ballast. All the ballast vessels except 3 from the Baltic put ballast out in quarantine; 5 vessels from the United Kingdom put out rubbish and garbage in quarantine; 1 vessel from Rio via Tortugas Quarantine, with 500 tons of rock which had been immersed in regulation bichloride solution, had to put the rock out in quarantine; 29 vessels were subjected to quarantine.

June.—8 vessels brought 1,620 tons stone ballast, 7 vessels brought 1,532 tons earth and sand ballast, 14 vessels brought 4,693 tons rubbish and garbage ballast; all the ballast vessels put ballast out in quarantine except 2 from the United Kingdom with stone and earth; 6 vessels were held to discharge ballast and clean up; 1 vessel which had been disinfected at Tortugas Quarantine was pratiqued; 33 vessels were subjected to a quarantine.

July.—6 vessels brought 1,276 tons stone ballast, 7 vessels brought 2,040 tons earth and sand ballast, 6 vessels brought 1,895 tons rubbish and garbage ballast, 1 vessel with 196 tons stone from United Kingdom was pratiqued, 6 vessels with rubbish and garbage from United Kingdom, Continent, and Boston were required to discharge in quarantine; all ballast except 196 tons was discharged in quarantine; 19 vessels were subjected to quarantine, including 1 which had been to Ship Island Quarantine.

August.—5 vessels brought 1,125 tons stone ballast, 7 vessels brought 1,976 tons earth and sand ballast, 1 vessel brought 5 tons rubbish and garbage ballast, 1 vessel from Cuba, via Tortugas Quarantine, was pratiqued; 18 vessels were subjected to quarantine.

September.—5 vessels brought 435 tons stone ballast, 9 vessels brought 2,210 tons earth and sand ballast, 3 vessels brought 960 tons rubbish and garbage ballast; all ballast, whether from United Kingdom, or Continent, or yellow-fever latitude, was put out in quarantine; 14 vessels were subjected to quarantine.

October.—8 vessels brought 510 tons stone ballast, 15 vessels brought 3,800 tons earth and sand ballast, 6 vessels brought 1,590 tons rubbish and garbage ballast. All the ballast was discharged in quarantine except 40 tons stone and 260 tons earth and sand from Norway and Germany; 23 vessels were subjected to quarantine treatment.

November.—14 vessels brought 2,194 tons stone ballast, 15 vessels brought 4,010 tons earth and sand ballast, 10 vessels brought 3,136 tons rubbish and garbage ballast, 6 vessels discharged 1,395 tons stone in quarantine, 6 vessels discharged 1,685 tons earth and sand in quarantine, 9 vessels discharged 2,716 tons rubbish and garbage ballast in quarantine, all of which came from the United Kingdom and Continent; 20 vessels were subjected to treatment in quarantine.

December.—15 vessels brought 3,120 tons stone ballast, 9 vessels brought 1,630 tons earth and sand ballast, 10 vessels brought 2,080 tons rubbish and garbage ballast, 7 vessels, 5 from the United Kingdom and 2 from the Continent, put out 1,720 tons rubbish and garbage in quarantine; all vessels from Cuba and Brazil were fully treated in quarantine; 19 vessels were subjected to treatment in quarantine.

I have made an effort to class and distinguish ballast, but have not succeeded as well as I hoped to. In fact, it is uncommon for quarantine officers to give good descriptions of it. Dr. White does better than some others, but his habit of calling almost everything he don't like "rubbish" evidently prevents an estimate of the actual rubbish and makes a seeming increase of the garbage and city offal frequently brought from United Kingdom ports. Ballast should be clearly described, and the amounts of each sort should be recorded. The classes are water; stone and rock, including rubble and large gravel, and the kind should be noted; earth, i. e., soil dug expressly for ballast purposes, which usually has an admixture of sand and rock; sand, taken from sea or shore; rubbish, the bricks, stones, mortar, cement, etc., from torn-down buildings; broken tiles, either old or new, may in fairness be called rubbish, but it is not easy to get enough at one time for full ballasting; slag from furnaces, and garbage, or the city offal taken from scavenger scows is clearly rubbish.

It is well enough to be certain of the origin of the sand ballast, but ordinarily it is harmless. Garbage should always be sent to quarantine and vessels should always be required to pay for putting it out, as the original cost is always a shilling or less per ton. Rio rock costs now $1.75 per ton; the cheapest it has ever

been was $1.50; sometimes $2.50 is paid. Habana rock costs over $2 per ton. Sand and earth cost from 50 cents to $1 per ton.

The claim or fear that garbage ballast will cause yellow fever is untenable, but I have known crews to suffer pretty generally with nausea and diarrhea when on board with it, and have often seen men sicken while discharging it. The British Board of Trade some years ago advised against the use of garbage as ballast, but rather in the interest of shipowners than for the benefit of the crews or the people of the United States or Canadian ports, to which the vessels were bound. But the fact that the nastiest ballast comes from a noninfected country does not warrant its free pratique; neither that because some ballast is bad in itself should all ballast be put out under surveillance. The ballast business should be simplified or reduced to some system.

An "empty" or "swept hold" vessel is not "in ballast," even if the custom-house clerks do record them so. The small quantity of wood which has been used as dunnage for a previous cargo is not ballast, and can be effectually and quickly disinfected with the hose.

Of the foreign-port vessels entering for 1895, 16 had part cargoes chiefly as ballast, viz, 4 brought cement, 2 shells, 1 mahogany, 6 salt, 1 lime, 1 brick, and 1 sugar.

Pensacola has a ballast quarantine and receives empty vessels as a rule. Her exports of coal promise to be a feature of commerce in the near future. Perhaps some compromising with shippers and some loosening of restrictions against several Gulf and West Indian ports would develop a respectable coal trade. The importance of the port depends on her enormous shipments of lumber and timber, and in consequence it is rare that a vessel goes away empty.

During the year 1895 17 sailing vessels stopped at Barbadoes "for orders." Fifteen of these were from lower South America and Africa, where the actual clearances of the vessels were procured. It will be interesting to inquire if the proper tonnage tax of 6 cents was collected in these cases. It is a rule for vessels to call at Barbadoes "for orders" only, pay a small sum for entry and a clean bill of health, and then proceed to the United States, hoping to evade quarantine, in which they always fail, and to save 3 cents per ton at the custom-house, in which they often succeed.

13. State results of your visits to (*a*) the custom-house; (*b*) the immigration bureau.

I found the collector of customs very desirous to aid the quarantine and to do all in his power to protect the health of his people. His long experience as secretary of the county board has made him a much-interested and very able aid to the maritime sanitation procedures. In fact, it would be better for the peace of the city and the authority of the quarantine officer if he, and not the local board, should be the final arbiter on quarantine matters. There is no immigration bureau, nearly all vessels coming in ballast or empty.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

In my opinion the quarantine facilities are sufficient to care for the shipping of the port, and to care for twice as many vessels as have come to it. The location is safe, easy of access, and far enough from the mainland for absolute safety, even if a variety of pests were present. The port being a ballast port, there is need for a large ballast wharf; it is difficult to conceive of a station where both classes of vessels can discharge at one time; eight in all.

With some concessions on the part of the pilots (they should charge but one rate in such cases) and the tugboats, the station could do the disinfection work of Mobile and Apalachicola. During last March and April two vessels were ordered here from Apalachicola, but the loss of time and extra charges ran the expenses to a high figure in each case.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The quarantine regulations of the Treasury Department which are not properly enforced include the nonuse of the acid solution of bichloride of mercury; the bichloride is dissolved in salt water at about 1 to 1,000; it is doubtful if it is so strong, but a large quantity is used, which may answer for strength. The time of keeping the cabins and forecastles and holds closed for the different classes of vessels is not observed. Twenty pounds of sulphur to the 100 tons is placed in the vessel in pots. At the end of from nine to twelve hours the vessel is opened up. The sulphur is burned, but the gas escapes freely when the hatches are removed. But the vessels thus treated were not infected. An infected vessel would get a longer time. The retention of clothing and bedding in the steam chamber for thirty minutes after 105° C. is reached; the custom seems to be to throw in the steam when the chamber is at 200° F., and when the valve opens, to open the chamber at once. In two instances the time from closing to opening was but twenty minutes. It may be claimed in answer that the articles were not from an infected ship, and that the ship was not from an infected port, and that the process was in addition to the minimum of the United States regulations. If so, why treat the vessel at all? But I have reason to believe that a vessel in a condition to be actually dangerous would be effectually treated.

The period of observation after disinfection of vessels is observed very strictly for all vessels. It has been the custom at Pensacola to hold vessels "full ten days," and a few years ago twenty-five days after discharge of ballast was insisted on for all vessels from south of 25° 30′ north latitude. Public sentiment in Pensacola would compel the board to hold the vessels the minimum period of observation if there was no other power which it held in awe.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

No. Copy inclosed.

The certificate of the quarantine officer states that the vessel's condition is good, crew healthy, no one has leprosy, and the ballast is clean, and that he "recommends" that the vessel be given pratique. The actual pratique is given by the president of the board. In view of this form, the quarantine officer considered it to be the duty of the board to make any changes in the blanks. He would have used the official certificates if they had been supplied to him. How much the collector of customs is to blame for this oversight I do not know, but I do know that more attention is paid to the rules and edicts of the local board than to the Treasury regulations.

17. What disposition is made of the consular bills of health?

One is filed by the board of health; the other filed with the ship's papers in the custom-house.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The facts which in my opinion should be known to the Department bearing directly or indirectly on the quarantine service must be given in some comments, viz: In May, 1895, I thoroughly cleaned up the British ship *Jennie Burrill*, which arrived at Tortugas Quarantine with a convalescent case of smallpox. On her arrival at Pensacola she was again quarantined because the officer did not believe 580 tons of granite ballast had been or could be dipped. But I know the rock was immersed, piece after piece, and know, what is the better to know, that the vessel, crew, and ballast were absolutely free from danger to any port or people.

The Norwegian bark *Lucy Rippon* arrived at Ship Island April 28, 1896, from Buenos Ayres with stone and sand ballast and clean bills. She was by law, rule, and custom duly inspected and given an official "certificate of pratique." The vessel went to Pensacola and was the first vessel of the season to be sent to quarantine and detained; there the ballast was designated as "rubbish." It is pertinent to ask the meaning of the paragraph in section 6 of the act of 1893, which says, "and after certificate shall have been given by the United States quarantine officer at said station that the vessel, etc., are free, etc., said vessel shall be admitted to entry to any port of the United States named within the certificate." The fact is that the quarantine officer, as well as the local board, distrusts the work of the United States quarantines, and they feel it incumbent upon them to do better, even if more fees do accrue. The frequent instances of disrespect to other local and to United States quarantines should be checked. A careful reading of the law of February 15, 1893, and the United States Treasury regulations relating to quarantine will be productive of more respect for other people's feelings than anything I can suggest.

The presence of a customs inspector at the station has been a feature of this quarantine for fifteen or more years. As the inspector is not empowered or able to expedite a vessel's progress and can serve her in no wise and his inspections are not given full credence at this port of entry his presence seems unnecessary. The duties on all the smuggling in quarantine possible in ten years will not amount to a month's pay of an inspector. The cost of the whole business finally falls on the people. Long ago I knew of the wastefulness and uselessness of having a customs inspector in a ballast quarantine, but until now have had no opportunity to say a word against the practice. It is a simple matter to have the quarantine officers sworn to observe and obey the customs regulations. It is inconceivable that any medical officer will engage in smuggling or permit it to be done. The customs inspector now on duty at Pensacola Quarantine is a gentleman and a good officer.

Pensacola has good reasons to be proud of the success of her quarantine service since 1883, but it is my conviction that too much attention has been given to its workings by the people on the sidewalks, and that the frequent allusions to the work and methods have tended to disturb and fret the people to such a degree as to make the local control a public nuisance. It is impossible for the profits of the inspection fees and ballast dues spent in the city and for the city to compensate for the strifes, doubts, fears, and contentions which are sure to come from local control. The ridiculous scare of 1893 is easily reduced to a doubt of the efficiency of the quarantine; the city lost in that year as much as the profits of ten years could amount to; the General Government lost enough to conduct the station a year; the worry of the fear stricken and baggage losers and hastily absented householders might be estimated in damages, but not in money. The less that pests, fevers, and other outside or inside diseases are talked or written about by the public, the less will the timid and excitable suffer and the less will public confidence and business be disturbed. It is not well for a community to go into the quarantine business for revenue.

The quarantine officer is very energetic and does what he thinks to be his duty with a zeal worthy of imitation. Were he under the pay of a body removed some distance from him and able to release as well as to confine a vessel, he would do as good work as now. An efficient quarantine officer is not easily procured. The position is no sinecure if duty is done and the results of safety and confidence are obtained.

Recommendations.—(1) The Pensacola Quarantine should, at present, be placed under the control of the Florida State board of health; finally under control of the Treasury Department. (2) There should be inspections at or near Fort Pickens to enable vessels to go direct to the city instead of going 7 miles out of their course; but when there is no charge for towage this improvement is practically

useless. (3) The quarantine officer should have a medical assistant, as the duties are too onerous for one man. The assistant should be capable of keeping the accounts of the station. No sick or disabled seamen should be permitted to go to Pensacola. (4) The customs inspector should be transferred to Pensacola. (5) The collector of customs should be instructed to honor United States quarantine officer's pratiques, and to insist on the prescribed certificate. (6) The weekly transactions should be published in the public health reports. (7) The station should be inspected in midseason.

NOTE.—The variations between the printed laws and rules and this paper have been considered. I have tried to describe the present procedures.

JULY 10, 1896.

[Board of health of the county of Escambia, State of Florida.]

QUARANTINE RULES AND REGULATIONS.

Be it resolved by the board of health of the county of Escambia, State of Florida:

First. From and after the 1st of May, 1891, and until the 15th day of November, 1891, no vessel of any class or description having epidemic, contagious or infectious diseases on board, or having had such during any portion of the voyage, or for three months prior thereto, and seeking to enter the harbor of Pensacola, shall be permitted to land any passengers or crew, or discharge ballast or cargo, or to load cargo in the Bay of Pensacola, or to hold any communication with any other vessel or person or the shore.

Pilots must, and hereby are required, in each case before boarding a vessel desiring to enter the Bay of Pensacola, to make inquiry as to the sanitary condition of the vessel, and in no case must they board if the vessel has contagious or infectious diseases aboard, or has had the same during the voyage. In all such cases the pilot must direct said vessel to the nearest United States quarantine or refuge station.

Second. Between the 1st day of May and the 15th day of November, 1891, all vessels of whatsoever class or description, arriving from foreign or domestic ports (directly or indirectly) where yellow fever, cholera, or smallpox prevailed at the time of the vessel's departure, and seeking to enter the harbor of Pensacola, are required to have crews acclimated to yellow fever; are also required, if in ballast, that the ballast shall be clean rock taken in at a noninfected port, or water ballast fresh from the open sea; are also required, should said vessels be from any port of the Island of Cuba, that said vessel should have entered and departed from said port on the Island of Cuba between sunrise and sunset of the same day. Vessels which do not comply with above requirements will be refused pratique between the dates specified. If above requirements are complied with, vessels will, upon crossing the bar, proceed to the quarantine station, hereinafter designated, to be inspected and disinfected.

Third. Between the 1st day of May and the 15th day of November, 1891, all other vessels seeking to enter the harbor of Pensacola shall immediately, upon crossing the bar, proceed to the quarantine station, hereinafter designated, to a point designated by a yellow flag, to be inspected, and, if deemed necessary by the quarantine physician, discharge ballast or cargo, and be submitted to a cleansing and disinfecting process.

Fourth. No person, boat, or goods from any vessel arriving in the harbor of Pensacola between said dates shall be permitted to leave or be removed from such vessel until she shall have performed quarantine in accordance with the rules and regulations of this board of health.

Fifth. The quarantine station shall be on Santa Rosa Island, just west of Little Sabine Inlet. The boundaries of the quarantine ground shall be as follows: Beginning at the point on the low-tide line of the Gulf shore of Santa Rosa Island three-quarters of a mile east of the eastern limit of the Little Sabine Inlet; thence across Santa Rosa Island and into Santa Rosa Sound on a line bearing north by west from the point of beginning to the middle of the channel of Santa Rosa Sound; thence westerly along the middle line of said channel to a point in said channel bearing southwest by south, one-half south from Deer Point; thence on a line bearing southwest by south, one-half south from Deer Point to the north shore of Santa Rosa Island; thence on a line bearing south by east to a point on the low-tide line of Gulf shore of Santa Rosa Island; thence along the low-tide line of said Gulf shore

of Santa Rosa Island to the point of beginning. The points above described as being in the water to be designated by buoys bearing yellow flags, and those on land to be designated by yellow flags fixed on substantial poles.

Sixth. The quarantine physician shall, as soon as quarantine is established, proceed to the quarantine station and remain within the quarantine limits until the quarantine is removed, unless by special permit of the board. He shall at all times, between sunrise and sunset, be ready to visit and board all vessels immediately upon their arrival in the Bay of Pensacola, off Deer Point, at a point to be designated by a buoy, upon which shall be erected a flagstaff showing a yellow flag. He shall show a yellow flag conspicuously in his boat to designate her character. No one shall take, sail, or steer a vessel so as to pass the quarantine boat or buoy, or refuse to obey the captain of the guard or quarantine physician.

Seventh. The quarantine physician shall charge a visiting fee in all cases where he attends patients, either on board ship or in the quarantine hospital, and for all medicines and supplies furnished, such fees to be collected from the master of the vessel to which said patient belongs, and to be paid to the secretary and treasurer of the board.

Eighth. The quarantine physician shall examine into the condition of every vessel entering the port, and the health of the persons on board, and shall not permit any vessel or person to leave the limits of the quarantine station until all the requirements of the board of health have been fulfilled and he is satisfied that the public health shall not be endangered thereby, and said permit is countersigned by the president of the board of health.

Ninth. The master or other person in command of any vessel entering the Bay of Pensacola between the above dates shall proceed with her directly to the quarantine station above designated.

Tenth. It shall be the duty of pilots or other persons bringing vessels into the Bay of Pensacola to hoist a flag at half-mast at the fore and not to pass the quarantine buoy until the vessel has been visited by the quarantine physician; and it shall not be lawful for any person to visit or communicate with any vessel being taken to the quarantine station, or in quarantine, until said vessel has been visited by the quarantine physician and relieved from quarantine.

Eleventh. No pilot or other person shall leave a vessel after coming into Pensacola Bay without a permit to do so by the quarantine physician.

Twelfth. All vessels at quarantine shall keep a flag at half-mast at the fore during the day, and a lantern in the same position at night.

Thirteenth. It shall be the duty of the quarantine physician during quarantine to cause any vessel having sickness on board to be anchored at least three-quarters of a mile from vessels having no sickness on board; and it shall be his duty to prohibit any intercourse between any vessels so anchored and others, and no person shall visit such vessel, under any circumstances, without the permission of the quarantine physician. Any vessel having any intercourse with a vessel from an infected port, or port suspected to be infected, shall in all things be treated as a vessel from an infected port; any such intercourse shall be at once reported by the quarantine physician to the board of health.

Fourteenth. No person shall visit or attempt to visit the quarantine station between said dates without the permission of the quarantine physician and the board of health. Persons at quarantine station requiring anything from beyond the limits of the station may obtain the same only by orders forwarded through the quarantine physician and this board of health. Employes of this board, or other persons within quarantine limits, are prohibited from soliciting business of any kind whatever for ships or persons within the limits of the station.

Fifteenth. The port inspector shall visit and inspect every vessel entering the Bay of Pensacola and ascertain and report her sanitary condition, and until such inspection and report and the release of such vessel by said officer no person shall visit her, and no person from her shall visit any other vessel or the shore. The master or owner of each vessel so inspected shall pay this board for such service as follows, to wit:

Steamships	$15.00
Ships	15.00
Barks and three and four masted schooners	10.00
Brigs	5.00
Two-masted schooners	5.00

Sixteenth. Vessels in quarantine may be discharged at the crib therein by paying twenty-five cents per ton for so discharging to the quarantine physician, who shall forthwith send the money so collected to the secretary and treasurer of this board, to be by him disbursed or used as ordered by the board.

Seventeenth. The master of every vessel cleansed or fumigated at the quarantine station shall pay for such cleansing and fumigation by the quarantine physician the fees named, as follows:

Steamships	$75.00
Ships	50.00
Barks and other vessels other than brigs and two-masted schooners	40.00
Brigs	20.00
Two-masted schooners	15.00

Funds so collected must be forwarded by the quarantine physician, and disposed of as moneys collected for discharging vessels at the crib.

Eighteenth. The quarantine physician shall make a weekly report to the board of health, showing the number and class of vessels visited by him, amount of fees collected, number of patients and diseases treated, and the quantity of ballast discharged, and any other matter which may be of interest, and with such report remit all moneys or orders for money received by him during the week.

Nineteenth. Every pilot and pilot boat on the bar of Pensacola and masters of tow boats shall be supplied with copies of these rules and regulations, and it shall be the duty of every pilot to furnish a copy thereof to the master of every vessel which he may speak or board immediately upon such communication.

Twentieth. Every violation of the foregoing rules will be punished as prescribed by law.

Twenty-first. All tugs (except when taking vessels into quarantine station) and all crafts of every character going into, coming out of, or passing through quarantine lines shall lay to off and as near the guard station as practicable, designated by a yellow flag, and remain there until visited by the officer in charge of the guard and permitted by him to pass.

ROBT. W. HARGIS, M. D.,
President.

D. G. BRENT,
Secretary and Treasurer, Board of Health.

PENSACOLA, FLA., *March 31, 1891.*

PENSACOLA, FLA., *November 10, 1891.*

Be it resolved by the board of health of the county of Escambia, State of Florida:

First. That the port inspector shall visit and inspect every vessel entering the bay of Pensacola and ascertain and report her sanitary condition; and until such inspection and report and the release of such vessel by said officer, no person shall visit her, and no person from her shall visit any other vessel or the shore. The master or owner of each vessel so inspected shall pay to this board for such service as follows, to wit:

Steamships	$15.00
Ships	15.00
Barks and 3 and 4 masted schooners	10.00
Brigs	5.00
Schooners, 2-masted	5.00

Second. No vessel coming into the port of Pensacola having on board any contagious or infectious disease, or from a port where any such disease prevails, shall remain within the territory under the jurisdiction of this board, except at a point designated and under restrictions imposed by this board, according to the exigencies of each case.

Third. It shall be the duty of any person coming into the county of Escambia or port of Pensacola from any locality where any disease in an epidemic form prevails to report at once to this board, or some officer thereof, and no person coming from any such locality shall remain in said county without the permit of this board, and then only at such points as may be designated, and under such restrictions as may be imposed by this board, according to the exigencies in each case.

Fourth. Ballast brought into this port shall be discharged in accordance with the rules and regulations of the State board of health and at the expense of the vessel to the extent that said rules and regulations of the State board of health provide for the same.

Fifth. All pilots and towboats of the port of Pensacola shall be supplied with copies of these rules, and every pilot or towboat master speaking or boarding a vessel coming into said port shall hand a copy thereof to the master of said vessel. Pilots must, and hereby are required, in each case before boarding a vessel

desiring to enter the bay of Pensacola, to make inquiry as to the sanitary condition of the vessel, and in no case must they board if the vessel has contagious or infectious diseases aboard, or has had the same during the voyage. In all such cases the pilot must direct said vessel to the nearest United States quarantine or refuge station.

Sixth. That in case any vessel shall be required by authority of law to discharge ballast at quarantine station, or be fumigated, she shall pay 25 cents per ton for the ballast discharged, and for maritime sanitation as follows, to wit:

Steamships	$75.00
Ships	50.00
Barks and other vessels, other than brigs and 2-masted schooners	40.00
Brigs	20.00
Two-masted schooners	15.00

Seventh. That no pilot, towboatman, or other person shall remove, transfer, or receive, or assist in removing, transferring, or receiving, any person from any vessel entering the bay of Pensacola until such vessel shall have been inspected and released by the port inspector.

Eighth. Every violation of the foregoing rules will be punished as prescribed by law.

ROBT. W. HARGIS,
President.
R. P. DANIELS,
President State Board of Health.
D. G. BRENT,
Secretary and Treasurer.

Approved November 10, 1891.

First. That all future actions taken by this board at any period during the year shall be in accord with the rules and regulations of the State board of health in so far as they are consistent with the rules and regulations of this board heretofore and hereafter to be enacted by this board and approved by the State board of health.

Second. The rules and regulations of this board which were adopted March 31st, 1891, for the summer of that year, and approved by the State board of health April 13th, 1891, and the rules and regulations of this board which were adopted November 10th, 1891, and approved by the State board of health November 12th, 1891, are hereby adopted and will remain in force from season to season and from year to year until changed by legal action of this board or the State board of health.

Third. That the said rules and regulations of said State board of health and the said rules and regulations of this board shall be those under which this board shall act until changed by competent authority, and they shall be printed together.

ROBT. W. HARGIS,
President.
D. G. BRENT,
Secretary and Treasurer.

Adopted at Pensacola, Fla., April 6, 1892.
Approved by direction of the president of the State board of health.

JOSEPH Y. PORTER,
State Health Officer.

INSPECTION REPORT ON THE EAST COAST OF FLORIDA.

By Surg. H. R. CARTER, M. H. S.

As directed by Bureau letter of June 12, 1896, relative to the need of sanitary inspectors on the Florida coast, I have the honor to make the following report on the east coast. The following are the inlets on the east coast of Florida, with their respective depths of water at mean high tide, as given to me by the United States engineers at St. Augustine and confirmed by local inquiry: St. Augustine, 14 feet 2 inches; Matanzas, 6 feet 6 inches; Mosquito, 9 feet; Indian River, 7 feet 5 inches on the inside bar; St. Lucia, 7 feet, recently deepened; Jupiter, closed up; Lake Worth, 3 feet 6 inches; Hillsboro, 3 feet; New River, 4 feet; Norris Cut, 3 feet; Beans Cut, 5 feet; Cape Florida, 12 feet, of which about 8 feet can be brought to Miami.

At St. Augustine is a State quarantine station and United States customs officer, and that place should need no further guard. The entrance in plain sight.

Matanos Inlet, 18 miles below the city at the south end of Anastasia Island, has so little depth of water that it seems unreasonable that a vessel from a foreign port, Cuba especially, should pass by the deeper inlets to the south and enter this one, for a vessel which should enter this inlet must be but a poor sea boat. I think, then, that it needs no special guard.

Mosquito Inlet, opposite New Smyrna, has the deepest water of any between St. Augustine and Cape Florida, but the bar has a bad reputation as a dangerous one, and in point of fact no foreign vessel has entered here for the past five years, and very few coastwise vessels pass through, mainly yachts bound into the Indian River. There is only one pilot here. There is a customs inspector, Mr. Charles Délser, stationed here—at New Smyrna—and I would recommend that he be directed to exercise the functions of a sanitary inspector should a vessel from a foreign port or coastwise enter this inlet. The necessary instructions contingent on the entry of a vessel should be sent him. His present instructions, in case a vessel from a foreign port enters, is to hold her and telegraph the collector at St. Augustine for orders. I gave him such information and advice in reference to inspection of vessels as I thought he could profit by, and especially on the subject of allowing no communication with shore if he was in any doubt, and directing vessels with foul bills not to enter the inlet. I have no idea that any occasion for the exercise of this function will arise, or that any vessel save yachts from the north will enter Mosquito Inlet.

Indian River Inlet is opposite St. Lucie, a flag station on the East Coast Railroad. Although its depth is given at 7 feet, yet there is a bar inside of 5 feet, on which a dredge under United States Engineer Corps is now working and will be working until December. There was formerly a customs inspector here, but he has been discontinued, and I find that there is no record of any vessel from a foreign port ever having entered at this inlet. The same is nearly true of vessels coastwise, save yachts, and while the dredge boat is in the channel no vessel would attempt to run in to land illegitimately, and there is generally no other reason to land here. I see no reason to recommend the appointment of a sanitary inspector here.

St. Lucie Inlet is opposite Junsen (better known as Gilberts Bar). A considerable number of small American schooners enter here from the Bahamas, bringing fruit, pineapple slips, and shells—twenty-two last year—and about twenty-five Bahamans as immigrants. This place was made a port of entry July 1, 1896. This will somewhat increase the number of entries.

These vessels have all entered without the certificate of the quarantine officer, required by section 2, act of February 15, 1893. I think some provision should be made for inspecting these vessels, mainly to comply with the above act. I would recommend that Mr. T. V. Moore, the deputy collector of customs at this place, be directed to exercise the functions of a quarantine officer and inspect these vessels and sign the certificate required by law. Mr. Moore is unquestionably the man best fitted for this, even if he were not in the customs service. He is a man of unusual intelligence, highly esteemed in the community, with such vested interests that it is all important to himself to prevent the introduction of yellow fever. There is no physician obtainable within any reasonable distance, although there is one at Stuart, who could be called on for professional advice should it be necessary, but it would probably be of no assistance. I would therefore suggest that Mr. Moore be given such instructions as are proper, and be directed to make the above inspection. While at New Smyrna I talked the matter over with him, and gave him all the information and advice that I could, telling him what I would recommend. I think he will make an efficient inspector.

[NOTE.—Action taken as above indicated.]

At Lake Worth and Palm Beach there is a customs officer, a State quarantine officer, Dr. Potter, and as it is not possible for a vessel to enter, physically, save under the most unusual circumstances, I think no extra guard is needed. The inlet between Palm Beach and Cape Florida seemed too shoal to merit investigation, Beans Cut having mainly filled up.

Cape Florida Inlet, opposite Miami: This is not a port of entry, but there is a quarantine officer of the State board, Dr. Jackson, stationed here. Vessels of considerable draft can enter the reef at this place, but can not come up to Miami with more than 5 or 6 feet of water. Not being a port of entry, no vessels from foreign ports have ever entered here. Some few vessels from the Keys come here in fruit for Key West. Unquestionably a vessel could come in by this entrance, but I think the Florida quarantine officer is a sufficient guard and I have no recommendation to make for this port.

In reviewing the whole matter I would say that at present it is believed that there are very few people coming back as returned filibusters; that these do not come through the cities or towns of Cuba, but from the open country, which is reasonably free from yellow fever. They are probably also all immune to that disease and carry no baggage, save the clothes they have on, and some papers. Also the vessels on which these expeditions are now made are steamers of good draft and will enter at recognized ports. Add to this that there is usually no communication between Cuba and any part of the coast east of Key West, that Cuban smacks have never frequented this coast and are unacquainted with its reefs and inlets, and that inhabitants of this coast are neither Cubans nor descendants of Cubans. I think, therefore, that at present there is very little danger of the introduction of yellow fever on the east coast in this manner. Should the insurgents be hard pressed, however, this condition of things may be altered. There is probably rather more danger of introducing smallpox, said to be epidemic in the insurgent camp, than yellow fever.

Should the conditions change so that Cubans in large numbers would be leaving their country, the place on the east coast where they would be most apt to land, and the only place, I think, where a special guard might be needed, is through Cape Florida Inlet, either in the neighborhood of Miami or on the keys across Biscayne Bay. To prevent a landing on the keys by any reasonable number of inspectors, under these circumstances, would be difficult, and should it in future be judged desirable to guard this entrance (it is not necessary now), it could best be done by an inspector with a boat or launch on the upper part of Biscayne Bay. It is likely that Miami will be made a port of entry in place of Palm Beach this winter, in which case matters will be simplified.

JULY 15, 1896.

ALABAMA.

MOBILE BAY QUARANTINE.

By Surg. R. D. MURRAY, M. H. S.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

Mobile Bay Quarantine is situated 1½ miles east of Fort Morgan, on the peninsula of Baldwin County, Ala., which curves from the mainland to the west to form Bon Secour Bay and the eastern shore of the pass into Mobile Bay. The west side of the pass is formed by the eastern end of Dauphin Island, on which Fort Gaines is situated. Sand Island light-house is on Sand Island, on the left of the

pass and to seaward. Mobile Point light is on an angle of Fort Morgan to the right of the pass.

The station consists of a wharf and bridge and houses on the shore. The land consists of silex blown into quite high dunes and small hills, covered with a growth of pine, scrub live oak, saw palmetto, and various weeds and grasses. Between the dunes is much marshy ground, but the security against high water is sufficient. It is exactly on the eighty-eighth degree of west longitude.

The quarantine establishment owns 10 acres of land, with a frontage to the north of 5 acres and a depth of 2 acres. This was purchased about six years ago from a settler. It adjoins the United States fort reservation and at present there is some question with the United States engineers as to ownership, but I think the title is secured to the quarantine authorities.

The buildings are two in number: One, 200 feet to the west from the main building, is intended for quarters for the employees, and is 36 by 45 feet with a piazza on the front and rear; it has a lengthwise hall, with seven rooms in all on the two sides, and another room on the rear piazza. Two 5,000-gallon cisterns are placed on the rear piazza, protected by the roof. The main building is 36 by 45 feet, with a piazza on three sides and a hall; this is divided into five rooms—parlor, office, and bedrooms. In rear, attached to it, is a kitchen and dining room 18 by 32 feet. There are two 5,000-gallon cisterns, which are supplied by the roof. The houses are low, single stories, substantially built and ceiled. They are placed on too low ground and too near the ground for comfort and for needful views of the wharf and fleet. Proper outhouses are in rear of each building. These structures are five years old, having been built in 1891.

The wharf is rhomboidal in shape, with a longer side of 320 feet facing due north, and the depth is 150 feet, the angled ends being faced northwesterly and southeasterly. It is connected with the shore by a bridge one-third of a mile long. The wharf and bridge are decked with 2-inch planks, the piling being separate and creosoted. There is no sheet piling and there are no bulkheads for retention of ballast; the piling is much eaten by the teredo, having been in the water for five years; the bracing is diagonal, and the lower fastenings are in many places rusted or eaten loose. The condition of the wharf and bridge is fair at present, but piles are dropping or washing out betimes, in which case green-pine poles are substituted; in another year the concern will be quite a wreck.

Back from the wharf about 400 feet on the south side of the bridge on independent piles is a boathouse 30 by 40 feet, with four rooms for watchman, boatmen, customs inspector, etc. Hoists for two Whitehall boats are placed underneath, the landing being reached by an inner stairway. A semicircle of pine sheet piling is placed off the northwest aspect to serve as a breakwater. The piling and breakwater are much worm-eaten. Some ballast has been thrown about the breakwater in the hope of protecting it, but it sinks out of sight in a few months. A 4,000-gallon cistern is placed at the corner of this house, supplied by the roof.

About 900 feet from the shore off from the east side of the bridge is a hospital building situated on creosoted piling. It is 550 feet from the wharf bridge at a right angle and connected with it by a bridge nearly as strong as the main bridge. The building is 42 by 75 feet, with a 10-foot hall running lengthwise. On the sides of the hall are two wards, capable of accommodating ten to sixteen patients, and five smaller rooms for kitchen, dining room, dispensary, and quarters. A 5,000-gallon cistern occupies one corner of the building. There are four beds set up and a few small tables are at hand, but otherwise the building is unfurnished. The kitchen chimney is of terra cotta, and having no flashing, the roof leaks around it. The sea breaks near by, and the spray falls on the roof so as to make the water in the cistern salty. The same influence has rusted out the gutters, and on one side the gutter has fallen down. The teredo has not eaten the piles much,

as the water is shallow, but the affair is unsafe, or soon will be, and is not commended as a place for sick men. The hospital is well constructed, and if it had been placed on shore would be a great addition to the plant.

About a half mile north and to the east of the wharf is a sunken ballast pile which was the accumulation of years of discharging ballast. It was at one time above water and shanties were built on it. While it was in use the quarantine physician and his aids lived in two small houses built on the United States Fort Reservation by the national board of health in 1880. These houses remain, but in a fearfully dilapidated condition, the Mobile authorities having declined to do any repairs, although using them for about twelve years. The ballast pile and all on it have sunk below the water. Had the crib been properly started with sheet piling and carefully watched while ballast was thrown out, there would now be an artificial island much better suited for the duties required than the expensive arrangement now in use.

Off from the front of the wharf head and about 800 feet north is a 600 feet in length curved row of piles, with top planks like a fence and vertical slats at intervals on the planks, which was intended as a breakwater. The piles are placed 10 feet apart, and already the work of the teredo is recorded. No account was taken of the ground swell made on a sloping beach by 40 miles of northerly winds, and so the invention fails entirely to check the force of either water or wind. It in no way prevents the waves from crowding the vessels against the end of the wharf; sometimes they rise and sink as much as 5 feet, and the signs of the crunching and pounding are visible on the wharf and have been on the sides of many vessels. One vessel spent $400 to repair damages done to her sides and rigging. It is plain that no man acquainted with the sea planned and built this fence. If this station is to be a safe one for vessels, a wave break at least 1,500 feet long and straight must be built from the bottom up to 6 feet above ordinary tide, strong and long enough to withstand the great ground swell of the water during northerly winds. It is necessary to haul a vessel off from the wharf at night from 10 to 20 feet by means of side lines, leaving her attached to the wharf by the lines on the other side. Not a simple thing to do with a ballast-tired crew. Dolphins have been placed, but were pulled out the first time they were tied to. Two 2,400-pound mushroom anchors were put in position, but they slipped home quite easily. Now three 1,200-pound anchors have been sunk. They will do well until a good surge affects them, when they, too, will fail. Not less than a 3-ton anchor should be thought of for the duty expected. Generally the so-called breakwater serves a good purpose for making the hauling-out lines fast to, but when a pile will give way no one knows. But one vessel can discharge ballast at one time, as the face of the wharf is only about the length of a ballast-carrying vessel. While one vessel is discharging, a no-ballast vessel can lie at the west end of the wharf and be sulphured, washed, and have clothing steamed. "The anchorages" are ample to the northwest, north, and northeast of the wharf, but the holding ground is poor; the bottom is soft mud, and there is frequent dragging.

The entire plant, i. e., storehouses, hospital, wharf, bridges, and houses thereon, with the boiler, sulphur furnace and pan, and steam chest, including the so-called breakwater, cost, up to April, 1892, the sum of $62,677.16. The addition of hoister, windmill, and cable, and repairs have run the cost up to near $70,000.

The limits of anchorage for noninfected vessels to the northwest and north are easily 1 mile by 1 mile—room enough for all vessels that may call. The limits for infected vessels are equal in area, permitting the regulation mile between the two classes.

The facilities for inspection of vessels consist of two Whitehall boats and two to four men to row them. A larger boat should be provided for heavy seas, to be rowed by the entire crew; but at present there is no place to store it.

The apparatus for disinfection of vessels and baggage consists of a shed 30 by 70 feet, located on the west half of the wharf, and houses a boiler (a large one), the steam chest, sulphur fan, and furnace, all Valk & Murdoch patterns. The boiler has been retubed once. The frequent use of salt water for four years has injured it much, and now several tubes are plugged. Wood is burned in it. The steam chest is cylindrical, 8 by 30 feet, and heated with a coil. A temperature of 221° F. can be reached in fifty minutes with 40 pounds of steam pressure. The heating coil is much rusted, is repaired with clamps in many places, and should be replaced by a new one. There is no vacuum apparatus attached and no vacuum gauge. A high-degree Fahrenheit thermometer is attached.

The sulphur fan is situated about 120 feet of piping from the side of the vessel which is to receive the gas, and the 12-inch galvanized-iron pipe is contracted at the outer end to fit a 6-inch rubber hose. I think this contraction of the pipe prevents the rapid discharge of the gas and perhaps causes the Sturtevant fan to become hot. It is to be noted that the fan requires from two to four new sets of blades every year, and that a perforated pipe is placed over it with a constant flow of water through it to keep the fan cool.

A 4,000-gallon iron tank for the mercuric chloride solution is placed on a tower, elevated 30 feet from the deck of the wharf, which gives sufficient pressure for washing vessels. This tower is connected with the corner of the boiler house and is a menace when the wind is high and a vessel is thumping against the wharf. Some time it will fall down. Also, the dripping of the solution injures the galvanized iron roof.

To save the water from the roof, two 5,000-gallon cisterns are provided. As the rain supply was not sufficient, at times salt water had to be used. To give a constant supply of good steam water, a windmill (Marseilles Steel Queen) was put up last year on the shore in front of the physician's house and connected by a pump to a dug well. Over a third of a mile of pipe conducts water to the cisterns to fill them. It works well and the water supplied is quite fresh. The mill needs painting. There are two salt-water pumps for filling the bichloride tank. In addition to the sulphur furnace and fan, dutch ovens are provided for fumigating cabins, staterooms, extra holds, etc. There is no sleeping place for crews, but frequently they use the boiler house.

For discharge of ballast there is at the end of the boiler house nearest to the vessel a large double steam hoister. The ballast is hoisted and chuted into 2-ton cars (of which there are four) and then run on a track back to the shore, where the ballast is dumped into shallow water, the object being to build out and protect the bridge. For three years the cars were pushed by the men. Now there is an engine at the wharf front, in a separate shanty, which runs an endless cable to the shore, the cars being provided with grips. Two cars are dumped while two are being filled. By good work 100 tons of ballast can be discharged per day, but this above the average. To discharge any ballast two engines must be run and the large boiler kept supplying steam. Usually all the cars are filled and are carried out at once, in which case the donkey man can also attend to the cable engine. The sills of the car rails are laid lengthwise of the iron and across the deck of the wharf and bridge. They are in need of much renewing, as the water settles in the center of the square top face and rots them rapidly. The iron rails are strangely curved and bulged by the pressure of vessels on the wharf. This may be a good scheme for getting rid of ballast, but seems to be expensive and tedious.

The facilities for removal and treatment of the sick consist of the two Whitehall boats mentioned, and ships' boats on occasion, and the hospital which has been alluded to. The facilities for removal and detention of suspects are nothing. Suspects will be watched on board.

The mail arrives three times a week overland; quite frequently tugboats bring

news from the city, 30 miles away. The supplies are brought monthly by the Fort Morgan supply boat; the freight, amounting to from $2 to $5 per month, is paid by the quarantine physician. But for supplies procured from vessels, the station would frequently be on short commons.

The telegraph facilities are a telephone to Fort Morgan, 1¼ miles distant, where there is a telegraph office. The company keeps up the telephone, hoping to be repaid by messages to and from vessels in quarantine.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

George H. Fowler, M. D., is quarantine physician (born in Alabama; University of Pennsylvania, 1861; immuned in 1878; employed consecutively for eighteen years; previously sanitary inspector in Mobile; surgeon in Confederate army for four years); compensation, $100 per month, without subsistence. Harry Savage (Alabama, aged 25, nonimmune), first engineer, $60 per month and $15 for subsistence. Samuel Dodge (Mississippi, aged 28, nonimmune), second engineer, $40 per month and $15 for subsistence. Sidney Poniatowski (Brazil, aged 24, immune), fireman, $30 per month and $15 for subsistence. Richard Trott (England, aged 69, immune), watchman, $30 per month and $15 for subsistence. Edward Ladnier (Alabama, aged 30, nonimmune), boatman, $45 per month and no subsistence. Dennis Smith (Alabama, aged 22, nonimmune), boatman, $45 per month and no subsistence. Mrs. M. J. Allen, cook, $15 per month and no subsistence. Jacob Kosminski, customs inspector, messes with the quarantine physician. Total, 1 physician, 1 customs inspector, 7 employees—9 in all; no others at the station. The post-office address is Herndon, Baldwin County, Ala.

The authority for the quarantine is given in an act of the legislature of Alabama, approved February 15, 1891, which states:

> That the probate judge of Baldwin County, the president of the board of road and revenue commissioners of Mobile County, the mayor of Mobile, the health officer of the city of Mobile, the president of the medical association of Mobile, the president of the chamber of commerce of Mobile, and a person to be selected by the county commissioners of Baldwin County as health officer of that county, and their successors in office, shall virtute officii constitute a quarantine and health board, to be known as the Quarantine Board of Mobile Bay; and in case any of said offices shall become vacant by any cause, or shall be abolished, the remaining officers so designated shall constitute such board and exercise all the powers thereof.

The same act appropriated $25,000, payable during four years, to aid in construction of an "improved" plant for doing quarantine work, and required the county of Mobile to bear all other expenses and to sustain any expenses for maintenance above the receipts. Subsequently the city of Mobile was required to bear an equal share of any deficit with the county.

The personnel of the quarantine board at present is: (1) Charles Hall, judge of probate of Baldwin County; (2) George E. Sage, president of board of revenue and road commissioners of Mobile County; (3) C. L. Laverata, mayor of Mobile; (4) J. A. Abrahams, M. D., health officer of the city of Mobile (elected for two years by the committee of public health, which consists of five medical men elected by the Medical Association of Mobile County); (5) E. L. Marechal, M. D., president of the Medical Association of Mobile County; (6) A. C. Danner, president of the Chamber of Commerce of Mobile; (7) no one, as the "person to be selected by the county commissioners of Baldwin County as health officer of that county" has ever been selected. No compensation is allowed to any member for personal services, but the members from Baldwin County may be reimbursed for actual expenses incurred in attending meetings of the board. A. C. Danner is president; no salary. T. S. Scales, M. D., is health and chief executive officer, at $1,800 per year. Hon. R. B. Owen is secretary and treasurer, at $960 per year. An office is kept open in the city.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Inclosed are (1) laws and regulations relating to quarantine in Mobile Bay, a pamphlet printed in English, French, Spanish, and German, the four languages being required by statute law (Exhibit A); (2) questions to be answered by masters, printed in the four languages (Exhibit B); (3) questions in English with place for list of passengers (Exhibit C); (4) notice relating to local rules (Exhibit D); (5) certificate of pratique (Exhibit E), and (6) release for smacks, etc. (Exhibit F).

The quarantine customs as they are carried out are about as follows: A small number of locally owned vessels and coast traders and fishing smacks receive permits from the president and secretary of the quarantine board which exempt them from all inspections and fees. All other vessels are inspected the year round. By the proclamation of the president of the board quarantine is declared for seven months—from sunrise May 1 to December 1. Vessels are divided into four classes, viz: (1) from infected ports; (2) from suspected ports; (3) infected vessels, and (4) vessels that have visited infected ports and come via clean foreign or domestic ports without having been disinfected subsequent to departure from the infected port. This is a new rule this year, but the principles of it were practiced two or three years ago. The infected ports are named; suspected ports are all others, about south of 25° 30', except some fruit ports, and these become suspected if the vessels bring passengers. Infected port vessels are subjected to thorough maritime sanitation and then detained five full days. Vessels from suspected ports will be subjected to thorough maritime sanitation and then be detained three full days. But in case of fruit vessels with passengers the board in Mobile will prescribe as the occasion requires.

Vessels infected or with a history of infection during the present year will not be allowed in the lower bay until the vessel and contents have been subjected to thorough disinfection by the improved method. Vessels from Northern ports may be sent to quarantine if they have called at a suspicious or infected port or have fruit or passengers from there. Vessels from ports known not to be infected and not heretofore provided for will only be detained at quarantine a sufficient length of time to be placed in proper sanitary condition; this provision is the only scheme for detaining bad ballast or ballast that may be considered bad.

Even after a vessel has been properly treated and received her pratique, or in case of an infected port or suspected port, a vessel which has been to any other "improved-method" station, she "will be carefully inspected and detained only for cause."

The inspections are made from the station from May 1 till December 1. Last winter, to please the shipping interests, the inspections were made from the city wharf in the custom-house boat. For a time a special physician was employed, but as he declined to work for small fees the regular quarantine physician was transferred to the city.

4. State what quarantine procedure, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

The quarantine procedures, either under printed regulations or by custom, enforced at the port in addition to the requirements of the Treasury Department, are: (1) The inspection of vessels from United States ports after the 1st of November and until the 1st of May; (2) the detention of vessels from ports known not to be infected. Presumably this is a regulation to prevent the introduction of garbage ballast, but if such ballast is a menance the rule should say so.

Vessels with "swept holds" and steamers usualy get "pratiqued" in the time prescribed, i. e., seven days for one and six for the other. There is undue detention for vessels in ballast, due to the meager facilities for discharging ballast. The British bark *Jeannie Woodside* took six full days at the wharf to do three and one-half days' work, bad weather intervening, while three other vessels were waiting. * * *

It will thus be seen that the wharf as a ballast-discharging point is not a success, with room for but one vessel, which when alongside is in jeopardy from northerly winds, and which can not get away in similar wind. Had the wharf been a pier head about 800 feet to the north, vessels could have gone to the lea side, or had it been placed so that vessels could head to the north or northwest, it would have been of vastly greater service. The insistance on constructing the station after the plan of a river station cost extra money and resulted in a practical failure, if expedition, economy, and permanence are of value.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

Inspections are maintained throughout the year of all vessels except towboats, smacks, etc., which have received permits to go free. During the period from December 1 to May 1 vessels from ports which are infected must discharge ballast in quarantine, and ballast that is foul, such as garbage or mixed with garbage, must be put out in quarantine.

6. Are vessels from other United States ports inspected?

Yes; the year round.

7. Describe quarantine procedures in the inspection of vessels; and if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The quarantine procedure in the inspection of a vessel is always by daylight and thorough; a critical examination of the crew and all passengers, the vessel's cabins, holds, ballast, etc., and mate's and official logs for hints of illness on board. The quarantine physician does not drink spirits or smoke and never is in a hurry to get off the vessel. If infected, the vessel will be sent to Ship Island Quarantine, as per proclamation of the board. If not infected, but from an infected port, if the vessel has no ballast, she is brought to the wharf and given sulphur gas, and the clothing, etc., is put in the steam chest for the prescribed period. The time required for this is half a day, four to six hours. The detention period for such a vessel will be five full days. If there is greater detention it will be due to inability to get a tugboat, except in case of steamers. If the vessel is from a suspected port she will get the same treatment with three full days' detention. If the vessel is in ballast it must be discharged before the fumigation will be done; if from an infected or a suspected port, separation of earth, sand, and rubbish from rock and immersing the rock is unknown. Some rock is retained on the wharf from past years to stiffen vessels which may need it.

Some notion of delay when two or more ballast vessels arrive at the same time may be gotten from answers under No. 4. The expedition of the vessel will depend much on the crew and their manner of working. As the charge for hoisting and cars is $15 per day, masters are urged to hasten in order to save expenses.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

The communication between vessels in quarantine is practically nothing. The quarantine physician visits every vessel daily, but does not go on board unless called. The communication is regulated by threats of increased detention or prosecution under the statutes. Communication before quarantine by pilots is

prohibited in case of vessels from infected ports, the pilots being directed to guide or "wave" the vessel into harbor. In case a pilot has to go on board he is held at the station until considered safe. There is no intercommunication between vessels in quarantine, except that masters may meet each other at the physician's office or on the wharf bridge. After a vessel is disinfected there must be no communication with vessels that are not finished.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

A vessel infected with cholera would be sent to Ship Island United States Quarantine without delay or recourse, and all persons who had been associated with her would go, too. A vessel infected with yellow fever would be sent to Ship Island Quarantine, notwithstanding the fact that an isolated high-out-of-the-water yellow-fever hospital has been built for patients suffering with such a disease. A vessel infected with smallpox would be sent to Ship Island Quarantine whether there were cases on board or not. It will be observed that under the third class of the rating by the quarantine board, located 30 miles away, no chances are to be taken of any sort with actual or indirect causes of disease that is quarantinable. This rule puts the station in the class of inspection stations, and practically absolves it from actual quarantine functions.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Records are made and kept of all cases as shown by the official list of questions. As no cases of quarantinable disease can be kept at the station, there are no records of such, but all other diseases occurring are recorded at the station. Weekly and monthly reports of all transactions at the station are mailed to the quarantine board at Mobile.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Inspections: Steamships, $15; ships, $15; barks and four-mast schooners, $10; brigs and three-mast schooners, $7.50; tugs and two-mast schooners, $5; other vessels, $3. Special rates are made for lines or regular traders; thus the Plant Line, which runs a weekly steamer to and from Port Tampa, pays $15 the first of every month, and thus is relieved from paying for forty trips per year.

To continue the fruit traffic a medical-agency service has been established at Honduras, Nicaragua, and Colombia ports, as Balize, Ceiba, Bluefields, Bocas del Toro, etc. The agents are chosen by the board and paid by the fruit importers and are required to certify as to the condition of each steamer when she is ready to sail. They may pratique passengers if satisfied that they have had no contact with possible infection for ten days or more.

Disinfection: Steamships, $75; ships, $50; barks and four-masted schooners, $40; brigs and three-masted schooners, $20; two-masted schooners, $10; other vessels, $10. Treatment of sick on board or in hospital, $1 per day. Use of ballast hoist and cable cars for ballast, $15 per day. The above moneys to be paid into the treasury of the quarantine board. From $10 to $20 must be paid by sailing vessels to tugboats for being put to and taken from the wharf. There are no tonnage, ballast, or wharf charges per se. It will be seen that the ballast charges are very reasonable, as 100 tons should be put out per day, which will make the rate at about 15 cents per ton instead of 25 cents, as at some ports, and 25 cents and trimming of the ballast amounting to 17 cents and more per ton extra.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign

ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

I find it impracticable or impossible to give the vessels under class (*b*), and therefore have given, at some trouble, a table showing the clean foreign ports, meaning Europe when free from cholera; yellow-fever latitude ports, meaning all ports south of 25° 30′ north latitude (which limit was lately placed on all pratiques), and domestic ports.

I have given another table subdividing the first table into Cuba (from which yellow fever is generally expected), Brazil (next in point of danger), West Indies, etc., Spanish Main, meaning all the Mexican Gulf except Cuba, and other distinctions which will explain themselves to persons acquainted with quarantining. For Mobile, which has a large trade with fruit islands and ports, it is necessary to give a column to them to show the easing up of the quarantine physician's duties as to detention of vessels from an old-time infected region or a region always suspicious to south-coast health officials. To show the character of the commerce, I have also given tables of the flags and rigs of vessels. As to purely local traffic I have cared little, but the quarantine work in that regard is given in a note.

Custom-house entries.

1895.	Clean foreign ports.	Yellow-fever latitude ports.	Ballast.	Cargo or empty.	Domestic port entries.		Vessels entered.
					United States.	Foreign.	
January	14	38	21	31	7	3	62
February	3	22	8	17	1	2	28
March	11	36	18	29	1	0	48
April	4	39	9	34	4	0	47
May	3	39	4	38	4	0	46
June	2	29	4	27	5	3	39
July	4	28	5	27	4	5	41
August	7	18	8	17	2	4	31
September	7	21	6	22	3	0	31
October	6	38	12	22	4	3	41
November	17	34	24	27	8	4	63
December	11	34	13	32	4	2	51
Total	89	366	132	323	47	26	528

Arrivals by countries.

1895.	Cuba.	Brazil and below.	West Indies and Spanish Main.		United Kingdom.	European Continent.	Africa.	Domestic.
			Islands, Mexico, and Northern South America.	Free fruit ports.				
January	4	3	14	16	11	3	1	10
February	1	0	8	12	3	0	1	3
March	6	0	6	22	10	1	2	1
April	3	2	7	25	2	2	2	4
May	1	1	4	33	1	2	0	4
June	1	2	3	22	1	1	1	8
July	3	1	2	21	1	3	1	9
August	0	1	4	13	2	5	0	6
September	1	1	4	14	4	3	1	3
October	0	1	4	19	3	3	4	7
November	5	5	9	14	13	4	1	12
December	7	2	9	15	9	2	1	6
Total	32	19	74	226	60	29	15	73

Flags.

1895.	United States.	British.	Norwegian.	Swedish.	Danish.	Russian.	German.	Italian.	Others.	Total.
January	17	17	16	2	1	3	1	3	2	62
February	4	5	15	1	0	0	2	1	0	28
March	4	12	26	0	1	2	2	0	1	48
April	8	9	24	1	0	0	3	1	1	47
May	10	7	23	0	2	0	0	2	2	46
June	6	9	21	0	0	0	2	0	1	39
July	6	15	17	0	1	1	1	0	0	41
August	3	6	18	0	0	0	2	2	0	31
September	2	10	16	0	0	0	1	1	1	31
October	6	10	23	0	0	0	2	0	0	41
November	13	11	29	0	0	4	1	4	1	63
December	10	12	26	1	0	0	0	2	0	51
Total	89	123	254	5	5	10	17	16	9	528

Rigs, tons, and crews of 528 "entered" vessels.

1895.	Steamships.	Ships.	Barks.	Schooners.	Tons.	Crews.
January	20	6	14	22	39,156	860
February	13	2	7	6	17,382	421
March	22	3	9	14	27,902	684
April	32	1	5	9	25,733	701
May	31	1	3	11	20,240	777
June	27	1	3	8	22,787	674
July	27	2	5	7	27,420	665
August	17	1	8	5	16,518	468
September	21	0	7	3	22,288	534
October	24	2	9	6	24,482	638
November	26	4	23	10	45,597	968
December	21	3	13	14	32,421	735
Total	281	26	106	115	321,926	8,125

NOTE.—The Plant steamship *Florida* made weekly trips with tonnage of 1,307 and crew of 32, and was "entered" 13 times when she had foreign products on board. Forty trips are not counted, but the vessel was inspected each trip. During the year 118 inspections were made of coasters and vessels within the Great District which did not have to enter in the custom-house, not counting various tugs and smacks that held "releases" from the quarantine board, making the total of inspections 528 plus 118 = 646. One American ship from Rio was sent to Ship Island Quarantine in April, and 1 Norwegian steamer in September. Nine vessels were admitted from Ship Island Quarantine and 7 from Tortugas Quarantine. Forty-one vessels were subjected to full treatment in quarantine from May to October.

The character of Mobile's commerce used to be exports of cotton and lumber. For many years lighter-draft vessels loaded in the lower bay and deeper vessels were loaded at Horn and Ship Island, but the cutting out of a channel of about 28 miles in length has enabled the entrance of vessels of 22 feet draft to the city wharves. The nearness of the Alabama coal fields has given opportunity for the shipping and exportation of considerable coal, particularly during the winter. The great scope of yellow-pine timber land, the outlet of which is the Alabama River, which is formed by the Tombigbee and Warrior, will give lumber supply for many years. The inauguration of the Central American fruit trade and its continued development has enormously increased the tonnage entrances and clearances, as may be judged by the entries from the "free fruit ports" alone. The eight or ten steamers engaged in the fruit business carry back broken cargoes of flour, hay, corn, and various United States productions. Unfortunately this trade is in foreign bottoms exclusively. Lately some cotton is being exported, as improvement of the rivers and low river rates enable the vessels to receive it at lower rates than possible on the Atlantic Seaboard. The establishment of a weekly steamer to Tampa by the Plant Steamship Company has also materially increased the domestic movement of Western products.

In 1886–87 the entrance tonnage was 54,500, the clearance tonnage 64,500. This has increased from 30 to 50 per cent per year, until in 1895–96 the entrance tonnage

was 306,000 and the outgoing tonnage 308,000. No account is made here of the local domestic tonnage, which has increased in a like proportion.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

My visit to the custom-house showed that the records of arriving vessels are properly kept and that the duplicate bills of health with certificate of pratique are filed as part of the vessel's papers. The custom-house is the immigration bureau. During the year 1895, 122 immigrants were admitted, chiefly from the Central American fruit ports, Mexico, and the United States of Colombia. The pratique of the vessels bringing them was considered as sufficient medical examination.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

As to "swept-hold" vessels, the facilities are ample, but for ballast vessels the facilities are meager, but one vessel being able to discharge at one time. Ballast vessels are, except rarely, sailing vessels, and they come in on good winds. Thus two to four are liable to come near at one time; thus a jam and ruinous delays for the later arrivals. Again, the wharf is viciously situated, being a risky place to lie at except in fine weather.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The acid solution of mercuric chloride is not used. It would quickly corrode the iron tank. The fact that few vessels come which seriously need thorough treatment may render this failure of no moment. The regulations regarding inspection are fully complied with.

The regulations regarding disinfection are faultily observed as to the Treasury Department periods for fumigation. The period of observation after disinfection is fully observed as to vessels from infected ports, but not as to vessels from suspected ports, which are given "three full days." The query arises as to the possibility of obeying the amended paragraph 11, with a practically nonimmune crew—and, by the way, in any case—and also as to the practical benefit to follow from doing anything at all to such vessels. Five days is a short enough period of detention if any at all is needed to insure safety.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes. A copy inclosed.

17. What disposition is made of the consular bills of health.

One is kept at the station; one is given to the master for filing in the custom-house.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

Most of the facts which in my opinion should be known to the Department bearing directly or indirectly upon the quarantine service have been set forth under the different questions, but, in addition, I may say that the rapid decay of the wharf, bridge, and fence will soon render it necessary to make extensive repairs, which the relatively small income will not bear.

Recommendations.—(1) The quarantine physician should have an assistant who should be a medical man and capable of keeping the station records and accounts. Over 600 vessels per year are too many for one man to care for. (2) Arrangements for treatment of sick and disabled seamen should be made, particularly for

malarial cases, of which Mobile has an extra number. No sick seaman should go from quarantine to the city. (3) The customs inspector is not needed at the station and should be transferred to the city. (4) A dormitory should be built for crews of vessels that undergo full time of fumigation—to sleep in and for protection in wet weather. (5) In future repairs to the wharf it will be well to consider the project of building a crib around the old ballast pile or in a favorable place and the abandonment of the bridge to the shore; boats will be cheaper. (6) The Mobile Lower Bay seems to offer a good site for a barge disinfecting plant (motive power not needed), to which vessels could sail or haul and receive treatment. With some sheet piling and with holes made in the deck the wharf might be utilized for ballast for a time, but I would like to observe further before advising such a change.

JUNE 6–7, 1896.

EXHIBIT A.

QUARANTINE PROCLAMATION.

OFFICE OF QUARANTINE BOARD OF MOBILE BAY,
Mobile, Ala., April 4, 1896.

In accordance with law, and by virtue of authority vested in me by the quarantine board of Mobile Bay, I, A. C. Danner, president of said board, do hereby declare that from and after sunrise on the 1st day of May, 1896, and until the 1st day of December, 1896, unless sooner revoked, quarantine shall be enforced against all vessels entering lower Mobile Bay, as follows:

First. Against all vessels, with their ballast, crews, passengers, baggage, and freight, coming from ports regarded by the board as infected.

Second. Against all vessels, with their cargoes, ballast, crews, passengers, baggage, and freight, coming from ports regarded by the board as suspected.

Third. Against all vessels and their contents which are infected, or with a history of infection during the present year, and have not subsequently been subjected to improved maritime sanitation.

Fourth. Against all vessels and their contents that during the quarantine season have visited ports declared by this board to be infected and subsequently arrive in our bay from foreign or domestic ports where no disinfection by the improved process is practiced.

Ports now regarded as infected are all the ports of Cuba, Rio de Janeiro, Para, Bahia, Pernambuco, Santos, Ceara, San Juan (Puerto Rico), Puntas Arenas, Guayaquil, and Vera Cruz, and vessels coming from ports hereafter becoming infected will be treated in same manner as those from ports named. Ports regarded as suspected are all other South American and West Indian ports, as well as those of Central America and Mexico, with the exception of the following, to wit: Ruatan, Bonacco, Utilla, Truxillo, Swan Island, Grand Cayman, and Cayman Brac; but vessels from these especially named with passengers aboard will be subjected to such detention and disinfection of vessels and contents as the quarantine board or executive officer may prescribe on arrival at quarantine station.

All vessels and contents, under the first class, will be subjected to thorough maritime sanitation, and then detained five full days from completion of process. Pilots will not board such vessels unless it is absolutely necessary, but will wave them to the proper quarantine anchorage. Pilots violating this provision will, at the option of the board, or its executive officer, be subjected to same treatment as other persons on board said vessels.

All vessels under the second class will be subjected to thorough maritime sanitation and then be detained three full days from completion of process.

No vessel under the third class will be allowed in the lower bay until master produces a certificate that his vessel and contents have been subjected to thorough disinfection by the improved method, after which the vessel will be carefully inspected and detained only for cause. Vessels under this class, without certificates here referred to, will be spoken off the bar and directed to the Ship Island Refuge Station, and pilots and other persons are not allowed to board such vessels.

Vessels under the fourth class—that is, those visiting ports declared by this board infected, and subsequently visiting New York, Philadelphia, Baltimore, or other ports, will not be allowed to come to the city without thorough maritime sanitation is undergone subsequent to departure from infected port and certificate to that effect from the official having so treated the vessel.

Any vessel not from an infected place, but bringing ballast, crew, passengers, baggage, or freight from an infected place, will be included in the first class, and treated accordingly, unless the master can produce a certificate that said ballast, crew, passengers, baggage, and freight have been subjected to disinfection and detention prescribed for vessels under the first class.

Vessels from ports known not to be infected, and not heretofore provided for, will only be detained at quarantine station a sufficient length of time to be placed in proper sanitary condition. All vessels, however, entering the bay, except those holding release certificates, must be inspected by the quarantine physician and procure pratique before coming to the city, or communicating with other vessels or persons.

Regular lines engaged in fruit traffic from ports included as suspected, but not declared infected, may be continued during the quarantine season under special provisions and agreements similar to those formulated and adopted last season.

The restrictions herein proclaimed are subject to change, at the option of the quarantine board, to meet particular cases.

The rules and regulations in force in 1893, except when in conflict with the provisions of this proclamation, as well as regulations for the government of the station employees and all those having business with the same, issued by the executive officer April 15, 1895, will remain in full force and effect during 1896, and all parties interested can procure copies of the same by calling at the office of the quarantine board.

Notice is hereby also given that, notwithstanding the summer quarantine will not take effect until May 1, inspections of vessels now made by the quarantine physician in the stream in front of the city will, on and after April 15, be rigidly conducted at the quarantine station, and pilots and masters of vessels will be governed accordingly, or incur the penalty.

The following-named persons are the duly authorized active officers of the board for the coming season, and must be respected accordingly: Dr. T. S. Scales, health and chief executive officer; Dr. George H. Fowler, quarantine physician; Mr. R. B. Owen, secretary and treasurer.

For the information of all interested, an ordinance in relation to quarantine, adopted by the honorable general council of the city, is published, as follows:

"An ordinance to prevent violations of quarantine.

"SECTION 1. *Be it ordained by the mayor and general council*, That any person who shall violate or escape from quarantine, lawfully established by any authority, and enter the city of Mobile, shall be arrested by the police and conducted out of the city to the nearest quarantine station, and may, in the discretion of the mayor, be fined not exceeding $50 for each offense.

"SEC. 2. *Be it further ordained*, That any person who shall bring, or cause to be brought, into the city of Mobile any article or merchandise in violation of any quarantine regulation of this city, county, State, or the quarantine board of Mobile Bay, shall, on conviction, be fined not exceeding $50 for each offense, and such article or merchandise shall, in the discretion of the mayor, be removed, disinfected, or destroyed, at the expense of the offender.

"SEC. 3. *Be it further ordained*, That any person who shall aid or instigate any other in committing any offense above described or shall in any way be instrumental or concerned in such offense shall, on conviction before the mayor, be fined not exceeding $50."

A. C. DANNER,
President Quarantine Board of Mobile Bay.

OFFICE OF QUARANTINE BOARD OF MOBILE BAY,
Mobile, Ala., April 15, 1895.

Dr. George H. Fowler, quarantine physician, will have full charge of the quarantine station, under the direction and supervision of the health officer, and will be held responsible for the management of the same and for the conduct of the employees, with power to discharge for drunkenness or insubordination.

All employees at the station will be expected and required to perform the duties for which they are employed, and drumming, or soliciting trade for anyone, is strictly forbidden.

Complaints arising at the quarantine station must be forwarded, in writing, to the health officer, through the quarantine physician, and all other complaints must

be submitted in writing, together with such evidence as may be in hand, direct to the health officer.

Runners, or persons soliciting trade for merchants in this city, or elsewhere, will not be allowed to board vessels until the same have been granted free pratique by the quarantine physician, and are beyond or out of the quarantine anchorage. Except those required by law to enter the quarantine anchorage, no other persons will be allowed within said anchorage or to visit the station, unless by special permission of the quarantine physician. Violations of these provisions will be prosecuted in courts of competent jurisdiction.

These regulations are not to be construed as substituted for, but supplementary to, the rules and regulations already adopted by the board for the coming quarantine season, commencing May 1 proximo.

By order of the quarantine board of Mobile Bay.

T. S. SCALES, M. D., *Health Officer.*

IMPORTANT QUARANTINE NOTICE.

OFFICE OF QUARANTINE BOARD OF MOBILE BAY,
Mobile, Ala., April 11, 1896.

Official notice is hereby given that the medical agents of the board in Central American ports will be instructed to issue certificates to vessels only chartered by the merchants of this city defraying the expense of this agency service, and said merchants are requested to furnish this office with a list of all said vessels and to promptly notify us of any additions to or subtractions from said list. All other persons desiring to participate in the benefit of said service will be required to defray their pro rata of the expense of said medical service, and all vessels from Central American ports, without said certificates, except as provided for in the proclamation, will, on arrival at our quarantine station, be required to lighter perishable cargoes, and then undergo thorough disinfection and detention as prescribed in the proclamation.

Rules and regulations governing the fruit traffic vessels otherwise in force in 1895 will be rigidly enforced during the summer quarantine season of 1896, and medical agents will not certify passengers unless satisfied that said passengers and baggage have not been exposed to infectious diseases for at least ten days prior to contemplated departure.

By order of quarantine board of Mobile Bay.

T. S. SCALES, M. D.,
Health Officer.

OFFICE OF QUARANTINE BOARD OF MOBILE BAY,
Mobile, Ala., April 24, 1895.

For the purpose of continuing the fruit traffic with the various ports of the West Indies, Central and South America, not known to be infected, and visited by steamers coming to this city, during the quarantine season medical agents shall be stationed at said ports, and shall report by each and every vessel on the sanitary condition of their respective districts, on compliance by vessels with the regulations issued herein for their guidance, and shall perform such other duties as may from time to time be required of them. Said medical agents shall be appointed, or elected, by this board, and shall be accountable and report direct to this board or its authorized agent, and shall receive such monthly salaries as may be determined upon by the quarantine board.

All vessels engaged in the tropical fruit trade, in accordance with these provisions, will be required to be provided with the certificate of our medical agents of strict compliance with the rules and regulations governing said traffic, and will be detained at the Mobile Bay Quarantine Station sufficiently long to insure a most searching daylight inspection.

These vessels, whenever practicable, should be manned by acclimated crews, and will be required each trip to furnish the quarantine physician the certificate of the medical agent that the ports and places visited by said vessels are free from contagious and infectious disease, and passengers, if any, are also free from, and have not recently been exposed to, such disease. Passengers only allowed their personal baggage, and, in all instances, the names of passengers to be incorporated in the certificate.

Household effects, hides, bones, and fertilizers are rigidly prohibited, and under no circumstances will be allowed as a part of the cargo.

These vessels shall not touch at any port not included in their schedule, and communicate with no vessel during the voyage, except in case of distress. They shall be required to make a full disclosure to the medical agents at scheduled ports and at the Mobile Quarantine Station of all the ports and places they have visited on the voyage, together with such other pertinent information as may be required by the medical agents of this board.

Should infectious disease appear at any of the scheduled ports herein provided for, then these privileges will at once terminate, and any violation of the letter or spirit of the above-mentioned conditions will be taken by the quarantine board as a forfeiture by the vessel in default of all privileges granted them under said conditions.

By order of the quarantine board of Mobile Bay.

T. S. SCALES, M. D., *Health Officer.*

Extracts from the act entitled "An act to establish and provide for the maintenance of a quarantine by improved methods against the introduction of yellow fever and other infectious and contagious diseases in the State of Alabama."

* * * * * * *

SEC. 5. *Be it further enacted*, That the said board (quarantine board of Mobile Bay) may, from time to time, prescribe the observance of quarantine by all vessels arriving within the bay or harbor of Mobile, or the vicinity thereof, and make regulations therefor, which may be necessary or desirable to insure the preservation of the public health and not contrary to law, such regulations to extend to all persons, goods, and effects arriving in such vessels, and to all persons going on board of same, as well as to the vessels themselves; and may require such vessels to be unladen, and the same to be cleansed, and the said vessel and its cargo and ballast and the clothing and effects of all passengers to be thoroughly fumigated and disinfected, or such clothing and personal effects to be destroyed where necessary.

SEC. 6. *Be it further enacted*, That all vessels entering Mobile Bay shall heave to, or come to anchor, as soon as a safe berth can be reached, as close to said quarantine as may be practicable or as may be required by the regulations of said board, and shall display a signal for the quarantine officer, and shall not leave said berth until such quarantine officer has duly boarded and inspected such vessel and its passengers and crew and has licensed said vessel to go on her way or has directed her to quarantine station; and if such vessel shall, under the rules and regulations and proclamations in existence, be required to go into or observe quarantine, it shall be the duty of the master or other person in charge of said vessel, and the passengers and crews thereof, to promptly conform to the orders and direction of such quarantine officer, and when in quarantine to strictly observe all the rules and regulations in force in reference thereto. And it shall be the duty of said board to supply the lower-bar pilots and the masters of all tugboats with a sufficient number of copies of directions printed in English, Spanish, French, and German of the rules required to be observed by the masters of such vessels in coming to anchor, displaying signal, and awaiting and submitting to the inspection of the boarding quarantine officer, and as to the duty of such master or person in charge of such vessel in answering all questions that may be propounded to him by such officer, and of the penalties for his failure to fully and truly make answer thereto, and it shall be the duty of lower-bar pilots and masters of tugs engaged in towing vessels across the lower bar to furnish the master of such vessels with such printed directions and conduct such vessel to the place designated for anchorage prior to boarding, and to explain or otherwise instruct the master of such vessel as to the nature and kind of quarantine signal to be displayed by him; and any person violating any of the provisions of this section shall be guilty of a misdemeanor.

SEC. 7. *Be it further enacted*, That the said quarantine board shall also have authority, and it is made its duty, to adopt such rules and regulations for the conduct of the master and crew of tugs, and of pilots, who shall be required to or shall perform any service for any vessel entering the said bay of Mobile, and is authorized to require any such person coming in contact with any such vessel, cargo, or person infected or supposed to be infected to observe such reasonable quarantine as may, in the judgment of said board, be necessary under the circumstances.

SEC. 9. *Be it further enacted*, That the said board may establish and collect fees for the inspection of all steamships and other vessels coming into the Bay of

Mobile not to exceed the following sums, respectively: For steamships, twenty-five dollars; sailing ships, twenty dollars; barks and four-masted schooners, fifteen dollars; brigs and three-masted schooners, ten dollars; tugs and two-masted schooners, seven and one-half dollars; other vessels, three dollars: *Provided*, That said board may relieve fishing, oyster, pleasure, pilot, and other small boats and tugs regularly engaged in towing across the bar of Mobile Bay, and small craft regularly plying in the Mobile Bay, and all vessels under five tons, from inspection or payment of the inspection fee; but said board may, in its discretion, from time to time, require such vessels to be inspected and to pay the fees as above provided.

All such fees herein authorized so to be charged are payable on demand, by the master or other person in charge of such boat or vessel, and shall be a lien upon such boat or vessel.

SEC. 10. *Be it further enacted*, That in addition to the inspection fees above authorized to be charged, said board is hereby authorized to charge and collect from the officers in charge of each vessel the actual or estimated cost for all services performed, including material furnished for said vessel in cleaning and fumigating such vessel, cargo, or ballast, and unloading and loading the same, and in addition may charge a quarantine fee for the maintenance and operation of the plant, of not exceeding seventy-five dollars in any one case; they shall also be authorized to charge medicines, board, and hospital attendance furnished to passengers and crew an amount fixed by said board to cover the actual expenses and costs of such medicines, board, and hospital attendance, all of which charged for shall be settled on demand by the master of such vessel, and shall be a lien on such vessel, and said board, in the charging of any such fees and expenses, may discriminate in favor of vessels which are, by themselves or with other vessels, running as regular lines or which have to observe quarantine more than once during the same year.

* * * * * * *

SEC. 13. *Be it further enacted*, That if the master or person in charge of any vessel, or any other person, while in quarantine, shall remove or take such vessel from quarantine before she is given pratique, or shall procure or aid such vessel to be removed from quarantine, shall be guilty of a misdemeanor, and shall be punished accordingly; and every person ordered to remain in quarantine who shall escape or depart before being discharged therefrom shall be guilty of a misdemeanor, and shall be punished accordingly, and any justice of the peace or mayor of any city, on complaint thereof, may issue his warrant to a sheriff or constable or other lawful officer to arrest and deliver such person to the custody of the officers of quarantine, and any such person so attempting to escape may forcibly be detained or placed in quarantine by such officer.

SEC. 14. *Be it further enacted*, That any master of a vessel, or other person therein who is suspected of having come in contact therewith, may be sworn by the inspecting, boarding, or health officer touching his previous history or that of his ship, cargo, ballast, crew, or passengers for such length of time and in reference to such matters as may be necessary to enable such officers to determine whether or not it is proper for such vessel, passengers, or crew to observe quarantine; and any refusal to answer a proper question, or any false swearing on the part of any such person, shall be guilty of a misdemeanor, and punishable as such; *Provided*, That nothing in this act shall be so construed as to take away from the Mobile board of health any of the powers or duties not in conflict with the provisions of this act in regard to the actual administration of quarantine devolved upon said board of health by the existing quarantine and health laws of this State.

Approved February 16, 1891.

Extracts from the civil and criminal code of 1886.

FROM CIVIL CODE.

1266 (1510). *Vessels quarantined.*—The health officer of a town, city, or county may, under the direction of the corporate authorities or the court of county commissioners, cause any vessel arriving therein, or in the vicinity, if the vessel or cargo is, in his opinion, so foul or infected as to endanger the public health, to be removed to the quarantine ground, or other proper place, to be purified.

1267 (1511). *Escapes from quarantine.*—If any person ordered to remain in quarantine escapes, any justice of the peace, on complaint thereof, on oath, must issue his warrant to the sheriff, or to a constable, or other lawful officer, to arrest and deliver such person to the custody of the officers of the quarantine; and any such person attempting to escape may be forcibly detained at the place of quarantine by such officers.

1268 (1512). *Quarantine of travellers.*—Any person coming into a town, city, or county by land, from a place infected with a contagious disease, may be compelled to perform quarantine by a health officer, and restrained from traveling until discharged.

CRIMINAL CODE.

4089 (4224). *Refusal of information to health officer—Penalty.*—Any master, seaman, or passenger belonging to any vessel supposed to have any infection on board, or from a port where any dangerous infectious disease prevails, who refuses to answer on oath such inquiries as are made by any health officer relating to any infection or disease, must, on conviction, be fined not less than one hundred dollars.

4090 (4225). *Breach of quarantine; penalty.*—The master of any vessel ordered to perform quarantine must deliver to the officer appointed to see it performed his bill of health, and manifest, log book, and journal; and if he fails to do so, or to repair in proper time after notice to the quarantine ground, or departs thence without authority, he must, on conviction, be fined not less than two hundred dollars.

4091 (4226). *Travelers from infected district compelled to perform quarantine; breach and penalty.*—Any person coming into a city or town by land from a place infected with a contagious disease may be compelled to perform quarantine by the health officer and restrained from traveling until discharged, and any person, thus restrained, traveling before he is discharged must, on conviction, be fined not less than one hundred dollars.

QUARANTINE PROCLAMATION.

OFFICE OF QUARANTINE BOARD OF MOBILE BAY,
Mobile, Ala., April 15th, 1892.

In accordance with law and by authority vested in me by the quarantine board of Mobile Bay, I, T. S. Scales, president of said board, do hereby declare that from and after the 1st day of May, 1892, and until the 1st day of December, 1892, unless sooner revoked, a rigid quarantine shall be enforced against all vessels entering lower Mobile Bay, as follows:

First. Against vessels, with their ballast, crews, passengers, baggage, and freight, coming from ports regarded as infected.

Second. Against vessels, together with their ballast, crews, passengers, baggage, and freight, coming from ports regarded as suspected.

Third. Against vessels and their contents which are infected, or with a history of infection during the present year.

Ports now regarded as infected are Rio de Janeiro, Para, Bahia, Pernambuco, Santos, Ceara, Puntas Arenas, Guayaquil, Habana, Matanzas, Cienfuegos, Cardenas, Santiago de Cuba, Kingston, and Vera Cruz, and vessels arriving from ports hereafter becoming infected will be treated in the same manner as those from ports named.

Ports regarded as suspected are all other South American and West Indian ports, as well as those of Central America and Mexico, with the exception of the following, to wit: Ruatan, Bonacco, Utilla, Truxillo, and Swan Island; but vessels from these five named with passengers aboard will be subjected to such detention and disinfection of vessels and contents as the quarantine board may prescribe in each case on arrival at quarantine station.

All vessels, together with their ballast, crews, cargoes, passengers, baggage, and freight, under the first class, will, on arrival at quarantine station, be subjected to thorough disinfection by the improved method of maritime sanitation, and then detained five full days.

All vessels, together with their ballast, crews, cargoes, passengers, baggage, and freight, under the second class, will, on arrival at quarantine station, be subjected to thorough maritime sanitation, and then detained three full days.

No vessel under the third class will be allowed in the lower bay until the master produces a certificate that his vessel, together with ballast, crew, cargo, passengers, baggage, and freight, have been subjected to improved maritime sanitation, after which they will be detained at quarantine station for such length of time as the quarantine board may prescribe in each case.

Any vessel not from an infected place, but bringing ballast, crew, passengers, baggage, and freight from an infected place, will be included with those of the second class, and will be treated accordingly, unless the master can produce certificate that said ballast, crew, passengers, baggage, and freight have undergone quarantine restrictions in accordance with the improved method.

Vessels from ports known to be noninfected, and not already provided for, will only be detained at quarantine station a sufficient length of time to be placed in proper sanitary condition.

The restrictions herein proclaimed are subject to change at the option of the quarantine board, to meet particular cases.

T. S. SCALES, *President.*

RULES AND REGULATIONS OF THE QUARANTINE BOARD.

The quarantine ground shall be designated by buoys bearing yellow flags.

The quarantine physician shall attend at the station and not depart thence except by permission of the quarantine board. He shall board all vessels entering the bay or harbor of Mobile, as soon as practicable after their arrival, between the hours of sunrise and sunset, and examine into the condition of vessels and cargoes and the health of all persons therein, including the examination of as many of such persons under oath as he may deem necessary.

He shall direct such measures to be taken as may be necessary to purify the vessel, and supervise the same; shall sign all permits for vessels and persons to pass the quarantine and all discharges for vessels and persons to leave the quarantine, without which no vessel or person shall leave or pass the quarantine station; nor shall any vessel or person visit the quarantine station without having first obtained permission to do so from the quarantine physician. The quarantine physician shall cause to be displayed, near the pierhead, at a suitable elevation, a yellow flag from sunrise until sunset each day, and a red light in the same position during the night. The quarantine physician shall make to the quarantine board weekly reports showing the number and class of vessels inspected as well as quarantined, disinfected, discharged, etc., and he shall also forward a monthly report on the first of every month, which shall embrace the substance of his weekly reports, and in addition shall forward at this time all moneys collected, with a statement showing the various sources and amounts.

The inspection fees for all vessels entering lower Mobile Bay shall be as follows:

Steamships	$15.00
Sailing ships	15.00
Barks and four-masted schooners	10.00
Brigs and three-masted schooners	7.50
Tugs and two-masted schooners	5.00
Other vessels	3.00

The fees for the disinfection of vessels shall be as follows:

Steamships	$75.00
Sailing ships	50.00
Barks and four-masted schooners	40.00
Brigs and three-masted schooners	20.00
Two-masted schooners	15.00
Other vessels	10.00

In addition to these charges, there shall also be charged and collected for the treatment of the sick, either in hospital or on board vessels, at the rate of $1 per day for each person so treated, and the handling of cargoes and ballast shall in all instances be done at the expense of the vessels interested.

Pilots and captains and crews of towboats are required not to board infected vessels, but to speak them off the bar and direct them to the Gulf Quarantine Station, on North Chandeleur Island. They will furnish all other vessels, that is to say, those entering lower Mobile Bay, with a copy of these regulations. During the existence of quarantine all pilots and other persons having charge of vessels entering Mobile Bay shall cause such vessels to heave to or come to anchor at or near the quarantine station, and such vessels shall there remain until they shall have been boarded by the quarantine physician and shall have received permission from him to proceed, and no pilots or other persons boarding such vessels will be allowed to leave the same until permission to do so shall have been given by the quarantine physician. It shall also be the duty of pilots or other persons bringing a vessel into the bay of Mobile to hoist a flag at half-mast at the fore until the vessel has been visited by the quarantine physician; and all vessels required to perform quarantine shall keep a flag at half-mast at the fore during the day and a lighted lantern in the same position at night, and no person shall leave a vessel nor visit a vessel at quarantine without a written permit to do so from the quarantine physician.

NOTICE TO MASTERS OF QUARANTINABLE VESSELS ON ARRIVAL AT QUARANTINE STATION.

1. All bedding, ship's linen, cushions (except leather-covered or bound), mattresses, flags, mosquito nets, curtains, carpets, rugs, and all personal baggage and wearing apparel of whatever description shall immediately, on landing at the wharf, be put off for disinfection.

2. All leather-covered or bound cushions, oilskins, boots, shoes, hats, caps, furs, skins, umbrellas, etc., should be placed on deck; also all sails that may be in the sail room or hold.

3. A few hatches should be removed from each hatchway to facilitate the work of fumigation.

4. Captains will inform the superintendent of amount and character of cargo, where placed, and if the same is damaged or not; and whether the decks over cargo are water-tight or not.

5. Captains will describe the character of ballast, if any, and where taken on board.

6. Captains will inform all passengers of the above instructions.

Failure to comply with these orders will entail a penalty.

Fishing, tow, and pleasure boats regularly engaged in navigating the waters of Mobile Bay and Mississippi Sound may be relieved of the restrictions herein imposed as to inspection and payment of fees on application at the office of the quarantine board.

Adopted April 13, 1892.

EXHIBIT B.

Questions to be propounded by the quarantine physician to the masters and captains of vessels at the quarantine stations in Mobile Bay, and to be answered under oath.

From whence is this vessel you command? ———.

How many days have you been on the passage? ———.

At what port or ports have you touched? ———.

Were any contagious or infectious diseases prevailing at the port from whence your vessel sailed? ———.

If so, name the diseases. ———.

Were any contagious or infectious diseases prevailing at port or ports at which you touched? ———.

If so, name the diseases. ———.

Was any freight or passengers received at the ports at which your vessel touched? ———.

If so, give particulars. ———.

Have you any bills of health? ———.

If so, produce them. ———.

During the course of your cruise or passage what cases of disease have occurred on board? ———.

At what dates? ———.

Have any deaths taken place on board your vessel since you left last port? ———.

If so, what date and from what causes? ———.

Are there any sick on your vessel at this time? ———.

Has the yellow fever, smallpox, cholera or plague ever existed in this ship? ——.

If so, when? ———.

Signature of master or captain. ——— ———.

Subscribed before me ——— ———.

Witness: ——— ———.

BAGGAGE CERTIFICATE.

I, ——— ———, master of ———, solemnly swear that I have caused to be pointed out to the quarantine physician, and to be placed at the point directed by him, all the baggage, wearing apparel, cargo, and other effects liable to quarantine inspection, and that I have made a full exhibit of all such goods and effects, within my knowledge, and have secreted and concealed nothing, nor do I know of any such concealment or any other evasion of the quarantine law by the officers, passengers, or crew of this vessel.

——— ———, *Captain.*

Subscribed before me. ——— ———.

Witness: ——— ———

EXHIBIT C.

Questions to be propounded by the quarantine physician to the masters and captains of vessels at the quarantine station at ——, on Mobile Bay, in the State of Alabama, and to be answered under oath.

Port or station, ——. Date of inspection, ——, 18—.

1. Name of vessel. ——.
2. Name of captain or master. ——.
3. Tonnage of vessel. ——.
4. Class of vessel. ——.
5. From what port did your vessel clear? ——.
6. When did you sail? ——.
7. From what port did you clear prior to last clearance? ——.
8. What was your cargo or ballast from that port? ——.
9. What is the number of officers? ——.
10. What is the number of the crew? White, ——; colored, ——; total, ——.
11. What is the number of passengers? White, ——; colored, ——; total, ——.
12. What ports have you touched at during voyage? ——.
13. Was there any infectious or contagious disease at port from which you cleared? If so, what? ——.
14. Was there any infectious or contagious disease at any port at which you touched? If so, where and what disease? ——.
15. Has there been any infectious or contagious disease on board this vessel during the last twelve months? If so, what disease? ——.
16. Have you a bill of health? If not, why? ——.
17. What sickness on board or sent to hospital while in port of clearance? ——.
18. What sickness on board during voyage? ——.
19. What sickness on board since arrival here? ——.
20. Have any deaths taken place on board your vessel since you left port of clearance? ——. If so, at what dates and from what causes? ——.
21. What is your cargo? ——. Where was it obtained? ——.
22. What kind of ballast? ——.
23. Where was this ballast obtained? ——.
24. Have any of your crew or passengers come in contact during the voyage with any vessel having sickness on board, or with any vessel from an infected port? ——.
25. Has any steam tug, or other vessel, or any person, except the pilot, boarded your vessel outside the bar? ——.

I, —— ——, do solemnly swear that I have truthfully answered each and every one of the above questions to the best of my knowledge and belief. So help me God.

—— ——,
Captain of ——, *of* ——.

Witness:
—— ——, *Quarantine Physician.*

EXHIBIT D.

NOTICE.

Tugs will not be allowed to cross the line when vessels sail into the quarantine ground.

Tugs will not be allowed to hang around vessels in the quarantine ground.

Tugs will not be allowed to bring any person not of her regular crew, except pilots, into the quarantine ground.

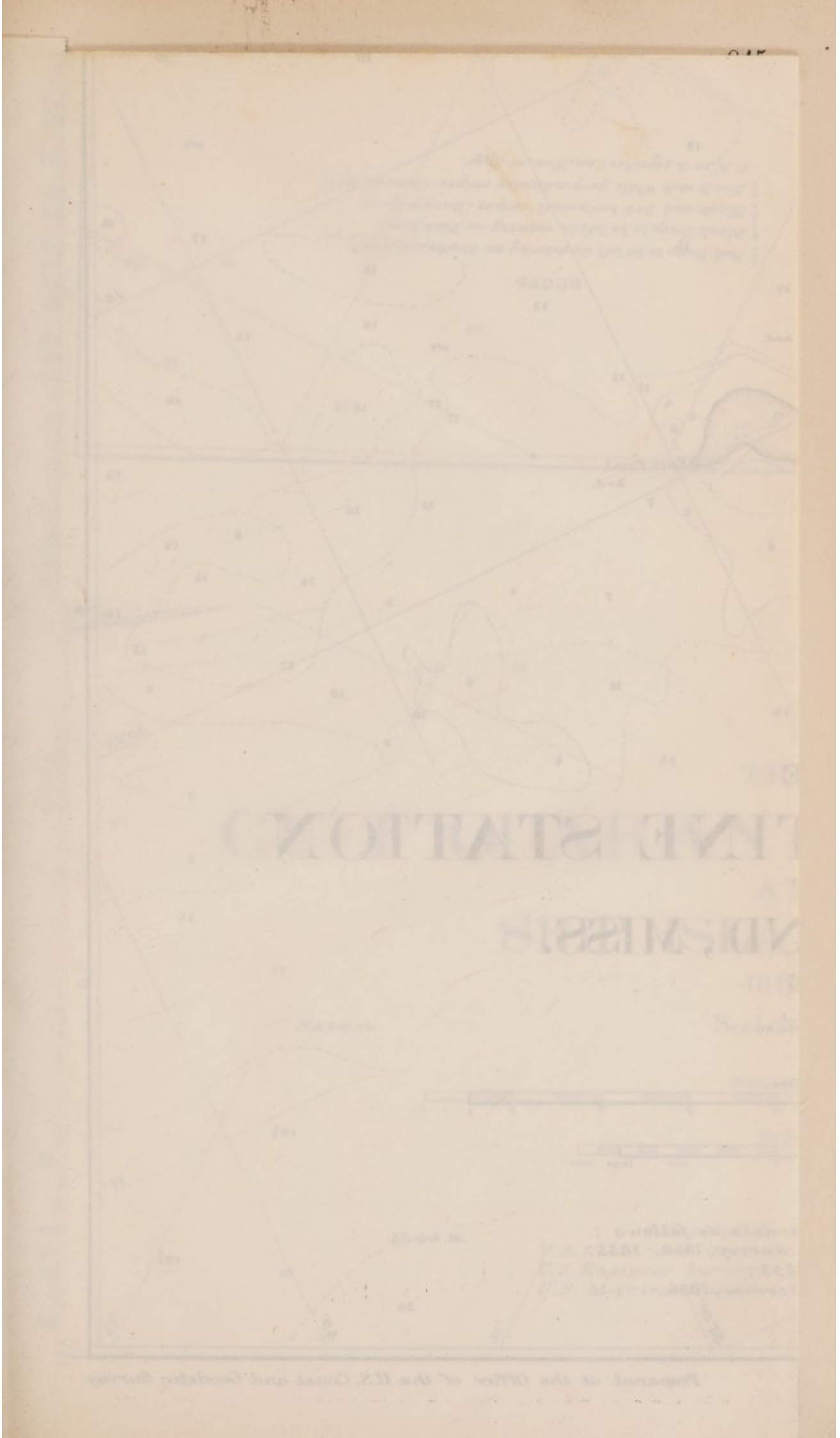
Tugs are warned against coming too near vessels that require moving to or from the wharf.

Tugs bringing vessels into the quarantine ground are expected to leave them at once after the vessel is cast loose.

Tugs are expected to move their own vessels to and from the wharf. Signal for steam, two flags, and if they are not available, the first tug that is available will be used.

Tugs having freight for vessels in quarantine are expected to place the same on the breakwater platform and depart therefrom without unnecessary delay.

Vessels that have been released from quarantine will display two flags for their




THE
GULF QUARANTINE STATION
AT
SHIP ISLAND, MISS.
1896
Scale 1/10
NOTES
SHIP ISLAND CHANNEL
MAIN CHANNEL
EAST CHANNEL
Loggerhead Shoal
Compiled from data as follows:
U.S. Coast and Geodetic Survey, 1844 - 1853
U.S. Engineer Survey, 1853
U.S. Marine Hospital Service, 1896
Prepared at the Office of the U.S. Coast and Geodetic Survey

tugs to take them out. Under no circumstances will tugs or other vessels be allowed to go around promiscuously among vessels undergoing quarantine.

For further information in regard to penalties, please see the United States laws and regulations on quarantine matters.

Special notice to captains.—Giving or selling intoxicating liquors to the employees at the quarantine station is strictly forbidden, and the vessel will be held responsible for any damage for the violation of this notice.

Day signals (for tugs and sailing vessels desiring to enter the quarantine ground between sunrise and sunset).—Tugs will blow three long and three short blasts on the whistle. Sailing vessels will display a flag at half-mast at the fore. Station day signal: The quarantine flag on the tower, lowered about 4 feet from the top of the flagstaff, gives permission to enter.

Night signals (between sunset and sunrise).—Tugs will use the day signal. Sailing vessels will display a red light at half-mast at the fore, and give three long and three short blasts on the fog horn. Station night signal: A red light displayed on the wharf gives permission to enter.

GEO. H. FOWLER, M. D.,
Quarantine Physician.

MAY 1, 1895.

EXHIBIT E.

QUARANTINE STATION, *Mobile Bay*, ———, *189*—.

I certify that ———, of ———, from ———, has, in all respects, complied with the quarantine regulations prescribed by the Secretary of the Treasury, and that, in my opinion, she will not convey quarantinable disease. Said vessel is this day granted free pratique.

———— ————,
Health (Quarantine) Officer, Port of Mobile.

EXHIBIT F.

OFFICE OF QUARANTINE BOARD OF MOBILE BAY,
Mobile, Ala., ———, *189*—.

The ———, of which vessel ———— ———— is master, is, until further notice to the quarantine physician, hereby relieved of all quarantine inspections and payment of quarantine fees. This permit is invalid unless reported to the quarantine physician, and expires on change of master unless otherwise ordered by indorsement hereon.

———— ————, *President.*

Attest:
———— ————, *Secretary.*

MISSISSIPPI.

UNITED STATES QUARANTINE STATION, SHIP ISLAND, GULF OF MEXICO.

By Surg. R. D. MURRAY, M. H. S.

Name of quarantine station: Gulf.

When was the station last inspected? March 24, 1896.

Name of inspecting officer: Surg. Fairfax Irwin, M. H. S.

I. PERSONNEL.

Name of officer in command: A. C. Smith, passed assistant surgeon, Marine-Hospital Service.

Date of assignment to duty: March 10, 1896.

Name and rank of assistants, including acting assistant surgeons; also give number of members in each family: J. A. Moncure, M. D., acting assistant surgeon; immune; aged 52; Virginia Medical College, 1877; married; no family at station.

Name of steward and number of members in family: F. H. Peck, Ph. G.; non-immune; unmarried.

Name and duties of each attendant: Oscar Frantzen, aged 36, immune, Norway, declared intentions, head boatman; Alfred Johansen, aged 43, immune, Norway, citizen, carpenter and nurse; Judson C. Batton, aged 27, nonimmune, Mississippi, citizen, boatman and nurse; Edwin Batton, aged 21, nonimmune, Mississippi, citizen, boatman; W. S. Johnson, aged 24, immune, Mississippi, citizen, cook; John Williams, aged 23, immune, England, citizen, boatman and ballastman; Amanda Underwood, immune, Mississippi, citizen, laundress. Steamer *Welch:* Joseph C. Delmas, aged 46, immune, Mississippi, citizen, master and pilot; J. J. O'Connor, aged 43, immune, Illinois, citizen, engineer; Harry Nelson, aged 25, nonimmune, Norway, citizen, cook; D. G. Mitchell, aged 34, immune, Nova Scotia, citizen, fireman; Barth. Larsen, aged 22, immune, Mississippi, citizen, deck hand; Irving Delmas, aged 19, immune, Mississippi, citizen, deck hand.

II. GENERAL DESCRIPTION OF STATION.

Number of buildings: Two east of lagoon; surgeon's house and yellow-fever hospital; five west of lagoon, (1) executive building, (2) storeroom, (3) crew dormitory, (4) laundry and carpenter shop, (5) boat house.

Limit of anchorage for noninfected vessels: One mile northeast to southwest by 1 or more miles northwest to southeast.

Limit of anchorage for infected vessels: Similar-sized area to northeast and east, with room to obey the Mississippi law to keep infected vessels 1 mile from healthy ones.

Facilities for inspection of vessels: One 25-foot naphtha launch, *Aimee;* one 27-foot whaleboat, *New Karlie;* one 17-foot Whitehall and two yawls, all fit for sea work; one small yawl and two skiffs for carrying messages, etc., in calm weather and for use in lagoon.

Apparatus for disinfection of vessels and of baggage: Steamer *Welch*, with boiler and tanks and pump; schooner *Zamora*, with boiler, steam chest, tank, sulphur fan, steam and hand pumps; Dutch ovens for cabins and forecastles.

Facilities for removal and treatment of sick: Boats, as described; one hospital, as described. No facilities for convalescents. Hospital should be rearranged.

Facilities for removal and detention of suspects: Could be removed by the described boats, but there is no place for detention. There should be a building set apart for them. At present they must stay on board.

Mail and telegraph facilities: Mail three times a week by steamer to Biloxi. In emergency the whaleboat may be sent; four hours beating or rowing; one and one-half to two hours in full wind. Telegraph facilities same as for mail.

Give number of wharves: There are no working wharves. The two bridges, 700 and 900 feet long, are boat landings.

What is the length of the wharf frontage? None, except for small boats.

Are the wharves in good condition? Pine piles, which need protection by metal or iron boxing. Built in 1894. Good for one year more; decks good. Heads should be covered.

Are the mooring facilities ample? Anchor mooring exclusively. The holding ground is good. No vessel properly anchored ever dragged.

What is the depth of water at mean low tide along the front of the wharf? No working wharf; 4 to 5 feet at heads of the boat landings.

What is the source of water supply? From station cisterns; 3 at executive building, 3 at surgeon's quarters, 2 at yellow-fever hospital.

Is it sufficient? Yes, with economy in early summer. Water from boats must be bought for boiler use.

Is it potable? Yes; sweet and pure in old cisterns.

Hard or soft? Soft from cisterns; somewhat hard from water boats.

If hard, does it injuriously affect the boilers in use at the station? The engineer says the boat water from Biloxi is not hurtful to the boilers.

How is it distributed and stored, if storage is necessary? Station, shore water in 8 cisterns; steamer and schooner, in tanks on board. One cent per gallon. There is no distribution.

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant: Steamer *Welch* with boiler, bichloride tanks and pump, and salt-water pump. Schooner *Zamora*, disinfecting steam chamber, sulphur furnace, and fan with pipes, boiler, bichloride and salt-water pump. Hand pump for spraying floors and containers. Dutch ovens.

What is the general condition of all machinery? Old-style furnace for sulphur on *Welch* burned out. Hot well in steamer *Welch* is broken, being clamped. Some boiler and condenser tubes leak and are plugged. Machinery is clean and bright. Boiler on schooner *Zamora* is too small; needs a new injector. Steam chest and furnace in good condition.

Does it appear well taken care of or neglected? It is evident that every effort is made to keep the machinery in working order, but the distance from a supply store and lack of a station shop cause delays in repairs.

Is there a steam hoisting engine for ballast? No.

Are there ballast tubs and a ballast car for the distribution of ballast? No.

How is ballast disposed of? It is placed on a 35-ton station barge by the vessels' crews, and, if rock, is placed inshore to make a small-boat breakwater. If sand or rubbish, it is thrown in shallow water. A station man watches the discharge.

Is it disinfected prior to being discharged, and what facilities exist for supplying ballast to vessels needing it? Not unless the vessel is infected. There are no facilities for supplying ballast except to order ballast logs or order part of cargo to use as stiffening. No scheme for saving rock.

What are the dimensions of the steam disinfecting chamber? Eight by 8 by 15 feet. Francis Bros., Philadelphia, Pa.

Is it rectangular or cylindrical? Rectangular. One end opens. The deck house should extend 20 feet forward.

How many cars are provided? Two; but there is room for use of but one.

Are infected articles put in at one end and brought out at the other after disinfection, or is one end of the chamber used for loading and unloading? One end is used for loading and unloading.

Is the chamber provided with thermometers for indicating the temperature during the process of disinfection? Yes; placed in the door which opens.

Is the chamber equipped with any apparatus for the production of a partial vacuum? What is the nature of the appliance? If efficient in operation? No; a steam atomizing jet might be attached, but the *Zamora's* boiler is not large enough to supply sufficient steam.

What vacuum is produced and how long does it take to obtain it? There is no vacuum gauge to measure even that made by steam.

Is a sulphur furnace provided? Yes; that on the steamer *Welch* is worthless. That on the schooner is a Valk & Murdoch double.

Give a diagram of the method of gas distribution, showing the number of gas outlets: There is but one outlet, 10-inch. In case of iron-bulkhead vessels the pipe is shifted to different holds by moving the schooner when pots are not used. Not possible to make a diagram, as the pipes run around the house on stern of schooner.

How many feet of sulphur hose are provided? Two sections of 20 feet, 6-inch, 40 feet; 70 feet of galvanized iron, 10-inch, spiral.

What is its condition? Good, almost new, seldom used. Galvanized pipe also good.

What is the condition of the fan and engine? That on schooner *Zamora* is in perfect condition. The fan on *Welch* perhaps rusted out.

What is the method of storing bichloride solution? On *Welch* in two iron tanks of 600 gallons each. On *Zamora* 1,200-gallon wood tank.

What is the capacity of the tank or tanks? Steamer *Welch*, two 600-gallon, iron; schooner *Zamora*, one 1,200-gallon, wood.

Are they wood or iron? Those on *Welch* being scraped, should be painted with graphite.

What is the elevation of the tanks above the wharf flooring? None; steam pumps are used.

Is the solution distributed by gravity or is there a pump for the purpose? Steam is now given by steamer *Welch*, if she runs, or by boiler on schooner *Zamora* to a Deane duplex pump. Condition good.

How many feet of hose are provided for the distribution of the bichloride solution, and what is its size and condition? Twenty-five feet assorted hose; 100 feet 1-inch hose; 200 feet 1½-inch hose; all in good condition.

How many steam boilers are provided? One small upright on schooner *Zamora;* one tubular on steamer *Welch*.

What is their condition and do they supply sufficient steam for all purposes? That on *Zamora* is too small for quick work; needs an injector; that on *Welch* is large enough for all purposes. Both in good condition.

IV. BOATS.

Is the station provided with a steam tug or other steam vessel? Yes; the United States quarantine steamer *Welch*.

If so, is she of wood or iron? Iron to the bulwarks.

Give dimensions? Length, 104 feet; beam, 16⅓ feet; draft, 5 feet.

If of wood, is the vessel sheathed with metal? Iron hull.

Are the engines and boiler in good condition? Yes; boiler works well and engine is as clean as possible.

Give engineer's statement as to necessary repairs and renovation? Condenser needs some new tubes; hot well was cracked by freezing last winter; is now being clamped; minor articles are frequently needed, which should be provided in advance.

NOTE.—I think it would be better to lay the *Welch* up in the lagoon, and thus permit the engineer to work on her the whole winter. For this tools will be needed.

Is the station provided with a steam or naphtha launch? A naphtha launch, *Aimee*.

Give dimensions: Twenty-five feet 4 inches, 7 feet beam; bought in 1891.

What is its condition? Good; clean and bright; makes about 4 miles an hour.

Give report of medical officer as to efficiency of the launch: Very useful for boarding in calm weather.

How many small boats are provided and what is the condition of them and their equipment? One excellent sloop whaleboat, 3 yawls, 1 lifeboat, 1 new Whitehall, 2 skiffs, 1 lifeboat on *Welch*.

Are more boats necessary or desirable? A new whaleboat should be provided or arranged for, in case an accident occurs to the one in use, which is 6 years old. A whaleboat is invaluable, and of more use than a naphtha launch.

V. HOSPITAL.

Give location of building used as hospital: About 100 yards east of lagoon on site of former yellow-fever hospital.

Give general description of the building: Rectangular, with piazza all around, a corner of south-end piazza being inclosed for bathroom. One ward on west side of 8-foot hall. Four rooms on east side for surgeon, kitchen, nurse, and dining. A very faulty plan.

Dimensions: Forty by 50 feet; 56 by 66 feet over all.

Number of beds in each ward: One ward, eight beds.

How many beds can be added for emergencies? Three or four.

Cubic air space allowed each patient: Nine hundred and seventy-five; but windows will be open.

Heating, lighting, and ventilating: Stoves, lamps, air; all good.

Has the hospital sufficient furniture? Yes.

What kind of bedsteads and what kind of mattresses and bedding? Iron beds; moss mattresses; service pattern.

Condition of bedding used by patients: Good; never used.

Are the beds clean and free from vermin? Yes; never used.

What is the condition of wards as to general cleanliness? Very clean; never used; new.

Is the nursing sufficient and is the nurse immune? No; to be employed on occasions; one man, a good nurse—Johansen.

Does the character of the diet furnished conform to that prescribed in the diet table for marine hospitals? As near as situation permits.

Is a proper record of the patients under treatment kept? Records will be kept on "A B C" plan.

VI.—OUTBUILDINGS AND GROUNDS.

Describe general condition of outbuildings: West side good; east side needs walks.

Are the grounds well policed? As well as possible; some lumber to be gathered up.

Describe officer's quarters and condition of furniture: Eight rooms and cross hall; too low in the ground; clean and sufficient; east side.

Describe steward's and attendants' quarters, and condition of furniture: Small; clean; furniture for steward and acting assistant surgeon good; double beds a mistake.

Describe dining room, condition of table furniture, and tableware: In surgeon's house, 10 by 12; in executive building, 8 by 10; close and hot; furniture ample.

Describe kitchen and furniture: Ten by 16 in executive building; comfortable; sufficient appliances. In surgeon's house, 10 by 12; good; airy.

Describe dispensary: A 10-by-19 room in northeast corner of executive building; carpet on floor; too small; should be on east side.

Describe laundry: Large; 10 by 20; cool; in outhouse, under roof, is carpenter shop and sulphur-gas closet.

Describe approaches to the station: West wharf, 900 feet to executive building; east wharf, 700 feet to surgeon's house.

Describe condition of fences and grounds: A board fence around west side reservation of old lumber; good walks of old flooring saved from old lazaretto; east side, no fence yet; grounds incapable of being put in good shape.

Describe drainage and condition of water-closets: Drainage natural, silex and marsh; water-closets are pits; some bricked; some over marsh; safe at all times.

Describe disposal of slops: Fed to hogs or thrown into the sea.

State whether any animals not authorized by the Department are kept on reservation: Some owned cattle and hogs on the island; none on the 10-acre reservation.

VII. EQUIPMENT.

State approximately age and condition of each horse, and how long in service at this station: No horses.

Give number and character of vehicles: No vehicles.

Is there a blacksmith's forge provided? No; but one is frequently needed, as in olden time.

Are there farming implements; and if so, are they in good condition? None.

Is there a fire apparatus provided; and if so, is there a fire drill organized? Ten Babcock fire extinguishers and buckets. No time for drill since March 10, but men are instructed.

VIII. DISCIPLINE.

Are officers and employees supplied with uniform in compliance with the revised uniform regulations dated June 20, 1896? Uniforms of July 3, 1893, are in use by all employees who are over one month in service.

Are uniforms properly worn? Yes.

Give method of granting leaves to officers and employees: The Marine-Hospital Service regulations are followed.

Describe when and how inspection, muster, and fire drills are conducted: Inspection of quarters and muster of men every Sunday morning when work is not compelled on vessels. I had no time to observe the method; fire drill to be taken up soon.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year, by months:

1895.	From foreign ports.	From foreign via domestic ports.	From domestic ports.	Cargoes.	
				Ballast.	Empty.
January	4	0	0	4	0
February	8	0	0	8	0
March	4	0	0	4	0
April	5	0	0	4	1
May	12	1	0	8	5
June	6	0	2	5	3
July	8	0	0	5	3
August	15	0	1	10	6
September	8	1	2	5	6
October	8	1	2	6	5
November	6	0	1	7	0
December	4	1	0	4	1
Total	88	4	8	70	30

From what countries chiefly do the vessels come? Of these 100 vessels, 19 came from England, 15 from Brazil, 17 from Mexico, 14 from Cuba, 8 from West Indies, and 27 from home and other ports.

Are they in cargo, ballast, or empty? Seventy were in ballast, 30 had swept holds; no cargoes.

State whether in your opinion the quarantine facilities are sufficient to care for the shipping arriving at the station? The facilities for discharging ballast are insufficient, and that expense should not be met by the station. Privileges for hiring lighters at vessels' expense should be given. The disinfecting means are sufficient for two ships per day, but a convenient dormitory for crews in bad weather is a great want. Hospital chances are meager.

Treatment of vessels and cargoes.

1895.	Inspected and passed.	Discharged ballast.	Disinfected.	Character of ballast.				
				Water.	Sand.	Earth.	Stone.	Rubbish.
January	4	0	0	0	1	0	1	2
February	7	1	1	1	6	0	0	1
March	2	2	2	1	0	0	2	1
April	2	3	3	1	0	0	3	0
May	6	3	7	2	4	0	2	0
June	2	2	6	3	2	0	1	0
July	3	3	5	1	2	0	1	1
August	7	4	9	0	3	0	7	0
September	3	4	8	1	2	0	2	0
October	4	3	7	1	3	1	1	0
November	6	2	1	2	2	1	0	2
December	3	2	2	0	4	0	0	0
Total	49	29	51	12	29	2	20	7

This report has been delayed in order to procure extended information in regard to ballast. The first half of this year having passed, Dr. Smith very kindly sends me details up to June 30, 1896, as follows:

Arrivals for the six months ended June 30, 1896.

Month.	From foreign ports.	From yellow-fever ports via domestic ports.	From domestic ports.	Cargoes.	
				Ballast.	Empty.
January	7	0	0	7	0
February	17	0	1	15 *a* 1	2
March	7	0	0	6	1
April	13	0	3	15	1
May	19	0	0	13	6
June	9	1	4	10	4
Total	72	1	8	67	14

a Lumber.

Of these 81 vessels arriving during the first half of 1896, 20 came from England, 10 from Mexico, 7 from the West Indies, 6 from Cuba, 8 from United States ports, with 19 from scattering ports.

Treatment of vessels.

Month.	Inspected and passed.	Discharged ballast.	Disinfected.	Character of ballast.				
				Water.	Sand.	Earth.	Stone.	Rubbish.
January	7	0	0	2	4	0	0	1
February	18	0	0	0	6	0	8	1
March	5	2	2	2	0	1	2	1
April	15	1	1	5	4	0	5	1
May	10	5	9	5	3	1	3	1
June	12	1	2	1	5	0	4	0
Total	67	9	14	15	22	2	22	5

It will be understood that the water ballast was carried by steamships. I have not time to analyze the sources of the ballast, but the subject is interesting; also, what is actually meant by "rubbish."

The following questions were submitted to Passed Assistant Surgeon Smith: Q. Have you sufficient facilities for discharging ballast?—A. The facilities are only moderate and might fail us entirely if the barges in use for that purpose should

spring a leak. Q. Would you like to hire lighters at vessel's expense to take out ballast under your direction?—A. Yes.

In June one vessel was considerably delayed because the barge was being used by a preceding vessel. I advise that P. A. Surgeon Smith be authorized to permit a vessel to hire a schooner lighter to take out ballast, the vessel to pay the cost if the master prefers to pay rather than to wait. There are several schooners that can be got on a day's notice. It will be necessary to wash the schooner after completion of each vessel. A schooner can be hired for time by the Service. There is an effort being made by the Ship Island harbor master to place a man at the station to supervise the discharge of ballast. This will cost each vessel from $2.50 to $4 per day while ballast is being put out, and will put an extra resident at the station. I think the ballast control can well and safely be left in the hands of the officer in command.

Give annual amount expended at station for last three years: In 1893, $15,647.76; in 1894, $16,506.81; in 1895, $17,959.52; total, $50,114.09.

Give the immediate needs of the station as stated by the commanding officer: Forge and blacksmith tools; artesian well; telephone from surgeon's house to executive building; lagoon bridge (or removal of station, all to east side); at surgeon's house, new quarters for attendants; heating executive building better; requiring new chimneys and stoves; more employees to police grounds and erect fences from old lumber.

Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

REMARKS AND RECOMMENDATIONS.

The writer served at Ship Island Quarantine from November 1, 1883, till February 27, 1888. His service at Chandeleur for four and one-half months in 1891 added to his favorable impressions as to the appropriateness of Ship Island as the proper location. This prelude seems necessary to what remarks he may make as to the needs of the station.

Ship Island is a safe harbor, and the holding ground is excellent. There is room for all possible loading, and any reasonable number of quarantined vessels of both suspected and infected classes. The distance from the mainland and from the loading harbor is sufficient for all safety—no distance will obviate insensate fears or the bogy stories of unfriendly critics.

In 1879 the National Board of Health proposed to absorb the whole island, and this idea was carried out in some measure until I took charge. I at once forsook control of the west end, except as custodian and health officer, permitting all vessels in the loading harbor to have free access to the island and the mainland, but keeping the quarantine anchorage always subject to my personal oversight and control. Now that the warehouse has been destroyed and the large wharf is a ruin, the west end is of no interest to the quarantine commandant. But the loading fleet should yet and always be under his control in order that he may be the first to know of any sickness in the vessels and also that no vessel may come into the harbor without his permit.

JUNE 4, 1896.

UNITED STATES QUARANTINE STATION, SHIP ISLAND, AND ITS RELATION TO THE PORTS IN THE SHIELDSBORO COLLECTION DISTRICT.

By Surg. R. D. MURRAY, M. H. S.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and baggage; facilities for

removal and treatment of the sick, and for removal and detention of suspects mail and telegraph facilities, etc.

In order to properly comprehend the quarantine service on the coast of Mississippi, it is necessary to take a view of Mississippi Sound and the ports on the coast which have any foreign traffic or trade with infected ports.

In my report on Round Island Quarantine, the sound, islands, and passes were briefly described, and inquirers are referred to that report for information not found in this. But to make the matter clear, Ship Island Quarantine must be described, as it is the only safeguard from Tampa to New Orleans, after which notice may be taken of the loading berths and lumber points on the coast.

Ship Island was chosen as the best location for a middle gulf station by a committee of the National Board of Health in 1879, after a careful examination of the entire coast from Apalachicola to Southwest Pass. It is fair to infer that if the uselessness of the Tortugas as a military menace had been appreciated, the committee, having means and time unlimited, would have thought of the useless group of islands and have proposed to turn them and Fort Jefferson to some advantage. A full knowledge of gulf commerce, always keeping in mind the ability of New Orleans and Galveston quarantines to take care of all infected or suspected vessels that would or might come to them, would have resulted in the selection of Tortugas as the chief, or maybe only, quarantine for the eastern and middle gulf.

Ship Island having been selected in 1879, a quarantine was proclaimed and $35,000 was expended in building a wharf and warehouse (useless from the first), a hospital, lazaretto, and quarters. A fine steamer was purchased to serve as a station while construction was going on. That the steamer was unfit for the duty may be shown by the fact that she had been a private yacht. In 1880 the station was opened from the island with the steamer as an aid, and thus the quarantine was conducted until 1884, when the steamer was condemned as useless and was finally sold as old iron.

The National Board abandoned the station in mid season of 1883, and the Marine-Hospital Service was compelled by every interest to assume charge. Quarantine duties were performed by officials of the Marine-Hospital Service to the satisfaction of all related ports until 1886, when the New Orleans board of health came to the conclusion that their substation at Pass a L'outre was too costly, and that expenses might be saved by getting the General Government to take charge of the affair; this idea brought about scares, canards, local quarantining, and public turmoil in regard to the nearness of Ship Island to the mainland, and the strife was kept up until the General Government was apparently forced to get away from there and make a faulty move to Chandeleur. Although the Chandeleur Islands had been condemned, both by a committee of the National Board of Health in 1879 and a commission appointed by the Treasury Department in 1883, as a suitable location, a new commission was formed by the Marine-Hospital Service, which in 1888 advised the removal of the United States station to that point. Large sums were expended in putting up beautiful structures, and in 1889 they were occupied, resulting in the loss of half a dozen vessels by wrecking, and in 1893 of the whole business and five lives in a hurricane. Thus in the autumn of 1893 the station was removed to Ship Island, which so far, in spite of force of wind and water, presents the appearance of being solid. Ship Island offers the triple advantage of being easily reached and of harbors deep and large enough for both quarantine and loading purposes. Fifteen to twenty-five vessels may be quarantined at the same time that as many may be loaded 3 miles away. Ship Island is 8 miles long and curves from northeast to west; it is 8 miles distant from Horn Island, on the east, and between lie Dog Keys, which are only good for wrecking purposes. Cat Island is larger in area; lies to the west 6 miles distant; it is about 5 miles long from east to west, and has a spithead of 4 miles running north and south, making

the shape like a rude letter T. There is a 12-mile light on the west end of Ship Island, and an 11-mile light on the west end of Cat Island, and 6 miles west of the latter is the Merrill Shell Bank light.

The Ship Island loading berth is under the west end of the island, protected by the fort and the light-house dunes. The Cat Island loading berth is south of and between the last-named lights; the former has 25 feet or more of water; the latter from 14 to 16 feet.

The Ship Island Quarantine—officially known as "Gulf"—is located on two sides of the lagoon, 5 miles east of Fort Massachusetts, which is on the west extremity of the island. On the west side of the lagoon are a small hospital—too small—for noninfects, quarters for steward, assistant to the medical officer, and storerooms, five structures in all. On the east side are the medical officer's residence and a large hospital for quarantinable diseases. Some additional buildings are needed to make the shore part of the station complete for the comfort of the workers and the safety of those who must seek its shelter. Good landing wharves run out from each side of the lagoon to about 4 feet of water at lowest tide, for communication with the quarters.

The anchorages are ample to accommodate a reasonable number of both infected and noninfected vessels, and permit the required mile of the Mississippi statute to be between the different classes. The holding ground is the very best, and vessels of 20 to 22 feet can be cared for. The facilities for inspection of vessels consist of a 25-foot naphtha launch and an excellent water-boarded whaleboat.

The apparatus for disinfection of vessels and of baggage consists of dutch ovens for staterooms, hand pumps for carbolic solution, and steam pumps for salt water and bichloride solutions, and two vessels—a steamer, the *Welch*, with a large boiler and bichloride pump and tanks and a sulphur furnace and fan, and a schooner, the *Zamora*, with boiler, steam pumps, sulphur furnace and fan, and an 8 by 15 feet rectangular steam chamber. For ballast, two scows are at hand with which the crews carry ballast to the shoal water. The steamer *Welch*, on occasion, tows vessels and the ballast barges.

The facilities for removal and treatment of sick consist of the launch and whaleboat and a hospital for each class of troubles; for noninfected on west side; for infected on the east side; also two physicians and a steward, and a liberal supply of medicines and hospital furniture.

There are facilities for removal of suspects as noted above, but there are no facilities for their detention. There is space on the island for sufficient structures, and in time it is probable that good counsel will prevail, and that the station will be outfitted to a point beyond cavil.

The mail facilities are per a boat three times a week from Biloxi, 13 miles north. There is a telegraph office at Biloxi, and in case of necessity the whaleboat can be sent over at any time, or in greater urgency the steamer *Welch* may be dispatched.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

The station is under the command of a medical officer of the Marine-Hospital Service, who has a steward and an acting assistant surgeon of the same Service to give all necessary assistance. At present there are seven employees serving as carpenter, boatmen, cook, and laundress, who are of the shore crew, making ten on shore. The force in charge of the steamer *Welch* and schooner *Zamora* consists of six, all of whom live on the steamer, but work as occasion requires. Thus the total personnel consists of sixteen. The post-office address is Ship Island Quarantine, Biloxi, Miss.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

The regulations of the Treasury Department approved April 26, 1894, and subsequent additions are strictly followed. The quarantine customs of the port are to strive to carry out the letter of the local laws of the port to which the vessel is bound. The majority of the vessels are to load at Ship Island Harbor, at the west end of the island. These receive regular treatment and detention. Some vessels are ordered to the station from Apalachicola, Mobile, and Round Island. Such vessels would, or should, receive such treatment as would be requested by the quarantine officer sending them for treatment.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

Practically none, but on request the detention would be increased. There is some tardiness in case two or more vessels arrive with ballast, as the ballast barges are not large enough to permit a full day's work, and of course a later vessel will have to wait on a previous arrival. The subsequent inspection of vessels by a Mississippi State board of health agent, who lives at Biloxi, is a cause of useless delay in the forwarding of the business of local vessels.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

All vessels coming into the harbor are inspected, foreign vessels the year round and domestic-port vessels in summer. It would be well if the Mississippi extra inspections were discontinued and that the medical officer had absolute control first and last of all arrivals.

6. Are vessels from other United States ports inspected?

Yes; in summer.

7. Describe quarantine procedures in inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessel until discharge.

The United States Treasury regulations are followed throughout.

8. What communication is held with vessels in quarantine (and before quarantine, by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

None. Masters may meet on shore, by getting permission, after their vessels are disinfected. Pilots do not go on infected vessels in ordinary; if they do, they are treated in quarantine. No intercommunication is allowed between vessels in quarantine except by permission of the medical officer, to be obtained in each case.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

In each case the Treasury regulations will be carried out to the letter.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Complete records are kept, as prescribed by the Marine-Hospital Service.

11. Transmit schedule of quarantine fees and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

There are no fees directly consequent on the quarantine process. Sick foreign seamen are charged at the rate of $1 per day for care and attendance. United States seamen are treated at United States marine hospitals. The subsequent inspection fee assessed by a Mississippi board of health inspector for vessels that load in Mississippi waters is $5, but this is useless. There may be some cost to

the vessel for pilots who are detained in quarantine, but this is unusual, and if pilots are immune should never occur.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

1895.	Foreign ports.	Foreign ports via domestic ports.	Domestic ports.	Cargoes.	
				Ballast.	Empty.
January	4	0	0	4	0
February	8	0	0	8	0
March	4	0	0	4	0
April	5	0	0	4	1
May	12	1	0	8	5
June	6	0	2	5	3
July	8	0	0	5	3
August	15	0	1	10	6
September	8	1	2	5	6
October	8	1	2	6	5
November	6	0	1	7	0
December	4	1	0	4	1
Total	88	4	8	70	30

Of these 100 vessels, 70 carried ballast and 30 had swept holds; 19 came from England, 14 from Cuba, 17 from Mexico, 8 from West Indies, 15 from Brazil, and 27 from Europe and domestic ports; 49 were inspected and passed, 29 discharged ballast, and 51 were disinfected. The destinations of these vessels were: Fifty-eight for Ship Island loading berth, 35 for Pascagoula (Horn and Round islands), 1 for Shieldsboro (Pearlington), 1 for Moss Point (Pascagoula), and 5 for Mobile; 95 per cent for the Shieldsboro district.

Arrivals for the six months ended June 30, 1896.

Month.	From foreign ports.	From yellow-fever ports via domestic ports.	From domestic ports.	Cargoes.	
				Ballast.	Empty.
January	7	0	0	7	0
February	17	0	1	{*a* 1 15	2
March	7	0	0	6	1
April	13	0	3	15	1
May	19	0	0	13	6
June	9	1	4	10	4
Total	72	1	8	67	14

a Lumber.

Of these 81 vessels, 66 carried ballast, 14 had swept holds, and 1 was lumber loaded, in distress; 20 were from England, 6 from Cuba, 10 from Mexico, 7 from West Indies, and 27 from Europe and domestic ports; 67 were inspected and passed, 9 discharged ballast, and 14 were disinfected. The destinations were as follows: Sixty-one for Ship Island loading berth, 14 for Pascagoula, (Horn and Round islands), 2 for Shieldsboro (Pearlington), 1 for Biloxi, 1 for Handsboro, 2 for Mobile; 79 out of 81 for the Shieldsboro district.

Having in a too rapid manner given a hint of the principal quarantine on the

coast, it is necessary to state that vessels from infected ports intended to load at Horn or Round island are always sent to it for treatment. In case sickness should occur on a vessel after she had left Tortugas for Apalachicola it is probable that she would prefer to go to Ship Island than to return to Tortugas; it is certain that an infected vessel for Mobile would be sent there and probable that a badly infected vessel for Pensacola would also have to seek shelter and relief there.

At this point I must allude to the towns on the coast that have relations and proximity to the station. Scranton and Pascagoula on the east have been included in the report on Round Island. Biloxi is a thriving town of 5,000 inhabitants, lying 13 miles north of the island. It is prosperous owing to its canning factories, and is a noted summer resort. There is a deputy collector of customs here. The Seashore Camp Ground is 2 miles west, and the gathering every summer for three weeks or a month of thousands of up-country people in sight of the tree tops and mastheads of Ship Island gives rise to a lot of useless talk and more foolish dread of quarantine failures. Biloxi has no interest in the quarantine except that the mail and supplies come through there; but the village gets all the rumors and more than the possible truth from pilots, stevedores, sailors, and visitors. There is another relation, as will be seen under Handsboro. The town had three cases of smallpox in July, 1895, introduced from New Orleans, but they were so well handled that there was no spread.

Mississippi City lies west of Biloxi and 16 miles west of north of the station. It is the capital of Harrison County; a small place, whose chief business is in summer and at court sessions.

Handsboro is located on Biloxi River, about 4 miles overland back (north) of Mississippi City. The place has a population of about 600, and has three large sawmills, one of which does an exporting trade in addition to a large domestic business. The lumber is carried out the Biloxi River to the Gulf, a distance of 13 miles. In 1895 one vessel was loaded at the mills for Cuba. In the six months ending June 30 two vessels were loaded for Cuba at the mills and one at Ship Island. About 1,000,000 feet were delivered to other parties at Ship Island. About 5,000,000 feet of lumber are shipped annually, the greater portion to near-by ports, in schooners that will carry from 25,000 to 40,000 feet.

Gulf Port is a new village located about 2 miles west of Mississippi City, which it is proposed to make a shipping point, and a wharf of a mile or more in length is being constructed out into deep water in the direction of Ship Island. It was intended ten years ago to use the island for the practical terminus of the railroad, and this gave some argument for the discontinuance of the United States quarantine at that point. I have reason to believe that both interests can be served without injury to either and to the great advantage of the railroad, and so expressed myself in 1885, when the project was first broached. However, it is necessary to think of Gulf Port and the railroad when planning improvements for the quarantine.

Pass Christian lies about 10 miles northwest of Cat Island light and 8 miles northeast of Merrill Shell Bank light. It is an important summer resort, and has no relations with the quarantine except that light-draft vessels lie off from it between, but south of, the lights, and load lumber which is towed from Pearlington. Four vessels were loaded here in 1895, and every year as many or more are loaded. Vessels pass through here into the Rigolets to Lake Pontchartrain drawing 6 feet. There are 8 feet of water at high tide through the Rigolets Channel. This is also the route to Pearlington.

Bay St. Louis (Shieldsboro in custom-house parlance) is about 8 miles west of Pass Christian and on the west side of Bay St. Louis. Some lumber, ties, and timber are produced on Wolf River, back of it, and brought down in small schooners and rafts, but the quantity is limited. The custom-house of the

district is located there, but at present neither the collector nor the deputy lives in the town. It should be remembered that the two other custom-houses are at Biloxi and Pascagoula.

Pearlington is a lumber town of 2,000 inhabitants, located 12 miles up Pearl River from English Lookout, where the river joins the Rigolets Channel to flow into the Gulf. From this point 26 vessels were loaded at Ship Island with 13,000,000 feet of lumber in 1895 for foreign ports and 443 small vessels were loaded with 16,000,000 feet of lumber for domestic ports in the same year. Four vessels were loaded at Pass Christian.

In March, this year, a schooner from New Orleans introduced smallpox into the village, and as a result there were 9 cases at a total cost of $800.35.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The customs officer acts as immigration agent, but as all vessels come in without cargoes, the only immigration consists of discharged or runaway sailors, of whom no count can be made. There were for the district during the fiscal year 1895, 194 foreign-port entries, 204 foreign-port clearances, 36 domestic-port entries, and 59 domestic-port clearances.

At Ship Island and Cat Island loading berths there were loaded for foreign ports during the eighteen months ending June 30, 1896, 116 vessels and 8 vessels for domestic ports, with a total of 50,500,000 feet of lumber and 750,000 cubic feet of timber. At Horn Island and Cat Island loading berths there were loaded during the calendar year 1895, 169 vessels for foreign ports and 43 vessels for domestic ports. I have been unable to get the quantity of pine that was shipped.

At the custom-house I found that from December 1, 1893, to April, 1896, there had been eighteen cases of failure on the part of masters to procure duplicate bills of health at the foreign port, as required by the act of February, 1893. The fines in nine of the cases were remitted; in nine cases fines were assessed, viz, two at $10; one at $15; two at $20; three at $25, and one at $50. The case in which the fifty dollar fine was assessed was peculiarly aggravated, and it is to be regretted that the fine was so small. The Russian bark *Paul* left Limerick without the two bills, although the master was notified by Consul Ashby of the requirements of the law. The consul notified the Department of the case, which made the fourth similar one from that port, and the Department before the arrival of the vessel ordered proceedings to be instituted against the vessel. On arrival the master made an affidavit utterly denying the consul's statement as to notification, etc. The vessel was finally entered on the payment of $50.

It has come to my knowledge very often that foreign masters care very little for our laws and methods, and fancy that by some good lying the faults of which they are guilty will be pardoned. It is a common custom for vessels to get the crew or a considerable part thereof after being ready for sea. Under such circumstances a master can afford to pay a pittance as a fine, or, better yet, swear to a lie. Except from ports where there is no consular officer within 20 miles, there should be no leniency shown.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port?

The facilities are ample for the shipping. More buildings are needed for sick men and as quarters for the shore force. A ballast crib to expedite the discharge of ballast is worthy of consideration, or the substitution of copper-sheathed schooners for the ballast barges.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The United States Treasury regulations are fully observed as to disinfection and detention.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes; official forms are used. (Copy inclosed.)

17. What disposition is made of the consular bills of health?

One is retained and the original given to the vessel for deposit in the custom-house. A better plan is to indorse both on the day of arrival and return them to the vessel when she is discharged; thus an extra inspector at a final port may keep one and the custom-house get the other. All essential facts in the bill of health can be put in the declaration or inspection book, where they are more quickly found than if stowed away in a bundle or file book.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I have been compelled in the hurry of preparing this paper to insert some remarks that properly should come under this paragraph, but there are additional comments which are worthy of expression. It is plain to anyone conversant with the coast that the United States quarantine is properly placed on Ship Island as long as sand and earth ballast vessels are in existence. It would be well to direct all steamers, rock-ballast or rubble-ballast vessels and all swept-hold vessels to Tortugas, which should be made the chief station of the east half of the Gulf. Tortugas can never be an acceptable place for vessels carrying ballast which should be discharged as a part of the cleansing process, but Tortugas will always be preferable for no-ballast vessels and vessels with quarantinable diseases on board.

With comparatively few additions to Ship Island Station and some modification of the rules there will be no need for the Mississippi inspector at Round Island or at Biloxi.

It is a fact that Ship Island Quarantine has saved the country many lives and vastly more dollars, even including the cross purposes and bad judgments which built the immense wharf and warehouse at the west end, and the blunder at Chandeleur. For the past seventeen years, including four years' work at Chandeleur, the station has cared for all the infection from Apalachicola to English Lookout, except the work done at Tortugas in 1894 and 1895. Tortugas might have done more and done it earlier if the pest ships had stopped there. It is worth noting that there were 19 cases of yellow fever at Ship Island in 1886, with 1 death (which can be explained without blame to the station), and 26 cases at Chandeleur in 1891, with no deaths. The cholera and smallpox work done at Ship Island and Chandeleur have been sufficient to atone for much money expenditure. The proposed revival of the canard that there was yellow fever at Biloxi in 1886 as a result of the existence of the same disease at Ship Island should shame the parties interested, as I have reason to believe it will shame the original panic shrieker. It is not true that Government officers are inimical toward the localities in which they serve, either permanently or temporarily, and that the interests of the people are jeopardized by them. A man charged to protect the whole coast will have more communities in his mind and on his heart than a local official who only cares to be free from the charge that the disease got in through his port.

I served as commissioned and sworn health officer of Harrison and Hancock counties for four years, and as deputy health officer for Jackson County for over two years, when there was no United States law to compel obedience to quarantine rules, and even yet at Ship Island it is needful that the medical officer have practical police powers.

To properly notify interested and sometimes suffering and angry parties, and to accent the necessity of inspection of foreign-port and infected-port vessels during the entire year, I subjoin certain documents and recommendations made last month, viz:

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
Washington, D. C., May 11, 1895.

SIR: The following telegram was sent you to-day: "You are directed hereafter, until further direction, to admit no vessel from infected ports to entry without a certificate of free pratique from United States quarantine officer at Ship Island."

This action is taken on the recommendation of the Supervising Surgeon-General of the Marine-Hospital Service, who reports no facilities for the care of suspected or dangerous vessels coming from infected ports by the local quarantine officer.

Respectfully, yours,

S. WIKE, *Acting Secretary.*

COLLECTOR OF CUSTOMS, *Shieldsboro, Miss.*

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
Washington, D. C., May 11, 1895.

SIR: Referring to Department telegram and letter of the 11th instant, directing you to require certificates of free pratique from the United States quarantine officer at Ship Island before admitting to entry vessels from infected or suspected ports, you are further advised that this certificate should be required from all vessels seeking entry at your port until November 1, 1895.

I have further to state, in answer to your inquiry, that the certificate of free pratique from the United States quarantine officer at the Dry Tortugas Quarantine Station may be accepted as well as that of the quarantine officer at Ship Island.

Respectfully, yours,

S. WIKE, *Acting Secretary.*

COLLECTOR OF CUSTOMS, *Shieldsboro, Miss.*

NOTE.—"All" vessels were considered to mean all vessels from south of the twenty-fifth degree, north latitude.

R. D. M.

TREASURY DEPARTMENT, OFFICE OF THE SECRETARY,
Washington, D. C., July 6, 1895.

SIR: Referring to Department letter of May 23, 1895, in which you are directed to require a certificate of free pratique from the United States quarantine officer at Ship Island or Dry Tortugas to be produced by all vessels seeking entry at your port until November 1, 1895, you are further advised that the certificate of pratique should not hereafter be required from vessels arriving from noninfected European ports.

Respectfully, yours,

S. WIKE, *Acting Secretary.*

COLLECTOR OF CUSTOMS, *Shieldsboro, Miss.*

NOTICE.

UNITED STATES CUSTOM-HOUSE,
Pascagoula, Miss., April 30, 1896.

On and after the 1st of May, 1896, the quarantine regulations of the past season will be enforced. All vessels coming from foreign ports will be required to have certificates from United States Marine-Hospital Service before entering at the custom-house.

A. E. KREBS, *Deputy Collector.*

JULY 20, 1896.

INSPECTION OF ROUND ISLAND QUARANTINE.

By Surg. R. D. MURRAY, M. H. S.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels, facilities for inspection of vessels, apparatus for disinfection of vessels and of baggage, facilities for removal and treatment of the sick and for the removal and detention of suspects, mail and telegraph facilities, etc.

Mississippi Sound is a body of shoal water lying south of Mobile County, Ala., three counties of Mississippi, and a small portion of the eastern swamp region of Louisiana. It extends from Grant Pass (the western outlet of Mobile Bay) to Grand Island (the eastern margin of Lake Borgne), a distance of 75 miles. It is formed by the mainland on the north and islands on the south, viz, Dauphin, Petit Bois, Horn, Dog, Ship, Cat, and Au Pitre (the latter being a Mississippi River Delta marsh island), and the shoals that lie between the islands. It has an average width of 10 miles, being widened to 13 opposite Ship Island and narrowed to 6 opposite the west end of Horn Island. The depth varies from nothing to 5 fathoms. An 11-foot vessel can be towed from Cat Island to (not through) Grant Pass.

The seacoast of Mississippi is divided into three counties—Jackson, Harrison, and Hancock—and extends from the west line of Alabama to Pearl River. The towns of importance on the coast are Scranton (Pascagoula), Biloxi, Gulf Port, Pass Christian, Bay St. Louis (Shieldsboro), and Pearlington (the latter being on Pearl River). These towns and others on the line of the Louisville and Nashville Railroad are all summer resorts, and the annual influx of sojourners, most of whom own their own houses or rent and keep house, gives an excuse for trepidation, foolish rumors, and petty scares, and general dread that something will go wrong in the two quarantines located in the sound. Here is the only instance in the South where the local population increases in the region of quarantines during the active season.

The islands which form the sound consist of silex and mica blown into dunes and small hills, covered with a scrubby growth of live oak and pine and bay cedar, saw palmetto, yaupon, and various grasses. They are separated from each other by spaces of varying widths and depths.

There are two passes from the Gulf into the sound. Ship Island Pass, at the west end of Ship Island, is the largest and safest. It is broad and permanent and roomy enough to permit of comparatively safe beating in or out for vessels of from 10 to 16 feet draft. Thus it can be entered in bad weather, and if the north winds are too severe safe anchorage can be found 14 miles below, behind the Chandeleur. The channel has 22 feet of water.

Horn Island Pass is between Petit Bois on the east and Horn Island on the west. The islands are each 12 miles in length. The pass is 1½ miles in width, but the 19-foot channel is crooked and it shifts frequently, so that entrance without a pilot is risky and inadvisable, but inside of Horn Island there is a safe and ample harbor for 20-foot vessels. Horn Island light is on the east end of Horn Island and about a mile west of the channel. Grant Pass (a private cut in the mud) has 6 feet of water and permits small vessels to reach Mobile without an exposure to the sea, and through it lumber on barges and timber in rafts have for years been towed from Mobile to Horn and Ship islands for loading into deep-draft vessels. The cutting of the Mobile Bay channel so that vessels can go to Mobile wharves has diminished this traffic, and in time it will cease altogether, of course, to the detriment of both the sound loading berths.

The mouth of East Pascagoula River is 10 miles north by west from the pass. On the beach to the eastward is the town of Pascagoula (or Seashore); 4 miles up

the river is the town of Scranton, at the crossing of the Louisville and Nashville Railroad; 4 miles farther up the river is the sawmill town of Moss Point, where the lumber is prepared for shipment.

ROUND ISLAND.

Round Island is 7 miles northwest of the pass and 3½ miles south of the mouth of the East Pascagoula River; it is also 3½ miles south one-half west from the village of Pascagoula. It has an area of about 400 acres; is covered with a growth of large pines and saw palmetto, and on the southwestern extremity has some beautiful live oaks. Round Island light is situated on the south shore and has a range of 11 miles. Round Island is beautiful to look upon; being at sea, it is hot in the sun in summer, but is made grateful by the almost constant breeze. For several years it was thought of as the proper site for a United States soldiers' home, being clean and easily kept so, and is healthful and cheaply guarded. Four or five guard posts would effectually corral it, and proper buildings with appropriate grounds would make it next to a paradise.

In 1879 the National Board of Health, in aid of the local quarantine, built three small houses on the southwest angle—one 16 by 30 feet with two rooms for officer's residence, one of same size for kitchen and dining room, and one 30 by 50 feet for hospital and quarters. During my service at Ship Island, from 1883 to 1888, I was custodian of the buildings and inclosed grounds, and every year gave a revocable lease to the Jackson County board of health, permitting the use of the buildings for quarantine purposes only. Under my supervision the buildings were cared for in some manner, and a friend of mine warned off all marooning and picnic parties during the winter season, when the quarantine officer was not living on the grounds. Last winter the house used as kitchen and dining room was burned down. At present the building intended as hospital is partitioned into rooms and is used as kitchen, dining room, and quarters for all the quarantine employees.

Practically no care has been taken of the buildings since 1888, and the grounds, capable of being made almost enchanting, have received no attention at all. The station is abandoned during the winter.

Thus the station consists of two buildings. One, 16 by 30 feet, two rooms, is occupied by the quarantine physician and his family; the other, 30 by 50 feet, is partitioned off into kitchen, dining room, and quarters for the employees and servants.

A 1,300-foot bridge was built out from the north side toward Pascagoula, for landing provisions and mails from Scranton and Seashore. Much of this is gone and the remainder is a wreck. What remains is used at which to land small boats from a launch and sailboat that lie some distance out. A small landing is projected from the south side nearly in front of the station, which is used sometimes by ships' boats, not by the station force, as the station boats are reached from the rear or north side of the island.

ANCHORAGES.

The anchorage for steamships and square-rigged vessels to load is inside of Horn Island, west of the pass, where there is a space of 6 miles by one-fourth to one-half mile, with 20 to 24 feet of water. The south protection is perfect. Schooners and light-draft vessels load to the east of Round Island, about 3½ miles from Pascagoula, in 14 to 18 feet of water. The official quarantine ground is a rectangle, lying north and south, with sides of 3 miles and ends the length of the island, and vessels will come as near to "Round Island as the depth of water will permit." As 12 feet is the deepest water within this limit, vessels generally lie to the east of the official limit and wait for the doctor.

The limits of anchorage for infected and noninfected vessels is ample if the draft is not over 13 feet, but as infected vessels have not been allowed to remain in the

harbor at all, but have been remanded to special quarantine grounds ever since Ship Island Quarantine was inaugurated, there need be no disputation about the Mississippi statute-mile limit of distance between the classes of vessels.

The facilities for inspection of vessels consist of a naphtha launch in good order and a sloop sailboat. Apparatus for the disinfection of vessels and baggage consists of iron pots and sulphur; no pump, no tubs for bichloride solution, no bichloride, and no carbolic acid provided. In fact, there is nothing at hand except a few pots and a few barrels of sulphur.

The facilities for the removal and treatment of the sick are nothing, for there is no place to lodge the sick and no medicines to treat them with. For removal and detention of suspects, nothing. It is expected there will be no suspects.

The mail and telegraph facilities are the naphtha launch or the sailboat to Pascagoula, where there is a post-office and a telegraph office, distant 3½ miles from the north side of the island.

2. Give personnel of the station or port, name of the quarantine officer or officers, post-office address, total number of officers and subordinates, etc.

B. F. Duke is quarantine physician, at $250 per month without subsistence, nonimmune; lately a member of the State board of health; lately established his residence at Moss Point, 8 miles from the mouth of East Pascagoula River; at present vice-president of Mississippi Medical Association; lives during the quarantine season at the station with wife and three children. ——— ———, captain of launch, at $25 per month and subsistence. ——— ———, engineer of launch, at $25 per month and subsistence. ——— ———, cook of station, at $15 per month and subsistence. The Jackson County board of health consists of Ed. Bloomfield, president (lawyer, Moss Point); J. Ira Ford, secretary and treasurer (lawyer, Scranton); P. K. Meyers (editor, Scranton); Volney Brown (merchant, Scranton); E. R. Bragg, M. D. (Ocean Springs). The members of this board are appointed by the governor of the State on the recommendation of the State board of health, to hold office for two years. The quarantine physician is appointed in like manner. Total number of officers and subordinates, including the board of health, is nine.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

A copy of the quarantine rules and regulations of the port of Pascagoula, Miss., is inclosed. The quarantine law is an enactment of the Mississippi legislature, approved in February, 1880, setting forth the organization of the local board and prescribing that the quarantine physician should visit in daylight all vessels from suspected or infected ports; also prescribing the hoisting and carrying of flags, the assessing of fines for transgressions, the not going ashore without written permits, the hanging of lanterns, and limiting charges. The act particularly compels the supervisors of the county to levy a tax equal to 25 per cent of the State tax for support of the quarantine, and also compels the State board of health to assist the local board when necessary. The act is very pointed as to taxes, flags, and fines, but the question of quarantining is left entirely to the local board.

The local board in its regulations practically restrict all vessels "from south of the twenty-fifth degree of north latitude," and divide such vessels into four classes, i. e., (1) noninfected ports, (2) suspected ports, (3) infected ports, and (4) ports not considered infected, but with infectious or contagious diseases on board or during the voyage.

It must be noticed that no law is in the statute or subsequent regulations for ever visiting a vessel from north of the twenty-fifth degree of north latitude. Vessels from noninfected ports are to be subjected to thorough sanitation, but not to be detained. Vessels from suspected ports to be subjected to thorough sanitation with "detention of persons for a period of five days from the hour of

arrival in quarantine." Vessels from infected ports "to be subjected to thorough sanitation, with detention of seven days from the hour of arrival in quarantine." Vessels of the fourth class, that is, with sickness on board or on the voyage, "shall be remanded to special quarantine grounds and there undergo thorough sanitation and detention of vessel and persons such length of time as the board of health may order." "All vessels from Mediterranean ports known or suspected to be infected shall be subjected to the same conditions as above." But which "above" is not stated. "The health officer is instructed to use his judgment as to the time of detention of all vessels, provided that none be discharged sooner than five full days." Subsequent rules permit the quarantine physician to appoint a substitute, to abstain from soliciting business, and to come ashore, but to prevent anyone connected with the vessel to do so. Pilots are put under strict discipline.

There is no law for boarding or inspecting any vessel from north of 25° north latitude or from healthy Mediterranean ports, and all fees collected in the past in summer or winter from ports other than those mentioned were collected without form of law.

As an addendum, vessels were allowed to "load in quarantine," in which case the quarantine physician could allow the captain to come ashore and clear his vessel, but in no other case except permission be granted by the board of health.

It is within my personal knowledge that the law and about every regulation has been broken till there is nothing left of it but a memory.

4. State what quarantine procedure, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department.

The quarantine rules require (1) "vessels from noninfected ports to be subjected to thorough sanitation without detention;" (2) "vessels arriving from infected ports to be subjected to thorough sanitation with detention for seven days from hour of arrival in quarantine." As there are no appliances for putting a vessel in much better condition than time alone would do, these provisions are dead letters. By an order of the Secretary of the Treasury, dated May 11, 1895, requiring certificates of pratique for all vessels from infected ports to be given by the United States quarantine officer at Ship Island, there have been no occasions for enforcing the second rule "in addition to the requirements of the Treasury Department."

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment is enforced during the entire year.

Vessels are inspected the year round; from Round Island during the summer and from Moss Point, 12 miles off (8 miles up the river), during the winter. The position of quarantine physician has been held by a physician living at Moss Point for the past eighteen years, Dr. Duke being the third incumbent in that time. No treatment is given in the winter season, but vessels may be sent to Ship Island. Ballast is discharged by means of hired schooners, under the direction of the harbor master. In the summer the schooner is washed and fumigated and by law released when the vessel is. (Some variations as to this rule in past time.)

6. Are vessels from other United States ports inspected?

Yes; vessels from all ports are inspected for the fee. Local schooners, tugboats, and barges are not always inspected.

7. Describe quarantine procedures in the inspection of vessels and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

If infected, or deemed to be so, the vessel would be remanded to special quarantine grounds, and there undergo thorough sanitation and detention of vessel and persons such length of time as the board of health may order. This means that the vessel would be sent to Ship Island at her own cost, but in quick time.

The time in quarantine between arrival and commencement of disinfection will depend on the ballast. If no ballast, pots will be put in as soon as they can be gotten. If ballast is on board, it will be put out in quarantine as soon as the crew can put it into a lighter and carry it to the ballast grounds.

The time occupied by disinfection is about eight hours, one day having been the rule, the pots being lighted in the morning and opened up in the evening. The time after disinfection until discharge is five days. Treasury Department order causes vessels from infected ports to go to Ship Island or Tortugas.

There is no unnecessary delay in doing the work deemed necessary, except, perhaps, the time consumed by the burning of sulphur and the detention of five days. The need of anything whatever to the class of vessels permitted to be treated at the quarantine raises the serious question of cui bono.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

There can never be but two to four vessels in quarantine at one time, and all communication is through the quarantine physician, who is by law required to not even suggest a merchant to the masters. A pilot who goes aboard a vessel which subsequently gets into quarantine must stay on board till the vessel is released, whether he is immune or not. No intercommunication is allowed among vessels in quarantine. The matter of communication is regulated by threats of the law, which places the fine for disobedience at from $25 to $300.

Sometimes vessels have been permitted to "load in quarantine," in which case the master is given permission to go ashore to clear his vessel. The stevedore crews in such cases have camped on Round Island or remained on a lumber schooner till the quarantine officer thought fit to let them go to the mainland.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

A vessel infected with cholera, or suspected of being infected with the same, would be sent to Ship Island at once, without a chance to get provisions or medical assistance, at any time of the year. A vessel infected with yellow fever would be sent to Ship Island, but the Treasury Department order of May 11, 1895, would perhaps supersede any local regulations. A vessel infected with smallpox would be sent to Ship Island, and any pilot on board would go in the vessel unless he got off in the night. It will be noticed that the Treasury Department order does not provide for cholera, smallpox, leprosy, or typhus on board.

The conditions regarded as giving evidence of the vessel's infection in each case would be a hasty survey of the situation and circumstances and a hasty departure of the quarantine physician with a peremptory order to "go to Ship Island."

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

No records of any kind are kept at the station. The station is practically barren in summer, and actually so in winter. Reports are sent to Mr. Ford, a lawyer in Scranton, Miss., and some memoranda are kept by the quarantine physician for his personal use.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

The fee bill in the quarantine rules and regulations is inclosed. The inspection fee is made by statute at $5, but it may be reduced by the local board. "The charges for fumigation shall be the cost of material, and $2.50 on vessels of 60 tons and under; $5 from 60 to 150 tons; $7.50 from 150 tons to 250 tons; $10 from 250

tons to 500 tons, and $12.50 on all over 500 tons." The cost of material is an indefinite sum, but for the labor performed the charges are ridiculously small. There is no means of finding out the cost of material except by overhauling the books of the secretary of the board. The classing of schooners of 500 to 800 tons, which are pretty sure to be American, with foreign barks and steamers of 800 to 1,600 tons is unfair as to value of duty performed.

The ballast charges are arranged between owners of schooners and masters of vessels, but are about 50 cents per ton; at this rate the schooners do not make much, as the ballast must be carried about 4 miles to be dumped.

There are no tonnage or wharfage charges. The local harbor master has a schedule of fees for superintending the discharge of ballast, from $2.50 to $3 per day, but this is not under the jurisdiction of the quarantine authorities except to see that the harbor master's man does not go ashore until the vessel is released.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The custom-house is located at Bay St. Louis, Pascagoula being a subport. I found the deputy collector, Mr. Krebs, much interested in quarantine matters, but as the books were kept at the main office could not learn much as to the work of the quarantine. As all vessels entering the district come for cargo, there is little or no immigration.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

The facilities are not sufficient to care for anything except to inspect. There is not sufficient commerce to warrant the erection of a modern plant. Concessions on the part of pilots at Ship Island Bar and world-wide promulgation of orders for all vessels to be cleaned up before they appear at Horn Island Bar would not only render a quarantine useless, but would in fact make the inspection station a superfluity. The inspector of customs, always a Mississippi man and always intelligent and interested in his own locality, could and would truthfully and definitely report as to the history and condition of his vessel.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

It is difficult to reply to this question in this case. The quarantine physician would, but for the embargo put upon him by the Secretary of the Treasury, under the order of May 11, 1895, and subsequent orders, attempt to disinfect vessels which should have proper treatment. But the orders of the Secretary are carried out at the custom-house, or, at least, I think they are.

The local law "period of observation" exceeds, as was seen, the Treasury regulations, so it is presumed this particular is observed if occasion offers.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893? Transmit copy of certificate.

No. It says that the vessel "has been inspected and no quarantinable disease found on board. She is hereby released from quarantine restrictions." A copy is inclosed.

17. What disposition is made of the consular bills of health?

One copy is sent to the secretary of the local board at Scranton; one is filed at the custom-house at Bay St. Louis, with the vessel's papers.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

In 1886 the county board sent a tugboat to Ship Island Quarantine, and by force towed an infected vessel to Horn Island Harbor. The quarantine physician

refused to pass the vessel and ordered her and the tug back to Ship Island. The matter was referred to the board of health, which body refused to have the vessel returned, although there was at the time a case of yellow fever on board, in the person of a negro who had been on board a few days as a ballast hand in place of sick members of the crew. The quarantine physician resigned at once, and another was appointed who had the vessel loaded "in quarantine."

In 1896 the quarantine physician boarded a British steamer from Santos which had sought Horn Island as a harbor in a fierce blow and inspected her throughout, after which he repaired to the village of Pascagoula to get his mail. The vessel went to Ship Island for treatment.

The discharge of ballast at Ship Island Quarantine works an apparent hardship on the harbor master at Horn Island, but if this gives no equal benefit to the Ship Island harbor master, I can not see that sending all ballast vessels to Ship Island does any serious injury to the ballast man at Horn Island, as vessels in quarantine should not pay harbor master's fees. That they should bear the cost of putting out every pound of ballast is self-evident.

The order of May 11, which practically excluded vessels from cholera ports and ports south of 25° north latitude from Horn Island until after they had been treated at Ship Island seriously interfered with work and receipts of both the board of health and the harbor master, and has caused local pride to agitate the question of establishing a complete quarantine station on Petit Bois Island. It appears that the State board of health is not averse to this. I have had no chance to inspect the locality, and, while I think the protection is good, I do not believe there is sufficient water. It is not proposed to put the station on Horn Island, as that might encroach on the limits of the loading anchorage. This matter should be given some attention at an early date.

(1) I am compelled to recommend that in future the permission of the Department for the local board to use the Treasury buildings for quarantine purposes be withheld. The failure of the board to care for them, or to prevent the burning of one and the failure to report the loss, and the uselessness of inspections being made from that point by a nonimmune officer, warrant me in advising that a gentleman should not be required to live in such isolation when no good is to come from his suffering. The quarantine physician can as well live in Pascagoula, or, preferably, all the duties can be performed by a customs inspector.

(2) I have also to recommend the issuance of an order relative to inspections and treatment of vessels in the Shieldsboro district, so as to require an inspection of all foreign port vessels during the year, and of "via domestic port" vessels which have been in infected ports within thirty days; and to clearly state what quarantine stations are considered as fully equipped for the duties expected.

JUNE 14–15, 1896.

LOUISIANA.

REPORT OF INSPECTION OF LOCAL QUARANTINE STATIONS.

By Surg. H. W. SAWTELLE, M. H. S.

RIGOLETS.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

This station is located on the west end of Rabbit Island, on the old United States light-house site, which is still, I understand, the property of the United States. It is 31 miles distant from New Orleans. The quarantine reservation contains about 1½ acres of land. This is an inspection station only. The buildings consist of a

small cottage for the resident physician, one for the employees, a storehouse, a small outhouse, and a temporary boathouse. The wharf and boathouse were carried away by a storm in October, 1893. A new wharf and boathouse are needed, and the quarters for the employees require some repairs. Anchorages in middle of river about one-fourth mile opposite station, where all vessels are inspected. Two rowboats are furnished for inspection purposes. No apparatus for disinfection; no facilities for the treatment of the sick or detention of suspects. Mail from Rigolets railroad station only.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. J. E. Dousson, resident physician; post-office address, Rigolets railroad station. Employees, 2 boatmen and 1 night watchman.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Inclosure: Governor's proclamation and regulations board of health, marked A. Inspections are made by day and night, but infected or suspected vessels would be inspected only by daylight. The passengers and crew are mustered, and the list compared with the manifest and the vessels thoroughly examined. Should vessels subject to quarantine arrive, they would be remanded to the Mississippi River Quarantine for necessary treatment. The quarantine physician has no authority to deviate from the printed regulations. Any question in reference to the disposition of any craft not plainly provided for by regulation would be submitted for the decision of the board of health.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

None. No unnecessary detention. No disinfection here.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

April 15 to November 1 only.

6. Are vessels from other United States ports inspected?

All vessels are inspected.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

Inspections are made in accordance with Treasury regulations, as stated above. All quarantinable vessels, also foreign vessels, if any arrive, would be remanded to the Mississippi River Quarantine.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.) and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No communication; no intercommunication would be permitted.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

In each case the vessel would be sent to the Mississippi River station for purification. Evidence of infection, quarantinable disease on board or having had such on board during voyage or within thirty days next preceding arrival.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Records of all cases are kept and transmitted to the board of health.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Schedule of fees, viz: Vessels under 12 tons, 50 cents; vessels from 12 and under 25 tons, $1; vessels 25 tons and over, $2; steamers, $2; ocean steamers, $5. These fees are not collected from vessels hailing from Louisiana ports or from pleasure boats.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Included in statement inclosed with report of Mississippi River Station, it being in the same customs district.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The custom-house is not occupied or used by the Government. No customs officer here. No immigration.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

I think the work of inspection is carefully performed and the facilities sufficient for the shipping at present.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection of vessels, and particularly the period of observation after disinfection, are observed.

To accommodate many small vessels sailing between ports, near-by inspections are made both night and day, but quarantinable vessels, as stated before, would only be inspected by day.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893? Transmit copy of certificate.

No; copy of permit inclosed, marked B.

17. What disposition is made of the consular bills of health?

No foreign arrivals. All vessels passing here are engaged in trade along the coast.

18. Mention any facts which, in your opinion, should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

This station guards the entrance to Lake Pontchartrain, which is connected with the city of New Orleans by two canals known as the old and new basins. The quarantine physician is required to make weekly reports to the Louisiana board of health of all vessels inspected. During the quarantine season about 1,200 small coastwise vessels, carrying principally lumber, coal, wood, and fish, are inspected.

JUNE 17, 1896.

A.

QUARANTINE PROCLAMATION.

STATE OF LOUISIANA, EXECUTIVE DEPARTMENT,
Baton Rouge, April 7, 1896.

At the request of the board of health of the State of Louisiana, embodied in a resolution adopted by that body at a regular meeting held on March 12, 1896, and by virtue of the authority in me vested by law, I, Murphy J. Foster, governor of the State of Louisiana, do hereby issue this my proclamation, to take effect from and after the 15th day of April, A. D. 1896, that all vessels, together with their

crews, passengers, baggage, and cargoes, arriving at the several quarantine stations of Louisiana from and after that date shall be subjected to inspection and sanitation according to the following schedule, to wit:

First class. All vessels not included in the three following classes:

Second class. Vessels arriving from suspected ports. (Intertropical American and West Indian and Brazilian ports, which, in the absence of satisfactory evidence to the contrary, are considered suspicious, and other ports which may be declared suspicious by the board of health.)

Third class. Vessels arriving from ports known to be infected.

Fourth class. Vessels which, without regard to port of departure, are infected; that is to say, vessels which have yellow fever, cholera, or other contagious or infectious disease on board at the time of arrival, or have had same on voyage.

Vessels of the first class to be subjected to necessary maritime sanitation without detention of either vessels or persons longer than may be necessary to place such vessels in good sanitary condition.

Vessels of the second class to undergo the same treatment as those of the first class until May 1, 1896, on and after which date vessels of the second class shall be subjected to full sanitation at the Mississippi River Quarantine Station, together with detention of vessels and persons for such length of time as the board of health may determine.

Vessels of the third class to be subjected to full sanitation at the Mississippi River Quarantine Station, without detention of either vessels or persons after disinfection, until May 1, 1896, on and after which date vessels of this class shall be detained for observation, together with their crews, cargoes, and passengers, for such length of time after completion of disinfection as the board of health may determine.

Vessels of the fourth class arriving at Port Eads with sickness on board shall proceed direct to the lazaretto, from whence, after landing the sick, they shall proceed to the Mississippi River Quarantine Station, there to undergo thorough disinfection. Vessels of the fourth class with no sickness on board shall proceed direct to the Mississippi River Quarantine Station for disinfection. All vessels of the fourth class, after completion of disinfection, shall be detained for such length of time as the board of health may determine.

All vessels arriving from ports known or suspected to be infected with cholera shall be subjected to maritime sanitation and such detention as the board of health may determine.

Vessels arriving from ports and places belonging to the second, third, and fourth classes, as set forth in the above schedule, shall not be allowed to pass the Rigolets, the Atchafalaya, or Lake Charles quarantine stations, or other quarantine stations which may hereafter be established, without having undergone proper maritime sanitation at the Mississippi River Quarantine Station.

Vessels engaged in the tropical fruit trade whose sanitary condition and health record are satisfactory may be allowed to pass the Mississippi River Quarantine Station after inspection, subject, however, to such regulations and sanitary treatment as the board of health may prescribe.

Quarantine officers at the several stations in this State are specially charged and required to strictly enforce the execution of this proclamation, and the board of health in the city of New Orleans is requested to prosecute vigorously all violators of the same, as well as of the quarantine laws and regulations of this State.

Given under my signature and the seal of the State of Louisiana, at the city of Baton Rouge, this 26th day of March, A. D. 1896.

MURPHY J. FOSTER,
Governor of Louisiana.

By the governor:
T. S. ADAMS, *Secretary of State.*

At a meeting of the board of health of the State of Louisiana, held April 23, 1896, the following resolutions were unanimously adopted:

Resolved, That in accordance with the governor's proclamation of quarantine, the period of detention of vessels from infected or suspected ports having no sickness on board shall be three full days from time of completion of disinfection.

This regulation to apply to all vessels not otherwise provided for and continue in full force during the quarantine season, unless modified by action of this board.

Resolved, That hereafter full quarantine restrictions will be imposed on all vessels whose officers willfully attempt deception in regard to any case of sickness, or material capable of carrying infection, or willfully disregard the rules and regulations of the board of health; and such detention will be imposed thereafter on every vessel on which any officer who has previously attempted to practice deception is found in any official capacity.

Resolved, That vessels from tropical quarantine ports where a United States medical officer is stationed, such vessels carrying a crew each of which is acclimated, i. e., has had yellow fever, may be given pratique to come to New Orleans immediately after disinfection at the Mississippi River Quarantine Station, under the following additional conditions: They shall bring no passengers from such ports. They shall not be moored at any wharf in any quarantined port, but lie in the open bay; cargoes to be lightered. Only the captain and purser, or officer necessary to enter and clear the vessel, shall be allowed to go on shore at quarantined ports. Crews shall not be allowed to sleep on deck while in such ports. They must bring certificates from the United States medical officer that there has been no unnecessary communication between the ship's crew and the shore, and that they leave such port in perfect sanitary condition. No bedding or household effects will be allowed to be brought from any infected port at any season of the year.

Special instructions to owners, agents, masters of vessels, and passengers.

The Louisiana State board of health recommends the following suggestions to agents, owners, masters of vessels, and passengers for the purpose of facilitating the work of quarantine officers and reducing the period of detention to a minimum:

(1) That vessels should be stripped during the quarantine seasons of all woolen hangings, carpets, curtains, and such like materials, and upholstered furniture as far as practicable, hair or moss mattresses to be replaced by wire or wicker beds.

(2) That, as far as possible, vessels trading with tropical ports should be manned with acclimated crews.

(3) Masters of vessels, ship and consular agents are earnestly requested to instruct passengers from quarantinable ports to dispense, as far as possible, with baggage which may be injured by wetting or heat (230° F.) while undergoing disinfection. Such passengers are especially warned against bringing furs, silks, skins, laces, velvets, and other fabrics of delicate texture, as they will be compelled to assume all risks of injury.

(4) While in ports infected with yellow fever, vessels should be anchored out in the harbor, when this is possible, and the crew prohibited from going ashore, especially at night.

(5) When practicable, cargoes should be loaded in such a manner as to allow access to the pumps, and also to enable the quarantine officers to pump out and wash the bilge.

(6) For the purpose of avoiding delay and expense at quarantine, owing to the necessity of shifting of cargo for the object of disinfection, it is recommended that there be constructed in all vessels from quarantine ports an open framework shaft 15 inches in diameter from the center of each hatch, through which the fumigating pipe may be introduced down to the dunnage of the vessel.

(7) Special attention should be given to cleanliness of vessels and persons, and provision should be made for all possible ventilation of the entire vessel. The best disinfectants, and instructions for using same, can be obtained by application to the board of health or any of its officers.

(8) Masters should, before arrival, see that the bilge is thoroughly pumped out and cleansed, and that the entire vessel be put in such good sanitary condition as to permit of the least possible detention. Fruit vessels, particularly, should be kept thoroughly cleansed for the purpose of avoiding delay at the quarantine station.

(9) Vessels observing the above recommendations will receive special consideration at the quarantine station, detention and cost of cleaning, disinfecting, etc., being materially lessened thereby.

S. R. OLLIPHANT, M. D., *President.*
G. FARRAR PATTON, M. D., *Secretary.*

B.

No. ——.
Month, ——, 189—.
Hour, ——.
Port, ——.
Name of vessel, ——.
Name of captain, ——.
Crew, ——.
Passengers, ——.
Cargo, ——.
Quarantine charges, ——.

Board of Health, State of Louisiana.

No. ——. RIGOLETS.

QUARANTINE STATION, ——, *189*—.

This is to certify that —— is hereby permitted to proceed to New Orleans.

——— ———,
Resident Physician.

MISSISSIPPI RIVER QUARANTINE STATION.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

This quarantine is located 90 miles below New Orleans, on the east bank of the Mississippi River. The reservation contains about 2,000 acres, with a frontage of about 2 miles on the river. The land thereabout is marshy and uninhabited. There are eleven wooden buildings belonging to the station, namely, seven at the disinfecting station, three at the lazaretto, one at the inspection station, all constructed on piles. No additions or improvements have been made during the past year. The building containing the plant is a substantial structure with a corrugated iron roof; dimensions about 60 by 108 feet. It is open to the weather on the front and sides. The tank containing the bichloride of mercury solution stands on the top of this building, about 40 feet from the floor; capacity about 8,000 gallons. The strength of the solution used at this station is 1:1000. This tank is provided with hose attachments complete. The other buildings consist of a house for the resident physician, one for the assistant resident physician, one for the employees, a boathouse, and two outhouses. A small room on each side of the disinfection house is provided—one for males and one for females—for use when changing clothing. A small, tight room is provided on the wharf for the disinfection of mail by sulphur fumes. The buildings are in fair condition. The station is supplied with rain and river water. The wharf is about 400 feet in length, with about 28 feet of water alongside. It is in good condition. The lazaretto is about 6 miles below the disinfecting station in Pass a L'Outre. There are three hospital buildings, built on the cottage plan, with verandas around them. The largest is used mostly for fever patients. In this building a ward is provided for cases under observation. About 50 yards from the main building a house is provided for cases suffering from smallpox or leprosy. There are four wards, two about 26 by 52, and two smaller wards, each about 12 by 26 feet. The interior and exterior of the hospital buildings are in need of repairs, also the hospital wharf.

The inspection station is at Port Eads, 14 miles below the lazaretto. All quarantinable vessels are anchored in the river, nearly opposite the main station, when not alongside of wharf undergoing treatment. Infected vessels are anchored about one-half mile from those under observation. Inspections are made by steam tug, steam launch, and rowboats. The plant consists of three disinfecting steam cylinders, which have been in use seven years, each 50 feet in length over all by about 8 feet in diameter; steam boiler, 40-horsepower steam pump, and steam winch. The inside of the cylinders are provided with coils of pipe connected with the boiler, which affords heat necessary to raise the temperature to 210° F., dry heat, and by means of perforated pipes live steam is turned in and the temperature increased to 230° F., moist heat. Articles to be disinfected are placed on racks provided for that purpose for each cylinder. The disinfecting chambers are fitted up with thermometer, pressure gauge, etc., complete. Besides the steam disinfecting chambers, a tug is fitted up with a tank containing the solution of bichloride of mercury, with pump attachments; also a sulphur furnace for the generation of SO_2 for disinfecting the hold and cargo. It is constructed with several pans, arranged one above the other, with air spaces connecting them alternately at the front and back, so that air is made to pass over the contents of all of the pans. The furnace serves to keep the sulphur in the first pan in a molten state, and the heat from this pan melts the sulphur in the pan above. An air-tight galvanized-iron pipe leading from the roof of the hold is connected with the

furnace over the surface of the bottom pan to supply oxygen, exhausting the air of the hold and replacing it with SO_2. This pipe is provided with a cock for obtaining samples of the air and a valve for regulating its supply to the furnace. An 8-inch galvanized-iron discharge pipe taps the furnace at the top, which leads into the reservoir within 6 inches of the bottom. From this reservoir the gas is forced to the bottom of the hold to the dunnage by a Sturtevant fan through an 8-inch galvanized-iron pipe, which taps the reservoir near the bottom, and by means of an internal elbow leading up to within 6 inches of the top a complete break of the current is made, thus effectually preventing any burning particles of sulphur from being carried into the ship's hold. A return current is now established in the second pipe from the hold to the furnace and the foul air of the ship's hold is drawn into the furnace and consumed.

The furnace is kept in operation until the hold is purified, or until a short time after the return current shows the presence of sulphur fumes. If a vessel arrives with cargo and requires disinfection, chutes are made through the cargo down to the bottom of the ship's hold to admit the fumigating pipes. It is claimed that the strength of the gas generated with this furnace is about 18 per cent. A "gas tester"[1] is provided by which the strength of the SO_2 is determined. The sick are removed by boat to the hospital. There being no detention house, suspects are detained on board. Mail and telegraph to New Orleans and Port Eads.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. C. P. Wilkinson, resident physician; Dr. Joe S. Jones, assistant resident physician; post-office, Mississippi River Quarantine Station. Total number officers and subordinates, 32. The regular force at the hospital consists of 2 nurses, 1 male and 1 female. The assistant resident physician pays two visits to the patients in hospital daily. Inspection station (Port Eads), Dr. J. N. Thomas, inspector. The house provided for the inspector is in fair condition. Total number officers and employees, 3. Quarantine attendants are authorized according to the demands of the service, and no officer or attendant is employed unless immune to yellow fever.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations; and describe the quarantine customs of the port as they are carried out.

Inclosures: Governor's proclamation and special instructions of board of health, marked A. (See report on Rigolets Quarantine Station.) All vessels arriving at the inspection station, Port Eads, are boarded and thoroughly examined by the experienced inspector. Those from nonsuspected ports with clean bills of health, having had no sickness on board during voyage or upon arrival, if found to be in good sanitary condition, are allowed to proceed to the city without detention. Those from infected or suspected ports with no sickness on board are remanded to the main station, 20 miles above, and after disinfection detained three full days. If no sickness occurs in the meantime, she is allowed pratique. Any vessel arriving with quarantinable disease on board is taken to the lazaretto, where the sick are removed to hospital under the direction of the quarantine physician, who gives necessary orders for their care. The vessel is then moved to the main station, 6 miles above, the bilge cleansed, all ballast discharged, except close-grained hard rock, which, if retained on board, is disinfected with the solution of bichloride of mercury and SO_2, and all baggage of passengers, and crew clothing, bedding, upholstery, dunnage, and all the movable textile fabrics on board are removed and hung on racks and disinfected in the steam cylinders with temperature of 210° F. dry heat, increased to 230° F. moist heat, maintained one-half hour, with pressure of about 7 pounds to the square inch on the cylinder. The cabins, living

[1] The "gas tester" was devised by Dr. Joseph Albrecht of New Orleans.

apartments, and decks are washed down with the solution of bichloride of mercury, after mechanical cleansing, and the rooms fumigated with SO_2; and all articles that would be injured by heat disinfection are saturated with the bichloride of mercury solution and hung up to dry. The hold and cargo are then disinfected with sulphur dioxide. If practicable, the cargo is disinfected without breaking bulk. Time of exposure, for iron vessels, forty-eight hours; wooden, seventy-two hours. Empty hold, if of iron, twelve hours' exposure, followed by washing with the solution of bichloride of mercury by means of hose. If of wood, the sulphur dioxide exposure would be for forty-eight hours, air streaks open, the application of SO_2 also preceding the bichloride treatment. The vessel is then detained three days, after which she is redisinfected as an extra precaution and held two days, making in all five days' detention. No charge is made for the second disinfection.

The foregoing method of disinfection is employed for all vessels requiring disinfection. In case of cholera infection the water tanks would be purified with a solution of permanganate of potassa and refilled, the food supply destroyed, and the ship revictualed; water-closets would be cleansed with the solution of bichloride of mercury, and all refuse burned in the ship's furnace. After disinfection for smallpox infection and vaccination of all requiring it, the period of detention of vessel would be decided by the board of health. Lepers would be detained in accordance with the regulations governing the subject. Vessels engaged in the tropical fruit trade between Central American, South American, and West Indian ports and New Orleans are allowed to pass without detention provided said vessels strictly conform to the special regulations (copy inclosed, marked B). The quarantine physician is not authorized to deviate from the printed regulations. Any questions as to the disposition of vessels not provided for by the regulations are referred to and decided by the board of health; but under the State law he has authority to detain any vessel, independent of the board of health, whose sanitary condition is in his opinion dangerous to the public health.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

None; no unnecessary detention or disinfection of vessels.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

Inspection during entire year; disinfection in case of quarantinable disease the entire year.

6. Are vessels from other United States ports inspected?

Yes.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine—(*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The entire vessel is inspected, if practicable. The bill of health and clinical record of all cases treated during the voyage, if any, crew and passenger list, and manifest and ship's log are examined. Crew and passengers are mustered and examined, and list compared with the manifest for discrepancies. No person, except quarantine officer and his employees, allowed on board until after inspection and discharge of vessel by quarantine officer. Disinfection is commenced as soon as practicable after arrival, and treated as described above under interrogatory No. 3.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No communication; no intercommunication allowed among vessels in quarantine. Pilots on infected vessels are detained on board for observation the usual length of time, covering the period of incubation of the disease for which the vessel is held.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

In each case the vessel would be treated in accordance with the rules given above under quarantine customs. (Interrogatory No. 3.) Evidence of infection, quarantinable disease on board, or having had such on board during the voyage, or within thirty days next preceding arrival.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Records are kept of cases at station on arrival and during detention.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Inspection: Ships and steamships, $20; barks, $17; brigs, $10; schooners, $7.50. Disinfection: Steamships, $130; ships, $80; barks, $60; brigs, $50; schooners, $17.50.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Number of foreign vessels entered at the port of New Orleans for the year ending December 31, 1895.

Country.	Ballast.	Cargo	Country.	Ballast.	Cargo.
January.			*March.*		
Africa	1		Belgium		2
Belgium		1	Brazil		1
Brazil	2	2	Canary Isles		1
Canary Isles	1		Costa Rica		4
Costa Rica		5	Cuba	6	
Cuba	9	1	England	7	10
England	9	11	France		2
France	1	1	Honduras		2
Germany		1	Italy		4
Honduras		4	Mexico	1	1
Italy		3	Nicaragua		3
Jamaica	1	1	Spain		1
Malay Isles	1		United States of Colombia		10
Mexico		3	Total	14	41
Nicaragua		2			
Scotland	1				
United States of Colombia		5			
West Indies—British	1				
Total	27	40	*April.*		
February.			Azores	1	
Belgium		1	Belgium		1
Brazil	2		Brazil		1
Costa Rica		3	Costa Rica		2
Cuba	4		Cuba	4	
England	2	8	England	3	10
France	1	1	Germany		1
Germany	1		Honduras		2
Honduras		1	Italy		1
Italy		3	Jamaica	1	
Nicaragua		2	Malay Isles	1	
United States of Colombia		6	Nicaragua		5
West Indies—British	5		United States of Colombia		9
Total	15	25	Total	10	32

Number of foreign vessels entered at the port of New Orleans for the year ending December 31, 1895—Continued.

Country.	Ballast.	Cargo.
May.		
Belgium		2
Brazil		1
Canary Isles	1	
Cape Verde	1	
Costa Rica		5
Cuba	6	1
England	2	8
France	1	
Germany		1
Honduras		2
Italy		3
Netherlands	1	
Nicaragua	1	7
Portugal	1	
United States of Colombia		12
Total	14	42
June.		
Belgium		1
Brazil		1
Costa Rica		4
Cuba	2	1
England		8
Germany		3
Italy		2
Mexico		1
Nicaragua		8
United States of Colombia		9
West Indies—British	1	
Total	3	38
July.		
Belgium		1
Brazil	1	2
Costa Rica		4
Cuba	6	
England	1	4
Germany		5
Honduras		1
Mexico	2	1
Nicaragua		6
United States of Colombia		8
Total	10	32
August.		
Belgium		1
Brazil	2	
Costa Rica		3
Cuba		1
England		6
Germany		3
Nicaragua		7
Spain		1
United States of Colombia		9
Total	2	31
September.		
Belgium		2
Brazil	1	1
Costa Rica		4
Cuba	2	
England		10
Germany		3
Italy		1
Jamaica	1	
Mexico	1	1
Netherlands	1	
Nicaragua		5
United States of Colombia		7
Scotland	1	
Total	7	34
October.		
Belgium		1
Brazil	3	3
Costa Rica		4
Cuba	7	1
England	7	11
Germany		3
Italy		1
Jamaica	1	1
Mexico	3	
Nicaragua		7
United States of Colombia		5
West Indies—British	1	
Total	22	37
November.		
Belgium		1
Brazil	2	3
Cape Verde	6	
Costa Rica	1	2
Cuba	7	
England	10	13
Germany		1
Honduras		1
Italy		4
Jamaica		2
Madeira	1	
Mexico	1	
Netherlands	1	
Nicaragua		8
Scotland	1	
United States of Colombia		7
West Indies—British	1	
Total	31	42
December.		
Belgium		1
Bermuda	1	
Brazil	2	1
Canary Isles	2	
Cape Verde	2	
Costa Rica		2
Cuba	6	1
England	10	12
Germany		3
Italy		2
Jamaica	1	4
Mexico		1
Nicaragua		5
United States of Colombia		6
Scotland	1	
Honduras		1
West Indies—British	1	
Total	26	39

RECAPITULATION.

Total in ballast	181
Total in cargo	433
Total	614

Number of domestic vessels entered at the port of New Orleans for the year ending December 31, 1895.

Country.	Ballast.	Cargo.
January.		
Cuba	1	5
Honduras		7
Mexico		1
Nicaragua		1
United States of Colombia		1
Total	1	15
February.		
Cuba		4
Honduras		4
Nicaragua		2
Total		10
March.		
Costa Rica		1
Cuba		5
Honduras		10
Mexico		3
Nicaragua		3
Trinidad		1
Total		23
April.		
Costa Rica		2
Cuba		5
Honduras		13
Mexico		1
Nicaragua		4
Total		25
May.		
Cuba		4
Honduras		14
Mexico	1	3
Nicaragua		6
Total	1	27
June.		
Costa Rica		1
Cuba		4
Honduras		12
Mexico		4
Nicaragua		6
Total		27
July.		
Costa Rica		2
Cuba		5
Honduras		13
Mexico		2
Nicaragua		4
United States of Colombia		1
Total		27
August.		
Costa Rica		1
Cuba		6
Honduras		10
Mexico	1	2
Nicaragua		2
Trinidad		1
Total	1	22
September.		
Cuba		4
Honduras		12
Jamaica		1
Total		17
October.		
Cuba		4
Honduras		10
Trinidad		1
Total		15
November.		
Cuba		3
Honduras		11
Mexico	1	1
United States of Colombia		1
Total	1	16
December.		
Cuba		1
Honduras		9
Mexico		1
Nicaragua		2
Total		13

RECAPITULATION.

Total in ballast	4
Total in cargo	237
Total	241

Coastwise vessels entered during the year.

Month.	Yellow-fever ports.	Other ports.	Month.	Yellow-fever ports.	Other ports.
January	1	32	July	1	16
February	2	22	August	2	13
March	4	22	September		18
April		23	October		27
May		19	November	3	37
June	1	16	December	5	26

RECAPITULATION.

Total number arrived coastwise	270
Total from yellow-fever districts	20
	290

13. State results of your visits to (*a*) the custom-house; (*b*) the Immigration Bureau.

I ascertained that the bills of health and quarantine certificates are duly filed at the custom-house, and that immigrants are admitted in accordance with the immigration regulations.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

Yes; at present.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The solution of bichloride of mercury used is 1 : 1,000 instead of 1 : 800. Inspection of fruit vessels by night. I am satisfied that the rules regarding inspection, disinfection, and the period of observation after disinfection are observed as stated in the quarantine certificates of inspection, signed by the quarantine officer.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5 act of February 15, 1893? Transmit copy of certificate.

Yes. Copy inclosed, marked C.

17. What disposition is made of the consular bills of health?

Filed at custom-house.

18. Mention any facts which, in your opinion, should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

A bath house and detention barracks are very much needed to facilitate the work of the station. The quarantine officers here have had many years of experience in quarantine affairs, and the station appears to be carefully conducted.

JUNE 3–4, 1896.

B.

Rules and regulations governing vessels engaged in the tropical-fruit trade.

[Adopted April 23, 1896.]

OFFICE BOARD OF HEALTH,
State of Louisiana.

All vessels engaged in the tropical-fruit trade between Central American, South American, and West Indian ports and New Orleans, will be allowed to pass the Mississippi River Quarantine Station without detention longer than is necessary for a thorough inspection (either by day or night) by the quarantine officers, so long as a properly accredited medical agent of this board certifies that such ports and places are free from contagious or infectious disease, and provided said vessels shall strictly conform to the following conditions:

First. They shall not be allowed to bring to this port bedding or household effects of any kind.

Second. After leaving New Orleans said vessels shall not take on board passengers during any part of their trip, nor shall they bring passengers to this port, except as herein provided. Cabin passengers only will be allowed at the discretion of the medical officers, provided the applicant has been a resident of the place for ten days preceding and is known to the medical officer. This officer must satisfy himself that the applicant has not been in any infected locality in the past thirty days and that none of his effects have been exposed to infection.

Third. They shall carry an acclimated crew, unless impracticable.

Fourth. They shall not touch at any infected or suspected port, and have no communication with any vessel during their voyage, except in case of distress.

Fifth. They shall only touch at such ports or stations as are mentioned in their schedule, which latter shall be communicated to the board of health.

Sixth. They shall be required to make a full disclosure when arriving at a quarantine station of all the ports and places they have visited on their voyage.

Seventh. They may take on board a crew of laborers known to be acclimated, and from some healthy point where they permanently reside and remain, the crew being as nearly as possible always composed of the same men. The captain or other officer may go ashore for the purpose of entering or clearing vessels only. Any further communication with shore or natives will be considered a violation of regulations, and vessels in default will be treated accordingly.

Eighth. These vessels shall be cleansed and, when necessary, disinfected in the city of New Orleans, after discharge of cargo.

Ninth. Vessels receiving night inspection at quarantine will not be allowed to discharge cargo on arrival at New Orleans until after a daylight inspection by the shipping inspector of this board, and the captains, owners, or agents shall not allow anyone to go ashore or to come on board until after such daylight inspection.

Should for any reason a fruit port become infected or even suspicious, vessels from that port will be liable to such additional regulations as the board of health may adopt.

[Resolution adopted April 23, 1896.]

Resolved, That hereafter full quarantine restrictions will be imposed on all vessels whose officers willfully attempt deception in regard to any case of sickness, or material capable of carrying infection, or willfully disregard the rules and regulations of the board of health; and such detention will be imposed thereafter on every vessel on which any officers who have previously attempted to practice deception are found in any official capacity.

S. R. Olliphant, M. D.,
President.

G. Farrar Patton, M. D.,
Secretary.

PASSENGER PERMIT.

———, ——, *1896.*

Permission is hereby granted to ——— ——— to proceed to New Orleans, La., on board the steamship ———, leaving this port ———, 1896.

Description of holder: Sex, ———; race, ———; complexion, ———; height, ———; weight (about) ———; color of eyes, ———; color of hair, ———; baggage; number of trunks ——, valises ——, packages ——; character of baggage ———.

——— ———,
Medical Officer Louisiana State Board of Health.

C.

Board of Health, State of Louisiana,
No. —— *Mississippi River Quarantine Station*, ——— *189—*.

I hereby certify that ———, from ———, via ———, has complied with all requirements of the quarantine regulations of the board of health, State of Louisiana. I also certify that the said vessel has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury, under authority of the act of Congress approved February 15, 1893.

——— ———, M. D.
Resident Physician.

ATCHAFALAYA RIVER.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

This is an inspection station only. It is located on the west bank of the Atchafalaya River, 3 miles below Morgan City, about 25 miles from the Gulf, and 80 miles from New Orleans. The reservation consists of about one-half acre of land, which belongs to the State. The station is provided with a small wooden house, a small boathouse, and an old wharf about 25 feet in length. The buildings and wharf are in a dilapidated condition and unfit for use for quarantine purposes. The quarantine physician resides in Morgan City, and the "guard"

or boatman lives at the station. There is no apparatus for disinfection or facilities for the care of the sick. Anchorages in middle of river for all vessels. Infected vessels would be remanded to the Mississippi River quarantine for treatment after inspection. Inspections are made by rowboat.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. G. H. Douglas, quarantine physician; post-office address, Morgan City, La.; number of employees, 1 boatman.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

Inclosures: Governor's proclamation and regulations board of health, marked A. (See report on Rigolets quarantine station.) All vessels are boarded or hailed at the station by the boatman, and if any sick persons are reported on board the matter is at once reported to the quarantine physician, who examines them and inspects the vessel. The crew and passengers are mustered and the list compared with the manifest. Should a quarantinable vessel arrive, she would be at once remanded to the Mississippi River quarantine for treatment, or be detained at the station forty days.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

None; no unnecessary detention; no disinfection here.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

Inspections only made from April 15 to October 15.

6. Are vessels from other United States ports inspected?

Yes.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection; (*b*) the time occupied by disinfection; and (*c*) time after completion of disinfection of vessels until discharge.

Inspections are made as described above under quarantine customs. Infected or suspected vessels would be at once remanded to the Mississippi River quarantine.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

None.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

In each case the vessel would be remanded to the Mississippi River quarantine for treatment. Evidence of infected quarantinable disease on board having had same during voyage or within thirty days next preceding arrival.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

A record of all cases of sickness on board during voyage, etc., would be kept by the quarantine physician and reported to the board of health with regular monthly report.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Schooners under 25 tons, $1; over 25 tons, $2; steamships, $10.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Inclosure: Statement of arrival of vessels during year ended December 31, 1895, marked B.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

The regulations in respect to filing of bills of health understood. No immigration here. Should immigrants arrive, they would be received under the immigration regulations of the Department.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

As long as the quarantine work is limited to the inspection or hailing of vessels. the facilities are sufficient for the commerce of the port. This station is intended to prevent the passage of quarantinable vessels into the Mississippi, Teche, and Red rivers, and in case of an epidemic it would probably be necessary to erect suitable quarantine buildings, wharf, etc., and have a resident quarantine physician.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The hailing of vessels by the boatman and the passing of same by him, except when sickness is reported on board, does not appear to meet the requirements of the Treasury regulations.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

No certificates of inspection or of pratique issued. Most of the vessels arriving here hail from ports near by. Bills of health are, however, given by the collector of customs to vessels bound to distant ports upon application.

17. What disposition is made of the consular bills of health?

Filed at the custom-house.

18. Mention any facts which, in your opinion, should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

Lake Charles station is auxiliary to this, it being under the supervision of the same quarantine physician. As quarantinable vessels seldom call there the board of health deems it only necessary to employ a "guard" or boatman who lives at the place to hail all vessels and report to the quarantine physician of the Atchafalaya station should a suspected craft arrive. There are no quarantine buildings or equipments of any kind thereat. The station is intended to prevent the introduction of contagious diseases from Vera Cruz and ports in Mexico and Central America, and it might become an important point in case of a widespread epidemic in those countries. As the foregoing includes all of the information obtainable in respect to the station, it appears to be unnecessary to make a visit to the locality.

JUNE 10, 1896.

B.

Statement of vessels arriving in district of Teche, Louisiana, during the calendar year ending December 31, 1895.

Coastwise.*	Jan.	Feb.	Mar.	Apr.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Total.
Port of Brashear.	4	2	1	4	3	2	5	5	2	3	2	2	35
Calcasieu Pass....	14	22	13	19	25	28	26	19	27	27	28	22	270
Total.....	18	24	14	23	28	30	31	24	29	30	30	24	305

* Principally from Texas ports with produce and in ballast.

Two vessels arrived at Calcasieu Pass in January from Tuxpan, Mexico, with fruit and miscellaneous cargo and ballast.

Steamships carry general merchandise and merchandise in bond for foreign shipments, return cargoes hides, wool, cotton, and miscellaneous. Sailing vessels carry principally lumber to Texas and Mexican ports, returning generally in ballast.

TEXAS.

REPORT OF INSPECTION OF LOCAL QUARANTINES.

By Surg. H. W. SAWTELLE, M. H. S.

SABINE PASS.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

This station is located 2 miles from Sabine Pass. It consists of a wharf, about 50 feet in length, in fair condition, a wooden building containing the plant, and a small wooden building used for quarters for the employees. The quarantine officer resides in town. The buildings are in fair condition. Wooden cisterns are provided for storage of potable water for the use of the station. Anchorage about one-half mile from station. Limits of anchorage for noninfected vessels about one-half mile, and for infected vessels about 2 miles or more. Inspections are made by rowboat.

The apparatus for disinfecting consists of a steam boiler, a steam cylinder about 40 by 8 feet, with thermometer, pressure guage, etc., complete, also perforated pipe for turning in live steam for disinfecting clothing and baggage. The quarantine officer informs me that this apparatus has never been used, although vessels have been disinfected at the station; and, instead of removing bedding, clothing, and textile fabrics from the vessel and disinfecting them by steam, the doctor stated that they were disinfected on board with sulphur dioxide by the pot system.

A special sulphur furnace is used for the disinfection of vessels, the gas being forced into the hold by means of a Sturtevant fan, but the doctor was unable to give the amount of sulphur used per 1,000 cubic feet of space, or for the average-sized vessel. I was shown a small box, which would hold perhaps 100 pounds of sulphur, and was told that two such boxes full were used in the fumigation of a vessel. During my interview with the doctor he stated that hereafter he would use the steam cylinder in the disinfection of bedding, clothing, etc.

No facilities for the removal and detention of the sick or of suspects.

Mail daily from Sabine Pass. Telegraph facilities only from Beaumont, Tex., 30 miles distant.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. A. N. Perkins, quarantine officer; post-office address, Sabine Pass, Tex. Total number of officers and employees, 3. A deputy collector of customs is stationed here.

3. Transmit copies of the laws under which the local quarantine is maintained, and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

Governor's proclamation, same as sent with report of Galveston Station. No local regulations. The Treasury quarantine regulations have been adopted at all the stations in Texas.

Upon boarding a vessel, the bill of health, the log, clinical record of cases treated during voyage, if any, are examined, and the crew and passengers mustered and examined and compared with the list and manifest for any discrepancies, and all portions of the vessel practicable inspected. In case she hails from a port south of the twenty-fifth degree of north latitude, under the governor's proclamation, she is held as an infected vessel and detained five days for purification and for such an additional period of time as may appear necessary, and is finally released by direction of the State health officer. The bilges are pumped and cleansed with sea water, and the vessel made mechanically clean. The hold is then disinfected with SO_2, with the special sulphur furnace. Close-grained hard rock ballast is disinfected with the bichloride solution 1:800. All other ballast is discharged outside the bar. If with cargo, she is disinfected without breaking bulk, if practicable. All living apartments are disinfected by the pot system, and all portions of the vessel washed down with a solution of bichloride of mercury 1:800. As before stated, clothing, bedding, etc., are left on board and fumigated by means of pots. I inferred that such a disinfection of clothing was made only in case of vessels not considered infected, but held under the governor's proclamation.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

As far as I can learn there appears to be no unnecessary detention or disinfection except as stated above regarding clothing, etc.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

May 1 to November 1, or until discontinued by proclamation of the governor of the State.

6. Are vessels from other United States ports inspected?

All vessels are inspected.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

Quarantine procedures same as described under quarantine customs of the port, but if infected the vessel would be remanded to the United States Gulf Quarantine, Ship Island, for treatment. Disinfection commenced as soon as practicable after arrival.

The time occupied by disinfection, in accordance with article 8 of the Treasury regulations. All vessels are detained five days or longer if deemed necessary and disinfection practiced daily. Vessels hailing from other ports, with clean bills of health, with no sickness on board during voyage or upon arrival, sanitary condition of vessels good, are given pratique.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

None. No communication with vessels in quarantine, except under the direction of the quarantine officer. No intercommunication would be allowed among vessels in quarantine.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case?

In each case the vessel would be remanded to the United States Gulf Quarantine Station, though a vessel with smallpox infection might under some circumstances be treated at the station. Evidence of infection, quarantinable diseases on board or having had such on board during voyage, or within thirty days next preceding arrival.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Records of all cases of disease during voyage, upon arrival, or during detention, would be kept at station.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

No inspection fees are collected. Disinfection fee, the cost of material only.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

From foreign ports, 22; foreign ports in yellow fever latitude, 17; from domestic ports, 19. No record of previous movements of coastwise vessels. Statement of arrival of vessels for the year ended December 31, 1895, is included in a similar statement inclosed with report of Galveston Station.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

I ascertained at the custom-house that the bills of health and quarantine certificates are duly filed. No immigration here.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

At present the facilities appear to be sufficient.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

I do not consider the manner of disinfecting clothing, bedding, etc., in accordance with the Treasury regulations. The regulations regarding inspection and period of observation after disinfection are believed to be observed in the main.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes; certificate same as transmitted with report of Galveston Station. No copy obtained for transmission.

17. What disposition is made of the consular bills of health?

Filed at custom-house.

JULY 23, 1896.

GALVESTON.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects, mail and telegraph facilities, etc.

This station is located in Galveston Bay, about 1¼ miles below the city. The buildings consist of a cottage for the quarantine officer, two small buildings for the employees, and a disinfecting warehouse. The buildings are all wooden, and constructed on piles. The quarantine officer and employees reside on the extreme end of Galveston Island, known as Fort Point. The warehouse is located directly opposite, across the main ship channel, a distance of one-half mile. The wharf upon which the warehouse is built is 304 by 60 feet and the warehouse is about 274 by 50 feet, thus affording a working space of about 10 feet in front of building. This building contains the disinfecting cylinder, special sulphur furnace, 20-horse-power steam boiler, steam pump, steam winch, 6 wooden cisterns 3,000 gallons each, which furnish necessary rain water for the use of the station, with necessary hose connections. A space of about 45 by 80 feet is reserved for airing cargo, etc. There are hospital accommodations for about 20 patients with dining room, office, kitchen, 3 water-closets and 3 bathrooms. A room, about 40 by 70 feet is provided for the inspection of immigrants, together with bathing facilities and dressing rooms.

There is a small house, about 12 by 12 feet, situated on the southwest end of the wharf, for smallpox cases. The buildings are all in good order. Depth of water alongside of wharf at low water 11 feet. Contracts are about to be made to increase the depth to 25 feet. Anchorage for noninfected vessels in Bolivar Channel 1½ to 2 miles from station, northeast of "black buoy." Infected vessels are anchored outside of bar, 6 miles from station. Inspections are made by steam tug, naphtha launch, and 3 rowboats.

Apparatus for disinfection: One steam cylinder, 60 by 8 feet, fitted up with thermometer, pressure gauge, etc., complete. Perforated pipes are provided by means of which live steam is turned on and the temperature increased 225° F. moist heat. Special sulphur furnace for the generation of SO_2 for disinfection of vessels, the gas being forced into the hold by a Sturtevant fan. Sulphur pots are also used for the disinfection of cabins and living apartments. The tank containing the solution of bichloride of mercury, 1 : 800, stands on the wharf, capacity 800 gallons. This disinfectant is applied by means of a hand force pump. The sick are removed by tug to hospital; the room used for the inspection of immigrants is also used for those detained as suspects.

Mail and telegraph from Galveston. Telephonic communication from station to city. The disinfecting station appears to be in too close proximity to the city.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. W. F. Blunt, State quarantine officer; number of employees, 8; total number of officers and employees, 9. The number of employees is regulated according to the necessities of the service.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

Inclosure A, governor's proclamation. No other local regulations. The quarantine regulations of the Treasury Department have heen adopted, and I am informed that they are strictly enforced. Inspections are made promptly upon arrival of vessels. The crew and passengers are mustered and thoroughly inspected and the lists compared with articles and manifest for discrepancies. All portions of the ship are then inspected as far as practicable. In accordance with

the governor's proclamation all vessels arriving from ports south of the twenty-fifth degree of north latitude are considered infected and they are placed in quarantine and disinfected and held for a period of five days and longer if deemed advisable to do so. In case a vessel arrives with quarantinable disease on board, she would be remanded to the United States quarantine station at Ship Island, Mississippi. Should sickness break out on a vessel held in quarantine for observation, she would be disinfected and after the termination of the cases she would be redisinfected and held five days after completion of the last disinfection. All bedding, clothing, and all textile fabrics, curtains, carpets, etc., are removed and placed in the steam cylinder and treated with dry and moist heat increased to 225° F., for a period of two hours, with a pressure of about 10 pounds to the square inch on the cylinder. All articles that would be injured by steam are thoroughly wetted in the solution of bichloride of mercury, 1 : 800. In the meantime the vessel is made mechanically clean, the bilge pumped and cleansed with sea water, after which the solution of bichloride of mercury is applied by means of hose, and then she is fumigated with sulphur dioxide, the gas being forced into the vessel from the special sulphur furnace by means of a Sturtevant fan. In case of wooden vessels the SO_2 application precedes the bichloride treatment. The cabins and living apartments are disinfected with SO_2 by the pot system, and washed down with the bichloride solution. Soft ballast is discharged outside of the bar, close-grained rock ballast is disinfected by the $HgCl_2$ solution and allowed to remain on board. Fruit vessels are subject to the foregoing rules, but special consideration would be given provided a medical inspector employed by the State certifies that the port and surrounding country from which she cleared are healthy, and that no one has had communication with the shore at port of departure or during the voyage, except the captain, in accordance with the conference of Gulf quarantine officers of 1894. No fruiters have called at this port for the past two years. Should a cholera-infected vessel be detained here for treatment, in addition to the foregoing the water tanks would be discharged, at sea, if practicable, and purified with a 10 per cent solution of permanganate of potassa and refilled with pure water. The food and all refuse on board would be burnt in the ship's furnace and the vessel revictualed. Nothing would be thrown overboard from such a vessel.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

Governor's proclamation; copy inclosed marked A; also Instructions to Pilots, B. No unnecessary detention or disinfection to my knowledge.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

Foreign vessels are inspected throughout the year; domestic vessels from May 1 to November 1, or until discontinued by governor's proclamation. Disinfection is practiced at all times in case of suspected or infected vessels or baggage.

6. Are vessels from other United States ports inspected?

Yes.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection; (*b*) the time occupied by disinfection; and (*c*) time after completion of disinfection of vessels until discharge.

Same as given under quarantine customs, interrogatory 3.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No communication except under the supervision of the quarantine officer. Pilots do not board infected vessels. Such vessels are convoyed to the quarantine anchorage outside the bar by the pilots and turned over to the quarantine officer. No intercommunication among vessels in quarantine. Supplies for vessels in quarantine are delivered under the direction of the quarantine officer.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants); and what conditions are regarded as giving evidence of the vessel's infection in each case.

In each case the vessel would probably be remanded to the United States quarantine station, Ship Island, Mississippi, but if detained at this quarantine by order of the State health officer, the vessels would be treated strictly in accordance with Treasury quarantine regulations. Evidence of infection, quarantinable disease on board, or having had such during voyage, or within sixty days next preceding arrival.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival and during detention.

Records of all cases are kept at the station.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

Fees for disinfection: Steamships, $25; all other vessels from $10 to $25 according to size. No fees charged for inspection.

12. Make a statement showing the number of vessels arriving at this port during the preceding calendar year, by months, (*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Vessels arrived in the district of Galveston during the year 1895.

Month.	Foreign ports.	Ports in yellow-fever latitude.	Domestic ports.	Cargo.	Ballast.
January	34	17	40	37	37
February	24	18	27	27	24
March	14	12	33	27	20
April	11	9	34	28	17
May	9	8	26	24	11
June	7	6	23	19	11
July	5	5	20	20	5
August	5	5	29	29	5
September	10	9	30	28	12
October	42	24	37	38	41
November	27	20	31	29	29
December	19	11	28	30	17

Chief commerce of the port by countries.

Countries.	Cargo.	Ballast.	Total vessels.
Domestic	300	58	358
England	18	28	46
West Indies	3	29	32
Mexico	3	28	31
Cuba	1	21	22
All other	11	65	76

13. State results of your visit to (*a*) custom-house; (*b*) the immigration bureau.

I ascertained that the consular bills of health are properly filed. No immigration officer here.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

The quarantine facilities appear to be sufficient for the shipping of the port at present.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

I believe the quarantine regulations of the Treasury Department are complied with regarding inspection, disinfection, and the period of observation after disinfection.

16. Does the certificate of inspection or of pratique signed by the quarantine officer state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes. Copy inclosed, marked C.

17. What disposition is made of the consular bills of health?

Filed at custom-house.

18. Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The present quarantine officer has had many years' experience in quarantine affairs, and the station appears to be well conducted. In my opinion, it will be necessary to remove the disinfecting plant to a more isolated locality at no distant date, as extensive improvements are now under way in the harbor within about one-half mile from the station. Moreover, it is situated only about 1¼ miles from the city.

JULY 10, 1896.

A.

QUARANTINE PROCLAMATION BY THE GOVERNOR OF TEXAS.

Be it known that I, Charles A. Culberson, governor of the State of Texas, by authority invested in me by the laws of this State, do hereby declare that quarantine shall be established on the Gulf coast and Rio Grande border on and after May 1, 1896, and that it shall continue until closed by proclamation.

Said quarantine shall apply to all vessels, persons, or things coming from places infected by yellow fever, smallpox, or cholera, and all places south of 25° north latitude shall be considered infected unless proof to the contrary be submitted to the State health officer and special exemption be granted to said places; and persons from such places are prohibited from entering this State within a period of ten days.

I further declare quarantine against any person or persons infected or liable to be infected with yellow fever, smallpox, or cholera, either within or without the State, and direct the quarantine officers of the State and health officers of counties and towns to establish local quarantines around any and all such persons whenever discovered. The coast quarantine stations shall be governed by the following rules:

RULE 1. Every vessel arriving at any port in this State must halt for inspection at some point designated by the local quarantine officer, and no person shall board the vessel until after inspection, and then only when permission to do so is given by the quarantine officer; and all orders made and requirements imposed upon said vessels must be promptly obeyed by both officers, crew, and passengers.

RULE 2. Vessels from an infected place having had no sickness of an infectious kind en route shall be detained and subjected to daily processes of purification, such as shifting cargo, fumigating, ventilating, pumping out bilge water, and freely using disinfectants, for five consecutive days before being permitted to land either passengers, crew, or cargo, and a longer period if in the judgment of the quarantine officer it is necessary to insure perfect safety.

RULE 3. Vessels from infected ports laden with such articles as can not possibly be carriers of infection, and vessels coming empty from infected places, may be admitted after complying with above conditions and such other rules as may be prescribed by the State health officer.

RULE 4. Every vessel engaged in the fruit business with interdicted places must conform to the rules prescribed by the conference of Gulf State health officers at New Orleans February 2, 1894, and evidence of such compliance must be submitted to the State health officer before a special permit will be granted.

Local boards of health, civil and military authorities, and citizens of Texas are solicited to assist the quarantine officers in the execution of the above rules, and are earnestly requested to notify the governor of any dereliction of duty by officers or employees, or any other facts that will give greater efficiency to the quarantine service.

In testimony whereof, I hereunto sign my name and have caused the seal of State to be affixed, at the city of Austin, this 14th day of March, A. D. 1896.

[SEAL.]

C. A. CULBERSON,
Governor of Texas.

By the governor:

ALLISON MAYFIELD,
Secretary of State.

B.

INSTRUCTIONS TO PILOTS.

You are hereby notified not to bring any vessel across the bar until captains have signed the oath below.

By order of—

W. F. BLUNT, M. D.,
State Quarantine Officer.

I, ——— ———, captain commanding the ———, do solemnly swear that I have had no sickness on board, and have none at the present time, and that I have had no death on board, and that I have a clean bill of health, and have not touched at any place where any contagious disease existed.

——— ———.

C.

QUARANTINE STATION, *Galveston*, ———, *189—*.

I certify that ———, of ———, from ———, has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury, and that in my opinion she will not convey quarantinable disease. Said vessel is this day granted free pratique.

——— ———, M. D.,
State Quarantine Officer, Port of Galveston, Tex.

QUINTANA.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

This station is located at Quintana, a small town of about 300 inhabitants on the Brazos River about 2 miles from the Gulf and about 4 miles from Velasco, where a deputy collector is stationed. It is an inspection station only, there being no buildings or apparatus of any kind provided for quarantine work. Anchorage grounds at the mouth of the river through which all vessels subject to quarantine enter the port from the Gulf. Infected vessels would be anchored about 1 mile from those noninfected. Inspections are made by means of a rowboat. Mail from Quintana and telegraph from Velasco.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. E. S. Weisiger, State quarantine officer; post-office address, Quintana, Tex.; total number of officers and subordinates, 3.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

No copy of governor's proclamation on hand (see copy inclosed with report of Galveston Station). The quarantine customs of the port, as regards inspection, I was informed, are strictly in accordance with the Treasury quarantine regulations and governor's proclamation.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

Governor's proclamation (see copy with report of Galveston Station). Infected vessels, or those requiring treatment, are remanded to the Galveston Quarantine Station for treatment, there being no facilities here for quarantine work. I was informed that there is no unnecessary detention.

5. State whether the inspection is maintained throughout the year, or for what period, and what treatment of vessels is enforced during the entire year.

May 1 to November 1 only, or until discontinued by proclamation of the governor.

6. Are vessels from other United States ports inspected?

All vessels are inspected.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

The inspection includes the muster of passengers and crew and the comparison of the list with the manifest for discrepancies, examination of bills of health, ship's log, and all portions of the vessel practicable. If found to be infected, the vessel is remanded at once to the Galveston Station for treatment.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No communication would be allowed between vessels in quarantine except under the supervision of the quarantine officer, and no intercommunication would be allowed between the vessels in quarantine.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying infection), and what conditions are regarded as giving evidence of the vessel's infection in each case.

In each case the vessel would be sent to the Galveston quarantine for treatment. Evidence of infection: Quarantinable diseases on board, or having had such during voyage, or within thirty days next preceding arrival; foul bill of health, and bad sanitary history of vessel.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

No. All quarantinable diseases found on board of vessel on arrival would be reported to the State health officer at once.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

No inspection fees collected here.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

January 4, British steamship *White Jacket*, from St. Vincent, Cape Verde Island, no cargo; February 22, Mexican steamship *El Gullo*, from Galveston, no

cargo, water ballast; March 23, Norwegian steamship *Sultan*, from Castries, St. Lucia, no cargo, water ballast; May 4, Mexican steamship *El Gullo*, from Tampico, Mexico, no cargo, water ballast; October 9, British steamship *Glenislo*, from Shields, England, no cargo, water ballast; October 12, British steamship *Geo. Pyman*, from Cardiff, England, no cargo, water ballast; November 5, British steamship *Glanhafran*, from Havana, Cuba, no cargo, water ballast; November 11, Mexican steamship *El Gullo*, from Tampico, Mexico, no cargo, water ballast; December 28, Mexican steamship *El Gullo*, from Galveston, no cargo, water ballast.

13. State results of your visit to (*a*) the custom-house, (*b*) the Immigration Bureau.

Bills of health filed at custom-house; no immigration here.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

At present the facilities for inspection are sufficient.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection of vessels are observed.

The Treasury quarantine regulations regarding inspection of vessels are observed.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes. Copy inclosed, marked A.

17. What disposition is made of the consular bills of health?

Filed at custom-house.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

The quarantine officer here appears to be too feeble for active work.

JULY 15, 1896.

A.

QUARANTINE STATION,
Quintana, Texas, ———, *189—*.

To the Deputy Collector of Customs, Velasco:

The ——— is granted permission to proceed to the city of Velasco and discharge, all the requirements of the quarantine act of February 15, 1893, having been complied with, as regards vessels, officers, and crews.

——— ———, M. D.,
State Quarantine Officer.

PASS CAVALLO.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick and for the removal and detention of suspects; mail and telegraph facilities, etc.

This station is located at Alligator Head, Matagorda Bay, about 4 miles from the Gulf and 20 miles from Port Lavaca, where a deputy collector of customs has an office. This quarantine was moved a few months ago from Matagorda Peninsula to Alligator Head, the old site being in a dangerous locality. All vessels drawing 2 feet or more enter Matagorda Bay through Pass Cavallo. Small boats occasionally take the inside route by entering the bay through Mitchels Cut, 60 miles above the quarantine station here, or through Aransas Pass, about 45 miles below. The quarantine officer is provided with a wooden cottage, which also affords accommodations for the employees. It is built on piles and in good con-

dition. The reservation consists of 1 acre of land, which was donated to the State for quarantine purposes. Two wooden cisterns are provided for the storage of potable water for the use of the station. No wharf or boathouse. Anchorage grounds, about 2 miles from the station. Limits of anchorage for noninfected and for infected vessels, about 800 yards. Inspections are made by sail or row boat. No apparatus for disinfection, except by the pot system. No facilities for the removal and treatment of the sick or for the removal and detention of suspects. Mail and telegraph from Port Lavaca only

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. T. J. McFarland, quarantine officer; post-office address, Port Lavaca, Tex. Total number officers and employees, 3.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

Governor's proclamation (see Galveston report). No local regulations. The Treasury quarantine regulations are carried out here. All vessels coming from the Gulf are inspected, the bill of health examined. The crew and passengers are mustered and thoroughly examined, and the lists compared with the manifest for discrepancies and all portions of vessel inspected. If the vessel hails from a port north of the twenty-fifth degree of north latitude with clean bill of health, no sickness on board upon arrival or during voyage, and the vessel is found to be in good sanitary condition, she would be allowed to proceed. In case the vessel hails from a port south of the twenty-fifth degree of north latitude, under the governor's proclamation, it would be placed in quarantine, and should there be sickness on board of a contagious character she would be remanded to the quarantine station at Galveston for treatment. Should there be no sickness on board the vessel would be made mechanically clean and disinfected with sulphur dioxide, 5 pounds to 500 cubic feet of space, by the pot system, and then washed down with a solution of bichloride of mercury, 1:800, and held for a period of five days. All clothing, etc., would be boiled for one hour, and then saturated with the solution of bichloride of mercury. All bedding would be thoroughly sprinkled with the mercuric solution or burned at the discretion of the quarantine officer. Ballast of close-grained hard rock would be disinfected with the $HgCl_2$ solution and allowed to remain on board. All other ballast would be discharged 3 leagues outside of harbor. No fruit vessels enter here.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

None, except governor's proclamation. No unnecessary disinfection or detention.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

May 1 to November 1, or until discontinued by governor's proclamation.

6. Are vessels from other United States ports inspected?

All vessels are inspected.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine, (*a*) between arrival and commencement of disinfection; (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

Same as under customs, namely: All infected vessels would be remanded to the Galveston Station for treatment. Should a suspicious vessel be disinfected here, as described above, the work would be commenced as soon as practicable after arrival. Time occupied in disinfecting a wooden vessel, seventy-two hours; iron

forty-eight hours. Such vessels would be held five days after completion of disinfection and should no sickness occur in the meantime they would be discharged if approved by the State health officer.

8. What communication is held with vessels in quarantine and before quarantine by pilots, etc., and how regulated? Is there any intercommunication allowed between vessels in quarantine?

No communication with vessels in quarantine except by permission of the quarantine officer. No intercommunication. Should pilots board infected vessels, they would be subject to the same rules or treatment as the passengers or crew.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

In each case the vessel would be sent to the Galveston quarantine for treatment, there being no facilities here for their care. Evidence of infection of vessels, quarantinable diseases on board or having had such during voyage or within thirty days next preceding arrival, foul bill of health and bad sanitary history.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Records of all cases of disease that have occurred during voyage, on arrival, and during detention would be kept at the station.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

No fees for inspection collected here. Fee for disinfection, cost of materials.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

From foreign ports, none; from domestic ports: January, 6; February, 10; March, 9; April, 12; May, 4; June, 7; July, 18; August, 21; September, 15; October, 14; November, 17; December, 18. Vessels come chiefly from the ports of Matagorda, Galveston, Corpus Christi, Rockport, and Point Isabel, Tex., and Lake Charles, La. Some in cargo, others empty.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced; and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The quarantine regulations of the Department relating to inspection and disinfection, also period of observation after disinfection, I think, are observed.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes. Copy inclosed, marked A.

17. What disposition is made of the consular bills of health?

Consular bills of health would be filed at custom-house.

JULY 20, 1896.

QUARANTINE STATION, "A,"
Pass Cavallo, ———, *189*—.

I certify that ——— of ——— from ———, has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury, and that in my opinion she will not convey quarantinable disease. Said vessel is this day granted free pratique.

———— ————, M. D.,
State Quarantine Officer, Pass Cavallo, Texas.

ARANSAS PASS (NEAR ROCKPORT).

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

This station is located in the Bay of Aransas, Harbor Island, about 9 miles from Rockport and about 6 miles from the pass, through which all vessels enter the bay from the Gulf.

The buildings consist of a cottage for the quarantine officer, one small house for the boatman, and a small hospital, dimensions about 18 by 40 feet, but it has no kitchen, bathroom, or water-closet provided. It has never been used for hospital purposes. The buildings are all built on piles and they are in fair condition. There is a small wharf about 30 feet in length in fair condition. Anchorage one-half mile opposite station for all vessels. Limits of anchorage for noninfected and infected vessels, 2 miles. Inspections are made by sail and row boat. No apparatus for disinfection except by the pot system. The sick would be removed by sail or row boat. No facilities for the detention of suspects. Daily mail and telephone to Rockport. Telegraph from Rockport.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Dr. W. E. Pugh, State quarantine officer; post-office address, Rockport, Tex.; number of employees, 1 boatman. A deputy collector of customs is stationed at Rockport.

3. Transmit copies of the laws under which the local quarantine is maintained and copies or the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

[See governor's proclamation, Galveston report.] No local regulations. The Treasury quarantine regulations, I am informed, are strictly enforced. All vessels coming from the Gulf are inspected; the bill of health examined. The crew and passengers are mustered and thoroughly examined, and the list compared with the manifest for discrepancies, and all portions of vessel inspected. If the vessel hails from a port north of the twenty-fifth degree of north latitude, with clean bill of health, no sickness on board upon arrival or during voyage, and the vessel is found to be in good sanitary condition, she would be allowed to proceed. In case the vessel hails from a port south of the twenty-fifth degree of north latitude, under the governor's proclamation she would be placed in quarantine, and should there be sickness on board of a contagious character it would be remanded to the quarantine station at Galveston for treatment. Should there be no sickness on board, the vessel would be made mechanically clean and disinfected with sulphur dioxide, 5 pounds to 500 cubic feet of space, by the pot system, and then washed down with a solution of bichloride of mercury, 1 : 800, and held for a period of five days. All clothing, etc., would be boiled for one hour and then saturated with the solution of bichloride of mercury. All bedding would be thoroughly sprinkled with the mercuric solution, or burned, at the discretion of the quarantine officer. Ballast of close-grained hard rock would be disinfected with the $HgCl_2$ solution and allowed to remain on board. All other ballast would be discharged 3 leagues outside of harbor. No fruit vessels enter here.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

None. No unnecessary detention or disinfection as far as I was able to ascertain.

5. State whether the inspection is maintained throughout the year or for what period, and what treatment of vessels is enforced during the entire year.

May 1 to November 1, or until discontinued by proclamation of governor.

6. Are vessels from other United States ports inspected?

All vessels entering the harbor are inspected.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection; (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessel until discharge.

Procedures same as described under interrogatory No. 3. Infected vessels would be remanded to the Galveston station, there being no adequate facilities here for their treatment. Should a suspicious vessel be disinfected here as described above, the work would be commenced as soon as practicable after arrival. Time occupied in disinfecting a wooden vessel, seventy-two hours; iron, forty-eight hours. Such vessels would be held five days after completion of disinfection, and should no sickness occur in the meantime they would be discharged if approved by the State health officer.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.) and how regulated? Is there any intercommunication allowed among vessels in quarantine?

If pilots board infected vessels they would be subject to the same treatment as the passengers and crew. No intercommunication would be allowed among vessels in quarantine.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carryin ; or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

In each case they would be remanded to the Galveston station for treatment. Evidence of infection, quarantinable disease on board or having had such on board during voyage or within thirty days next preceding arrival, bad history and foul sanitary condition of vessel.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Records of all cases of sickness on board during voyage, on arrival, and during detention would be kept at the station.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

No inspection fees collected here. In case of disinfection, steamships $25, all other vessels $15. No other charges.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Only one foreign vessel arrived during the year ending December 31, 1895. Number of domestic vessels not known, but estimated at about 100.

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

I ascertained that the bills of health are filed at the custom-house. No immigration here.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

At present the quarantine facilities appear to be sufficient for the shipping.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection of vessels, are observed.

I think the Treasury quarantine regulations are satisfactorily complied with.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes; no certificates of pratique issued except to vessels from foreign ports. No copies on hand, but the blanks are the same as those used at Galveston.

17. What disposition is made of the consular bills of health?

Filed at custom-house.

JULY 18, 1896.

BRAZOS SANTIAGO.

1. Describe the quarantine station, location, buildings, anchorage, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

This station is located on Padre Island, 3 miles below Point Isabel, about 1 mile south of Brazos Santiago on the Laguna Madra, and 26 miles from Brownsville. The buildings consist of a house for the quarantine officer, and two "jacals," or outhouses, for use of the employees. The buildings are in good condition. Anchorages opposite station about 200 yards distant. A wooden cistern is provided for the storage of potable water for the use of the station. Vessels drawing over 9 feet can not cross the bar at this port and those drawing over 6 feet are unable to go to the wharf at Point Isabel. Limits of anchorage for noninfected and infected vessels, 1½ miles. Inspections are made by sail and row boats. No apparatus for disinfection of vessels or baggage, except by sulphur pots. No facilities for removal and treatment of the sick, or removal and detention of suspects. Mail and telegraph from Point Isabel.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers, subordinates, etc.

Dr. Arthur S. Wolff, quarantine officer; post-office address, Point Isabel, Tex. Total number of officers and employees, 5. A deputy collector of customs is stationed at Point Isabel.

3. Transmit copies of the laws under which the local quarantine is maintained and copies of the quarantine regulations, and describe the quarantine customs of the port as they are carried out.

No copy of governor's proclamation on hand. The quarantine regulations prescribed by the State of Texas, viz, the governor's proclamation, and Treasury Department are strictly enforced. All vessels are thoroughly inspected upon arrival. The bills of health, manifests, ship's log, entire vessel and crew are examined, and sanitary condition of vessel noted. The crew and passengers are mustered and the lists compared with manifest for discrepancies. If the vessels hail from a noninfected port with a clean bill of health, with no sickness on board during voyage or upon arrival, and the sanitary condition of the ship is good, she would be allowed free pratique with the approval of the State health officer. All vessels from infected ports are detained and fumigated with sulphur by the pot system, 5 pounds to 500 cubic feet space; the bilge would be pumped and cleansed with sea water and all parts of vessel and cargo, if any, ventilated, the cargo being shifted daily, and cabins and living rooms fumigated and washed down with a solution of bichloride of mercury, 1:800, and decks washed with a solution of carbolic acid, 1:25 to 1:50. Ballast of close-grained rock would be disinfected with the solution of bichloride of mercury and allowed to remain on board. All other ballast would be discharged outside of bar. All bedding would be burned, and all clothing of passengers and crew would be disinfected by boiling about one hour and rinsed in the

solution of bichloride of mercury. The vessel would then be held five days, and should no sickness occur in the meantime pratique would be given by State health officer upon recommendation of the quarantine officer.

Vessels from infected ports, with freight or cargo not likely to carry germs of infection, or vessels in ballast from such places, may be admitted after complying with the foregoing regulations. In case of smallpox infection, all passengers and crew not immune to the disease, in the opinion of the quarantine officer, would be vaccinated or held fourteen days. No fruit vessels have called at this port for the past three years. Such vessels coming from infected ports would be subject to the foregoing regulations and such other rules as may be prescribed by the State health officer, based upon the Treasury regulations. The above rules apply to all vessels, foreign and domestic, from all ports.

4. State what quarantine procedures, either under printed regulations or by custom, are enforced at the port, in addition to the requirements of the Treasury Department. It should also be stated whether there is undue or unnecessary detention or disinfection of vessels.

All passengers arriving and departing from this quarantine to any point in Texas or any other State are required to make affidavit that they or their baggage have not been in any place infected with yellow fever, cholera, or smallpox within the last twenty days (copy inclosed marked A). These affidavits are transmitted to the State health officer monthly. Under the governor's proclamation all vessels hailing from ports south of the twenty-fifth degree of north latitude are declared to be infected and held five days, and hence it is possible that if such an order is strictly enforced some vessels might be unnecessarily detained. I am unable to say that there is no unnecessary detention or disinfection.

5. State whether the inspection is maintained throughout the year or, for what period, and what treatment of vessels is enforced during the entire year.

Inspection from May 1 to November 1, or until closed by proclamation of governor. From November 1 to May, all passengers arriving either by steamer or stage are inspected by the quarantine officer at Brownsville before they are allowed to proceed. Ballast only treated during the quarantine season.

6. Are vessels from other United States ports inspected?

All vessels are inspected.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, (*c*) time after completion of disinfection of vessels until discharge.

Inspection and treatment of infected vessels same as described above under quarantine customs. If disinfection is required, the work commences as soon as practicable after arrival of vessel unless she is remanded to another station for treatment. Fumigation by sulphur with pots is continued for about three days and nights, and all parts of the vessel are washed down with the bichloride of mercury and carbolic acid solutions. The vessels arriving here are mostly wooden. After completion of disinfection the vessels are held five days.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.), and how regulated? Is there any intercommunication allowed among vessels in quarantine?

No communication. Should a pilot board an infected vessel he would be subject to the same treatment as the crew and passengers. No intercommunication allowed between vessels in quarantine.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

In each case the vessel would be placed in quarantine and the facts reported to the State health officer. In case of sickness on board the vessel would probably be remanded to the United States quarantine station, Ship Island, for treatment, there being no facilities here. If detained at this station the vessels would be treated in accordance with the Treasury regulations.

Evidence of infection of vessel: Cases of cholera, yellow fever, or smallpox on board, or having had cases during voyage or within thirty days next preceding arrival.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Yes.

11. Transmit schedule of quarantine fees, and give other fees and expenses necessarily and usually attendant on quarantine, as tonnage, ballast, wharfage charges, etc.

No fees collected for inspection. Disinfection fees, cost of material only.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

13. State results of your visit to (*a*) the custom-house, (*b*) the immigration bureau.

Bills of health filed at custom-house. No immigration here.

14. State whether in your opinion the quarantine facilities are sufficient to care for the shipping entering the port.

The quarantine facilities appear to be sufficient for the port at present.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specifically whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

The Treasury regulations are in my opinion properly carried out in all respects regarding inspection, disinfection, and period of observation after disinfection, as far as practicable, with the facilities at hand.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy of certificate.

Yes. Copy inclosed marked B.

17. What disposition is made of the consular bills of health?

Filed at custom-house.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

In addition to this station there is an inspection station at the mouth of the Rio Grande, known as the Port of Bagdad Quarantine Station, 10 miles distant from the Brazos de Santiago Station. This station being under the supervision of the quarantine officer at Brazos de Santiago, and as it is conducted under the same regulations, I did not consider it necessary to visit the place. Two guards only are employed as lookouts there, who report daily to the quarantine officer in charge. The quarantine officer has had many years of experience in quarantine matters at this port, and the station appears to be efficiently conducted. These two stations are important from the fact that they are in close proximity to the Mexican border on the Rio Grande. It is well known that the Mexican people have no quarantine laws or regulations at present in operation, and some friction has existed between the State of Texas and the Mexican authorities because of the strict quarantine maintained by the State of Texas. In consequence of

quarantine restrictions the business of small vessels trading between Vera Cruz, Tampico, Progreso, Soto la Marina, and Matamoras has been largely stopped during the quarantine season. In view of the fact that the river at Brownsville is only about 300 feet in width and free intercourse is established with Matamoras by means of a ferry, it is obvious that a strict watch at this point is necessary to prevent the importation of contagious diseases into Brownsville through Bagdad, at the mouth of the Rio Grande, via Matamoras.

JULY 13, 1896.

A.

STATE QUARANTINE STATION, ———, *189—*.

I, ——— ———, do hereby solemnly swear that neither I nor my baggage have been in any place infected with yellow fever, cholera, or smallpox within the last twenty days.

Sworn to before me,

——— ———.

Where from? ———.
Where to? ———.

No. ——.

Arrived at ———; date and hour ———; vessel's name ———; nationality ———; rig ———; where registered ———; tonnage ———; master's name ———; where from and latitude ———; date and hour of sailing ———; clearance preceding last ———; date ———; touched where ———; how long ———; boarded at sea ———; cargo ———; consignee ———; No. passengers C. & D. ———; No. crew ———; any sickness on board ———; description ———; put in quarantine ——— ; sanitary condition ———; deaths, if any, ———; bill of health ———.

I, ——— ———, captain commanding the ———, do solemnly swear that I have truthfully answered the above and all other questions put to me by the quarantine officer, and that I have concealed nothing, but have truthfully revealed all things relating to the sanitary condition of my ship, cargo, crew, and passengers, and that I have mentioned each and every place touched at, or in any way had communication with during this voyage.

Given under my hand and seal, this —— day of ——— A. D. 189—.

——— ———. [SEAL.]

B.

QUARANTINE STATION,
Brownsville, ———, *189—*.

I certify that ——— of ——— from ——— has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury, and that in my opinion she will not convey quarantinable disease. Said vessel is this day granted free pratique.

——— ——— M. D.,
State Quarantine Officer Port of Brownsville, Tex.

GENERAL COMMENTS UPON THE QUARANTINE STATIONS OF LOUISIANA AND TEXAS.

MARINE-HOSPITAL SERVICE,
New Orleans, La., August 11, 1896.

SIR: In accordance with your order of May 1, 1896, I have the honor to advise you that I have inspected the quarantine ports in Louisiana and Texas. The reports relative to the Louisiana stations were forwarded to the Bureau in June last. I now transmit herewith reports of the stations in Texas. These reports show that the stations visited are all in charge of quarantine officials and equipped for ordinary quarantine work to meet the present necessities of the Service, and that the Treasury quarantine regulations are in the main complied with.

No station in either State was found to be completely equipped, or having all the facilities necessary for full quarantine operations of extensive proportions, though it should be said that some of the additional facilities required could be readily provided. No provision for bathing, detention of suspects, or warehouse

room for the care and protection of cargoes while undergoing treatment was found, except at Galveston. An important feature of particular interest to commerce in connection with the quarantines of Texas is the reduction to the minimum of quarantine fees, namely, no charge is made for the inspection of vessels at any station; at four of the six stations the fee for disinfection is cost of materials only; at the other two stations the fee is from $10 to $25.

In conclusion, I desire to say that my tour of observation was made pleasant because of the uniform courtesy shown me by the quarantine officers at the various stations, and I take this opportunity to return my thanks for their considerate kindness.

Very respectfully,

HENRY W. SAWTELLE,
Surgeon, Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

CALIFORNIA.

REPORT ON UNITED STATES QUARANTINE AND INSPECTION STATIONS.

By Surg. JOHN GODFREY, M. H. S.

U. S. QUARANTINE, SAN DIEGO.

Name of quarantine station: San Diego, Cal.
When was the station last inspected? March 12, 1895.
Name of inspecting officer: P. A. Surg. C. T. Peckham.

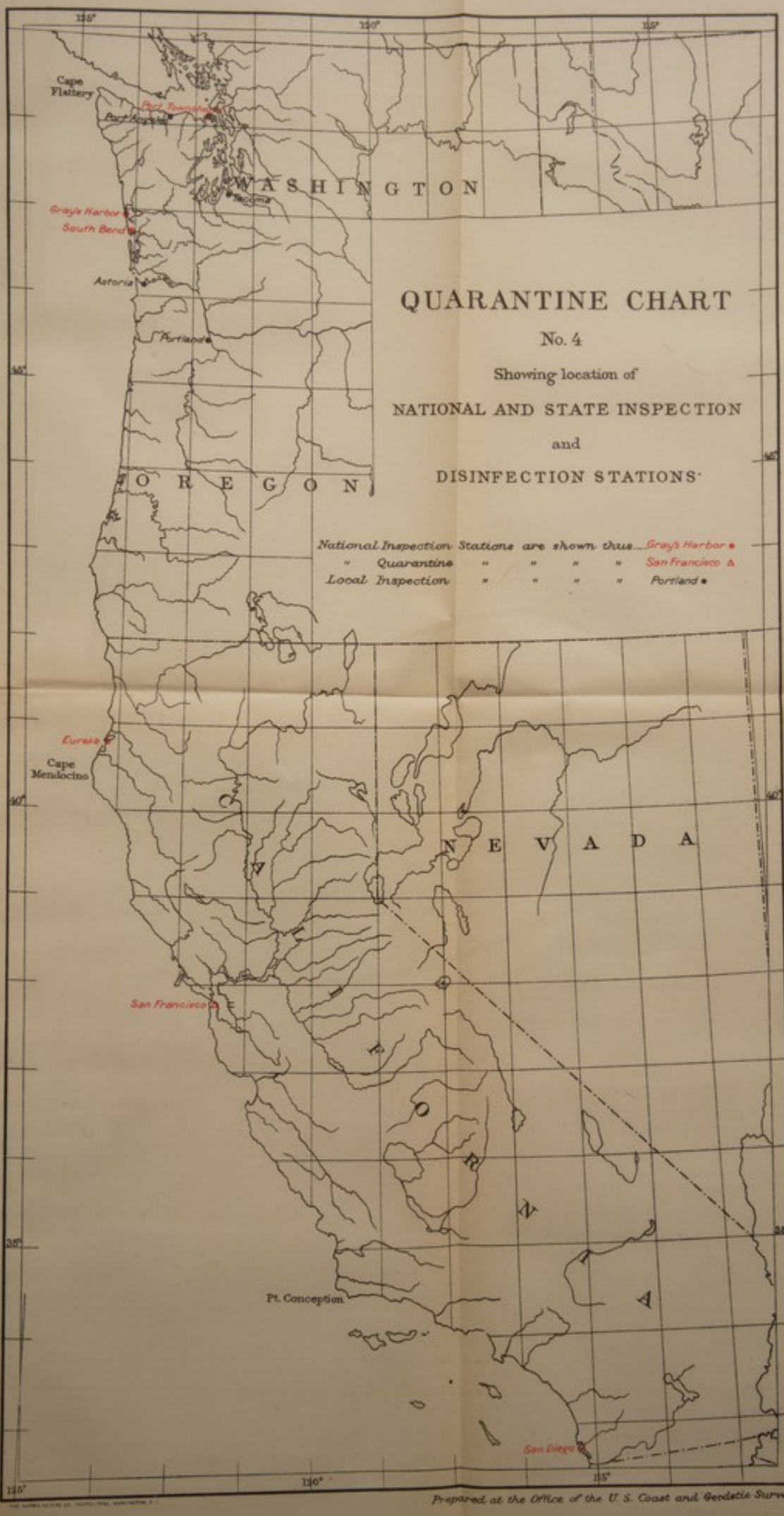
I. PERSONNEL.

Name of officer in command: A. A. Surg. W. W. McKay.
Date of assignment to duty: April 16, 1889. Name and rank of assistants, including acting assistant surgeons; also give number of members in each family: Only officer is Acting Assist. Surg. W. W. McKay; his family numbers four.
Name of steward and number of members in family: No steward.
Name and duties of each attendant: H. P. Olsen, pilot and boatman; Amos Kemp, engineer; Ole Nielsen, watchman; Joseph Sassomota, cook and laundryman.

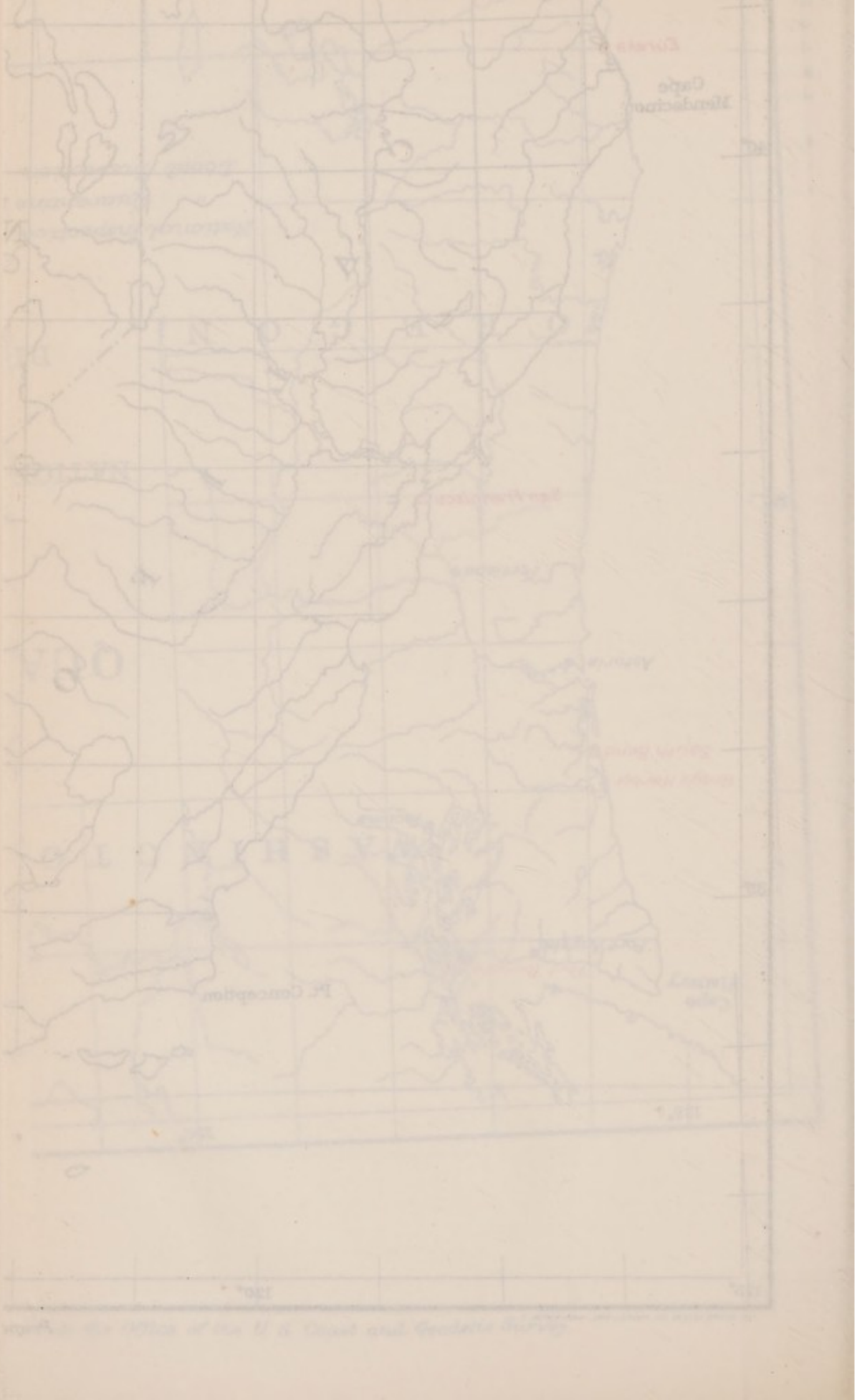
II. GENERAL DESCRIPTION OF STATION.

Number of buildings: Seven.
Limit of anchorage for noninfected vessels: Bay contains 80 square miles.

Limit of anchorage for infected vessels: About 1 square mile.
Facilities for inspection of vessels: Station has one 10-horsepower naphtha launch, and two rowboats.
Apparatus for disinfection of vessels and of baggage: Steam chamber, sulphur furnace, bichloride tank, steam boiler, steam engine.
Facilities for removal and treatment of sick: Sick would have to be brought to wharf in ships' boats; transferred to hospital, or to hospital tents, on mattresses. (It was suggested that the carpenter make stretchers.)
Facilities for removal and detention of suspects: To be brought in small boats. No facilities for detention of suspects.
Mail and telegraph facilities: Mail brought by launch once daily. No telegraph, but there is communication with San Diego by telephone.
Give number of wharves: One.
What is the length of the wharf frontage? One hundred and eight feet.
Are the wharves in good condition? Yes.
Are the mooring facilities ample? No; width of wharf will only accommodate small vessels.
What is the depth of water at mean low tide along the front of the wharf? Twenty-five feet.



Prepared at the Office of the U. S. Coast and Geodetic Survey.



What is the source of water supply? City water by pipes, and three cisterns.

Is it sufficient? At present, yes. During very dry years the cistern supply will run short.

Is it potable? Yes.

Hard or soft? City water, hard.

If hard, does it injuriously affect the boilers in use at the station? Yes.

How is it distributed and stored, if storage is necessary? By pipes into the buildings, and by plugs on the grounds.

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant: Steam boiler, disinfecting chamber, pump, sulphur furnace, fan, steam engine.

What is the general condition of all machinery? Good (new).

Does it appear well taken care of or neglected? Well taken care of.

Is there a steam hoisting engine for ballast? No.

Are there ballast tubs and a ballast car for the distribution of ballast? No.

How is ballast disposed of? None disposed of, so far.

Is it disinfected prior to being discharged, and what facilities exist for supplying ballast to vessels needing it? Facilities below station for supplying sand ballast.

What are the dimensions of the steam disinfecting chamber? Four feet 4 inches wide by 5 feet 4 inches inside by 9 feet long. Is it rectangular or cylindrical. Rectangular.

How many cars are provided? Two.

Are infected articles put in at one end and brought out at the other after disinfection, or is one end of the chamber used for loading and unloading? Put in at one end and brought out at the other.

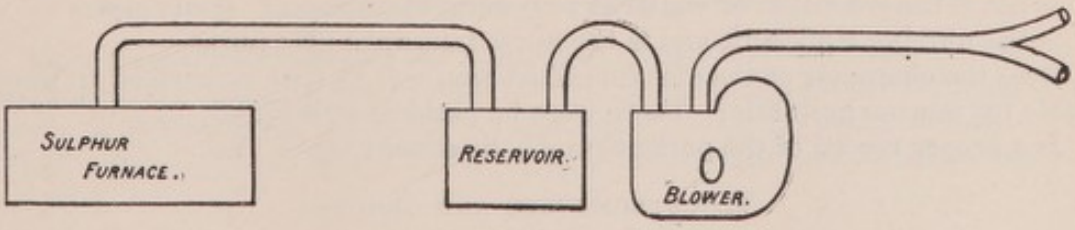
Is the chamber provided with thermometers for indicating the temperature during the process of disinfection? Yes.

Is the chamber equipped with any apparatus for the production of a partial vacuum? What is the nature of the appliance? If efficient in operation? Equipped with vacuum pump (Worthington). Is efficient,

What vacuum is produced, and how long does it take to obtain it? Five-tenths of an atmosphere. About five minutes.

Is a sulphur furnace provided? Yes.

Give a diagram of the method of gas distribution, showing the number of gas outputs.



How many feet of sulphur hose are provided? Three hundred feet authorized to be purchased.

What is the condition of the fan and engine? Good.

What is the method of storing bichloride solution? In a tank.

What is the capacity of the tank? Twenty-two hundred gallons.

Are they of wood or iron? Wood.

What is the elevation of the tank above the wharf flooring? Five feet.

Is the solution distributed by gravity, or is there a pump for the purpose? By pump.

How many feet of hose are provided for the distribution of the bichloride solution, and what is its size and condition? Three hundred feet 2-inch, authorized to be purchased.

How many steam boilers are provided? One.

What is their condition, and do they supply steam for all purposes? Good condition. Supply sufficient steam.

IV. BOATS.

Is the station provided with a steam tug, or other steam vessel? No.

Is the station supplied with a steam or naphtha launch? With naphtha launch.

Give dimensions. Thirty-five feet long; 7 feet beam; 2 feet 6 inches draft.

What is its condition? Good.

Give report of medical officer as to efficiency of the launch. "The most objectionable feature in connection with the engine on the naphtha launch is the difficulty sometimes experienced in getting up steam during the winter season in stormy weather; also the fact that the lodgment of kelp or seaweed on the propeller causes the pressure to run down rapidly, causing a corresponding loss of power at times when it is most likely to be needed."—*W. W. McKay, Acting Assistant Surgeon, M. H. S.*

How many small boats are provided, and what is the condition of them and their equipment? Two; in good condition.

Are more boats necessary or desirable? No.

V. HOSPITAL.

Give location of building used as hospital: On northern side of reservation.

Give general description of the building: Cottage plan; one ward; dispensary; steward's quarters; dining room; kitchen, disconnected by gallery; closet; cellar (under).

Dimensions: Fifty-eight feet by 29 feet.

Number of beds in ward: Ten.

How many beds can be added for emergencies: Five.

Cubic air space allowed each patient: Ten thousand feet.

Heating, lighting, and ventilating: Heated by coal grates; ventilator in roof.

Has the hospital sufficient furniture? Two bedside tables needed.

What kind of bedsteads, and what kind of mattresses and bedding? Iron bedsteads, hospital pattern, cotton mattresses, blankets, sheets, counterpanes, pillows.

Condition of bedding occupied by patients: Good.

Are the beds clean and free from vermin? Yes.

What is the condition of wards as to general cleanliness? Quite clean.

Is the nursing sufficient, and is the nurse immune? No nurse.

Does the character of the diet furnished conform to that prescribed in the diet table for marine hospitals? There were no patients in hospital.

Is a proper record of the patients under treatment kept? Yes.

VI. OUTBUILDINGS AND GROUNDS.

Describe the general condition of outbuildings: All building in good condition.

Are the grounds well policed? Yes.

Describe the officers' quarters and condition of furniture: Five living rooms, storeroom, bathroom, attic; all in good condition.

Describe steward's and attendants' quarters and condition of furniture: Steward's quarters unfurnished; attendants' quarters in good condition.

Describe dining room, condition of table furniture and tableware: Dining room 23 feet 9 inches by 12; everything in good condition.

Describe kitchen and furniture: Kitchen 17 by 12 feet; fixtures in good condition.

Describe dispensary: Size, 14 feet 6 inches by 13 feet 9 inches; sufficient closets and shelves; in good condition.

Describe laundry: Ample in size. Water supply convenient. Wooden tubs, should be enameled metal. No laundry stove; one badly needed. Wash has to be carried 100 yards to be boiled; ironing has to be done in kitchen, incommoding cook.

Describe the approaches to the station: By wharf. The station may be approached from the north by a road to the city; seldom used on account of distance, 9 miles.

Describe condition of fences and grounds: Good condition.

Describe drainage and condition of water closets: Complete sewer system, in good order, emptying into the bay.

Describe disposal of slops: Thrown into bay from end of wharf.

State whether any animals not authorized by the Department are kept on reservation: None.

VII. EQUIPMENT.

State approximately age and condition of each horse, and how long in service at this station: No horse belonging to Government kept at the station. A. A. Surg. McKay keeps a horse and a cow which he says are authorized by the Department.

Give number and character of vehicles: None on reservation.

Is there a blacksmith's forge provided? No.

Are there farming implements; and if so, are they in good condition? No farming implements.

Is there a fire apparatus provided; and if so, is there a fire drill organized? Two carts with hose attached; four fire hydrants; no regular drill.

VIII. DISCIPLINE.

Are officers and employees supplied with uniforms in compliance with the revised uniform regulations dated June 20, 1896? No; regulations not received.

Are uniforms properly worn? Yes.

Give method of granting leaves to officers and employees: Leave of few hours (verbal) granted to employees.

Describe when and how inspection, muster, and fire drills are conducted: Regular inspection Sunday forenoon; no muster. Each attendant is at his place of work when inspection is made.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow fever latitudes via domestic ports; (*c*) from domestic ports. From what countries chiefly do the vessels come? Are they in cargo, ballast, or empty?

Shipping arrivals, San Diego, Cal., year 1895.

FOREIGN.

Month.	Number.	Net tonnage.	Ensenada, Mexico.	Mexican possessions.	Dep Bay, British Columbia.	Nanaimo, British Columbia.	New South Wales.	London.	Cardiff, Wales.	Swansea, Wales.	Acapulco, Mexico.	Callao, Peru.	Corinto, Nicaragua.	Valparaiso, Chili.	Esquimault, British Columbia.	Cargo.
January	16	4,874	6	7	2	....	....	....	....	....	....	....	....	1	....	Coal, etc.
February	14	1,891	5	8	....	....	1	....	....	....	....	....	....	....	....	Do.
March	16	8,958	5	6	....	2	2	....	....	....	1	....	....	....	....	Do.
April	18	5,426	5	11	....	1	1	....	....	....	....	....	....	....	....	Do.
May	14	4,450	4	7	....	1	....	....	1	....	....	....	1	....	....	Do.
June	14	1,024	8	6	....	....	....	....	....	....	....	....	....	....	....	Guano, etc.
July	20	10,633	7	9	....	....	4	....	....	....	....	....	....	....	....	Coal, etc.
August	19	8,628	8	7	....	....	3	....	....	....	....	1	....	....	....	Do.
September	15	4,629	5	8	....	....	....	1	....	....	....	....	....	....	1	Cement, etc.
October	13	3,982	6	5	....	....	1	....	....	....	....	....	....	....	....	Coal, etc.
November	16	5,625	10	3	....	....	1	1	....	1	....	....	....	....	....	Coal and cement.
December	13	6,037	5	6	....	1	....	1	....	....	....	....	....	....	....	Do.
Total	188	66,157	74	84	2	5	13	3	1	1	1	1	1	1	1	

DOMESTIC.

Month.	Number.	Tonnage.	California.	Washington.	Oregon.	New York.	Pennsylvania.	Cargo.
January	18	13,876	17	.....	1	.....	.....	Lumber and general merchandise.
February	20	14,687	19	1	.....	.....	.....	Do.
March	18	12,507	17	.....	1	.....	.....	Do.
April	21	20,755	19	1	.....	1	.....	Do.
May	22	11,502	19	1	2	.....	.....	Do.
June	18	11,508	17	1	.....	.....	.....	Do.
July	15	14,921	13	2	.....	.....	.....	Do.
August	21	15,183	17	3	1	.....	.....	Do.
September	25	13,928	20	3	2	.....	.....	Do.
October	23	13,814	21	1	.....	.....	1	Do.
November	21	14,489	19	2	.....	.....	.....	Do.
December	21	14,689	19	1	1	.....	.....	Do.
Total	243	171,859	217	16	8	1	1	

State whether in your opinion the quarantine facilities are sufficient to care for the shipping arriving at the station: From what has already been said, it is plain that should a vessel arrive with smallpox or cholera aboard, the facilities would be a little more adequate than at a common port of entry for caring for her.

Give annual amount expended at station for last three years: In 1893, $3,796.65; in 1894, $5,338.62; in 1895, $4,619.76.

Give the immediate needs of the station as stated by the commanding officer: That the present wharf, 108 by 24 feet, is entirely occupied by warehouses filled with disinfecting machinery, and should have an addition of 75 feet at each end, with a 25-foot ell, the 75 feet on south end for ballast, ballast cars, and ballast-hoisting engine; the ell for quarters of crew of infected vessel; the 75 feet on north end for additional warehouse room and bathroom for passengers.

Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

I would recommend that the station be allowed a night watchman, not only to guard the buildings against fire, but to make more secure the machinery and various properties on the wharf. There should be erected a bathroom for the attendants; a bathroom for detained passengers or crews; detention quarters; increased warehouse room. By increasing the size of the wharf according to diagram, and running a sea-wall as indicated, filling behind it with sand, the station would have room for all purposes, and could be made completely operable. The city is erecting a water reservoir near the station. I would suggest that the station connect with this.

JUNE 8, 1896.

LOS ANGELES.

1. Describe the quarantine station, location, buildings, anchorages, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick, and for the removal and detention of suspects; mail and telegraph facilities, etc.

The port of Los Angeles consists of two subports, San Pedro and Los Angeles or Santa Monica. The former is on a bay from 2 miles in area one way to a mile and a half the other, well protected with good holding ground. No limits have been fixed for infected vessels, as so far there have been none, but there is more than sufficient room on the right side of the harbor. At Santa Monica it is the roadstead, with a long wharf extending into the ocean. There is no facility for inspecting a vessel except that of the customs department; no disinfecting apparatus; no facilities for removal and treatment of sick or of suspects. There is a port officer at both subports and telephone communication with Los Angeles, also telegraph.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

M. K. Barretto, deputy clerk and inspector, represents Santa Monica; post-office address, Santa Monica, Cal. C. M. Bell, deputy and inspector, represents San Pedro; post-office address, San Pedro, Cal. There is no quarantine officer.

3. No local quarantine is maintained at either subport, consequently no laws or regulations are in force.

4. So far there has been no necessity for quarantine procedure, and none is enforced. In all, two suspected vessels were examined at Santa Monica by local health officer, and passed.

5. No quarantine inspection maintained.

6. No vessels from other United States ports inspected.

7. No quarantine procedures. No work of this kind done.

8. No vessels have been held in quarantine at either subport.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessel carrying or not carrying immigrants), and what conditions are regarded as giving evidence of the vessel's infection in each case.

As heretofore no vessel bringing diseases of the kinds referred to has come into the port, it is impossible to say what would be done. As the customs officer was without past experience, and had no instructions to meet such an emergency, he was unable to make a satisfactory answer.

10. No regular record of cases occurring during the voyage. Seamen needing treatment are cared for by authority of collector of customs at San Pedro.

11. No quarantine, no fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months, (*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Arrivals at Los Angeles, Cal., during the year 1895.

FOREIGN.

Month.	Number.	Net tonnage.	Antwerp.	Comox, British Columbia.	London.	Hamburg.	Nanaimo, British Columbia.	Newcastle, New South Wales.	Vancouver, British Columbia.	Cargo.
January	2	3,133	.....	2	.....	.....	.....	.....	.....	Coal.
February	5	9,915	.....	3	.....	.....	1	1	.....	Do.
March	3	5,444	.....	3	.....	.....	.....	.....	.....	Do.
April	2	4,175	.....	1	.....	.....	1	.....	.....	Do.
May	4	7,992	.....	3	.....	.....	1	.....	.....	Do.
June	3	6,066	.....	2	.....	.....	1	.....	.....	Do.
August	3	2,651	.....	.....	.....	1	.....	1	1	Cement, coal, lumber.
September	2	3,784	.....	2	.....	.....	.....	.....	.....	Coal.
October	4	7,992	.....	3	.....	.....	1	.....	.....	Do.
November	6	9,368	1	2	2	.....	.....	.....	1	General merchandise, coal, lumber.
December	4	7,372	.....	3	.....	.....	.....	1	.....	Coal.
Total	38	68,192	1	24	2	1	5	3	2	

DOMESTIC.

Month.	Number.	Net tonnage.	California.	Oregon.	Washington.	Cargo.
January	17	8,770	16	.....	1	General merchandise and lumber.
February	19	8,958	19	.....	.....	Do.
March	29	12,416	29	.....	.....	Do.
April	32	12,344	32	.....	.....	Do.
May	34	12,483	33	.....	1	Do.
June	36	14,295	35	.....	1	Do.
July	39	13,177	39	.....	.....	Do.
August	27	14,366	27	.....	.....	Do.
September	21	12,077	20	.....	1	Do.
October	16	10,783	15	.....	1	Do.
November	15	9,458	15	.....	.....	Do.
December	27	12,831	26	1	.....	Do.
Total	312	141,958	306	1	5	

Arrivals at San Pedro, Cal., during the year 1895.

FOREIGN.

Month.	Number.	Net tonnage.	Fraser River, British Columbia.	Departure Bay, British Columbia.	Hamburg.	Japan seas.	New Westminster, British Columbia.	Vancouver, British Columbia.	Cargo.
January	3	2,126	1	1	.....	.....	.....	1	Coal and lumber.
February	3	1,301	1	.....	.....	.....	1	1	Lumber.
April	3	2,172	.....	1	1	.....	1	.....	Coal, cement, and lumber.
May	3	1,089	.....	.....	.....	.....	1	2	Lumber.
June	1	408	.....	.....	.....	.....	1	.....	Do.
July	1	233	.....	.....	.....	.....	.....	1	Do.
August	1	281	.....	.....	.....	.....	.....	1	Do.
September	3	986	.....	.....	.....	1	2	.....	Lumber and seal skins.
Total	18	8,596	2	2	1	1	6	6	

Arrivals at San Pedro, Cal., during the year 1895—Continued.

DOMESTIC.

Month.	Number.	Net tonnage.	California.	Oregon.	Washington.	Cargo.
January	43	12,034	24	7	12	General merchandise and lumber.
February	39	10,067	28	8	3	Do.
March	26	10,651	14	7	5	Do.
April	36	10,873	26	5	5	Do.
May	30	9,505	22	6	2	Do.
June	26	8,229	21	3	2	Do.
July	36	13,335	21	9	6	Do.
August	34	11,960	20	7	7	Do.
September	35	12,833	20	6	9	Do.
October	36	8,406	22	7	7	Do.
November	42	15,447	28	5	9	Do.
December	43	16,288	28	7	8	Do.
Total	426	139,628	274	77	75	

13. State results of your visit to (*a*) the custom-house; (*b*) the immigration bureau.

Found that there was neither quarantine establishment nor immigration bureau, and apparently but little need of either.

14. State whether, in your opinion, the quarantine facilities are sufficient to care for the shipping entering the port.

Sufficient while the conditions remain as they are.

15. No quarantine; no regulations enforced.

16. No quarantine officer; no certificate.

17. What disposition is made of the consular bills of health?

Kept at the subports.

18. Mention any facts which, in your opinion, should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

There being no quarantine service, no recommendations can be made. I would suggest, however, that the inspectors of the subports, through the collector at Los Angeles, be explicitly instructed what to do in case a vessel should arrive with a case of infectious disease aboard. At present they have not the least idea what step to take. Dr. Hill, the Marine-Hospital representative at San Pedro, and also the local health officer, in reply to a question as to what he would do, answered that he would move the sick into a tent, isolated, and telegraph the State board of health.

JUNE 5–6, 1896.

[NOTE.—A sanitary inspector of the Marine-Hospital Service has been appointed for Los Angeles and San Pedro, and necessary instructions given to collector of customs.]

U. S. QUARANTINE, SAN FRANCISCO.

Name of quarantine station: San Francisco Quarantine.

When was the station last inspected? March 27, 1895.

Name of inspecting officer: P. A. Surg. C. T. Peckham.

I. PERSONNEL.

Name of officer in command: P. A. Surg. M. J. Rosenau.

Date of assignment to duty: March 2, 1896.

Name and rank of assistants, including acting assistant surgeons; also give number of members in each family: None.

Name of steward, and number of members in family: G. S. Brock and wife.

Name and duties of each attendant: A. L. Davis, engineer, machinist, farrier;

J. O'Brien, cook; E. McGlennon, carpenter; R. Johnson, watchman of *Sternberg* boatkeeper, pilot of launch; E. McKennon, nurse, laundryman, and postman; H. Strelow, gardener and boatman; W. Langdon, night watchman; S. Prescott, outman; E. T. Ross, stableman, laboratory assistant.

II. GENERAL DESCRIPTION OF STATION.

Number of buildings: Fifteen.

Limit of anchorage for noninfected vessels: Any part of the bay except when infected vessels are to be anchored.

Limit of anchorage for infected vessels: About 6 square miles.

Facilities for inspection of vessels: Good.

Apparatus for disinfection of vessels and of baggage: Three double-jacketed cylinders; one sulphur furnace and fan (not connected) removed from *Geo. W. Sternberg*. Pump and tank on board *Sternberg* for bichloride solution.

Facilities for removal and treatment of sick: Removed by *Sternberg;* treated at lazaretto.

Facilities for removal and detention of suspects: To be removed by *Sternberg;* detained in Chinese barracks; capacity, 400; other barracks, capacity 300.

Mail and telegraph facilities: At both Tiburon and army post, Angel Island.

Give number of wharves: One.

What is the length of the wharf frontage? Two hundred feet.

Are the wharves in good condition? No. About 100 new piles needed.

Are the mooring facilities ample? Ample for small craft.

What is the depth of water at mean low tide along the front of the wharf? Thirteen to 17 feet.

What is the source of the water supply? Springs.

Is it sufficient? No.

Is it potable? Yes.

Hard or soft? Soft.

How is it distributed and stored, if storage is necessary? In tanks and cisterns.

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant: Three double-jacketed steel cylinder and boiler; one sulphur furnace and fan, removed from *Sternberg* and disconnected. Iron pump and 500-gallon galvanized tank on *Sternberg* for bichloride solution.

What is the general condition of all machinery? Good.

Does it appear well taken care of or neglected? Well taken care of.

Is there a steam hoisting engine for ballast? No.

Are there ballast tubs and a ballast car for the distribution of ballast? No.

How is the ballast disposed of? No facilities; would have to be disposed of according to kind, circumstances, etc.

Is it disinfected prior to being discharged, and what facilities exist for supplying ballast to vessels needing it? No ballast handled; none.

What are the dimensions of the steam disinfecting chambers? Each 40 feet long by 7 feet diameter.

Are they rectangular or cylindrical? Cylindrical.

Are infected articles put in at one end and brought out at the other after disinfection, or is one end of the chamber used for loading and unloading? Sometimes former, sometimes latter.

Is the chamber provided with thermometers for indicating the temperature during the process of disinfection? Yes.

Is the chamber equipped with any apparatus for the production of a partial

vacuum? What is the nature of the appliance? If efficient in operation? Not equipped; no appliance.

What vacuum is produced, and how long does it take to obtain it? None produced.

Is a sulphur furnace provided? Yes; one from *Sternberg*.

How many feet of sulphur hose are provided? Fifty feet of 6-inch rubber hose; can not be used because it collapses.

What is its condition? New; useless.

What is the condition of the fan and engine? Good.

What is the method of storing bichloride solution? None.

How many feet of hose are provided for the distribution of the bichloride solution, and what is its size and condition? Two hundred and fifty feet 1½-inch rubber hose, in fair condition; belongs to *Sternberg*.

How many steam boilers are provided? Two.

What is their condition, and do they supply sufficient steam for all purposes? Fair condition; sufficient steam.

IV. BOATS.

Is the station provided with a steam tug or other steam vessel? Yes.

If so, is she of wood or iron? Wood.

Give dimensions: Eighty feet long; 16 feet beam.

If of wood, is the vessel sheathed with metal? Copper.

Are the engines and boiler in good condition? Fair.

Give engineer's statement as to necessary repairs and renovation: No engineer; no repairs needed.

Is the station provided with a naphtha launch? One in construction.

Give dimensions: Thirty-six feet long; 8 feet beam; 3 feet 9 inches deep at center.

What is its condition? Unfinished.

Give report of medical officer as to efficiency of the launch: Untried.

How many small boats are provided, and what is the condition of them, and their equipment? One whale boat; one whitehall boat; one gig, belonging to *Phœbe*, in good condition.

Are more boats necessary or desirable? No.

V. HOSPITAL.

Give location of building used as hospital: At the base of a bluff in the northwestern part of cove. (Lazaretto for contagious diseases.)

Give general description of the building: In hospital, two wards and bathrooms; in annex (for suspects), room for suspects, nurse's room, kitchen, storeroom, lavatory, and water-closet.

Dimensions: Seventy-six by 26 feet.

Number beds in each ward: Not equipped.

How many beds can be added for emergencies? Could hold a total of 50.

Cubic air space allowed each patient: Five hundred feet on a basis of 50 patients.

Heating, lighting, and ventilating: Stoves, oil lamps, doors, and windows.

Has the hospital sufficient furniture? No.

What kind of bedsteads and what kind of mattresses and bedding? Cots; no mattresses; requisition made for blankets.

Condition of bedding occupied by patients: No patients. The little bedding at station is new.

Are the beds clean and free from vermin? Yes.

What is the condition of wards as to general cleanliness? Clean.

Is the nursing sufficient, and is the nurse immune? Sufficient at present. In

case of infectious diseases would need a trained nurse. The only available person for nurse on the island has had smallpox.

Does the character of the diet furnished conform to that prescribed in the diet table for marine hospitals? No patients. Diet table of Marine-Hospital Service considered the guide.

Is a proper record of the patients under treatment kept? No patients.

VI. OUTBUILDINGS AND GROUNDS.

Describe general condition of outbuildings: Structurally good; all in need of paint.

Are the grounds well policed? Yes.

Describe the officers' quarters and condition of furniture: Cottage with 8 rooms; furniture in good condition.

Describe steward's and attendants' quarters and condition of furniture: Steward's quarters, a cottage with 6 rooms; attendants' quarters, modern building, with 8 rooms; furniture in good condition.

Describe dining room, condition of table furniture and tableware: Ample in size. Furniture and ware sufficient and in good condition.

Describe kitchen furniture: Size 25 by 12 feet. All fixtures in good condition.

Describe dispensary: Well supplied with shelves, drawers, scales, pill tiles, etc.

Describe laundry: Building 50 by 20 feet. Cement floor; steam in character; composite steam tubs; water delivery fine; all in good condition.

Describe approaches to the station: By land, military road (2 gates); by water Raccoon Straits.

Describe condition of fences and grounds: New fences; grounds well kept, partly cultivated.

Describe drainage and condition of water-closets: Terra cotta drains—into the bay. Iron sewer pipes. Several water-closets in need of repairs; several more should be added for use of those landed pending disinfection of their baggage.

Describe disposal of slops: Deposited on beach at low tide.

State whether any animals not authorized by the Department are kept on the reservation: None.

VII. EQUIPMENT.

State approximately age and condition of each horse, and how long in service at this station: One horse, bought in 1892; about 10 years old; good draft horse.

Give number and character of vehicles: One dump cart.

Are they properly cared for? Yes.

Are harnesses in good condition? Old and worn.

Is there a blacksmith forge provided? Yes.

Are there farming implements; and if so, are they in good condition? Yes; new.

Is there a fire apparatus provided; and if so, is there a fire drill organized? One hose cart and 600 feet of fire hose provided. Two additional carts and additional hose should be provided.

VIII. DISCIPLINE.

Are officers and employees supplied with uniforms in compliance with the revised uniform regulations? Yes.

Are uniforms properly worn? Yes.

Give method of granting leaves to officers and employees: By verbal leave not to exceed twenty-four hours.

Describe when and how inspection, muster, and fire drills are conducted: Every Saturday at 3 p. m., inspection and muster. Fire drill at intervals to keep men in training.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year, by months.

From foreign ports: April, 1; September, 6; October, 2; total, 9.

From foreign ports in yellow-fever latitudes via domestic ports, none.

From domestic ports, none.

From what countries chiefly do the vessels come? China, Japan, and Sandwich Islands.

Are they in cargo, ballast, or empty? Mainly steamers with cargo; occasionally sailing vessels in ballast.

State whether in your opinion the quarantine facilities are sufficient to care for the shipping arriving at the station? It is sufficient with repairs going on and improvements projected. In extraordinary cases there might be serious lack of water.

Give annual amount expended at station for last three years. For 1893, $15,940.05; for 1894, $14,993.06; for 1895, $10,813.25.

Give the immediate needs of the station, as stated by the commanding officer. Wharf for large vessels; telephone to mainland; accommodations for cabin passengers; ejector for vacuum; cars for steam disinfection; formalin disinfector for mail and fine fabrics; crematory; bath house.

Mention any facts which in your opinion should be known to the Department bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

First, and most important, there should be a proper water supply. The surest, and in the end the most economical, way to furnish it would be by boring an artesian well. The springs furnish little more than sufficient water for the domestic uses of the station; a much larger number of consumers would most likely bring on a water famine.

Second. A shed should be built to protect the coal deposited on the wharf.

Third. A lavatory and water-closets for steerage passengers should be built near the wharf.

Fourth. The suction pipe for salt water should be extended to low-water level with as little delay as possible.

Fifth. Pipes should be laid for distributing salt water about the grounds, to be used in flushing and in case of fire; salt-water tanks should be elevated.

Sixth. There should be at least two additional hose carts, with fire hose (rubber).

Seventh. There should be lamp-posts, with proper glass protectors, that the grounds of the station may be lighted.

Eighth. The barracks buildings should be rendered sulphur tight.

Ninth. The steam chambers should have electrical thermometers.

Tenth. Under the order of things about to begin, an attendant to serve as fireman should be employed at once.

Eleventh. The interior finish of the lazaretto, plaster, should be changed so that it could be flushed and washed.

Twelfth. It is highly important that the station should have telephone communication. The inconvenience without it when the service begins to do the boarding is obvious.

Thirteenth. Attention is asked to the fact that all the power should be concentrated under one roof and not under several, as it is now, in view of the fact that one attendant has to manage all of it.

JUNE 20, 1896.

EUREKA.

1. Describe the quarantine station, location, buildings, anchorage, etc. Give limits of anchorage for noninfected and for infected vessels; facilities for inspection of vessels; apparatus for disinfection of vessels and of baggage; facilities for removal and treatment of the sick and for the removal and detention of suspects; mail and telegraph facilities, etc.

The bay is U-shaped, being about 10 miles one way by half a mile the other. Sufficient anchorage for the vessels that arrive. Inspection made by hiring vessel for the purpose. No facilities for removal of sick, for their treatment, or for removal and detention of suspects. Mail and telegraph facilities ample.

2. Give personnel of the station or port; name of the quarantine officer or officers; post-office address; total number of officers and subordinates, etc.

Daniel Murphy, collector of customs; B. D. McDonald, deputy collector; Dr. B. Y. Harris, sanitary inspector, Marine-Hospital Service. Post-office, Eureka, Cal.

3. There is no local quarantine exercised.

4. No procedures except those prescribed by the Treasury Department.

5. Inspection is maintained throughout the year. Treatment would be by carbolic acid, bichloride mercury, and sulphur, as prescribed by quarantine regulations. There is no apparatus for disinfecting.

6. No vessels from other United States ports are inspected.

7. Describe quarantine provisions in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) the time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharge.

Vessels boarded by sanitary inspector, examination of crew, passengers (if any), the ship's manifest, log and bills (if necessary), would be treated as directed by the regulations. (*a*) Within two or three hours. (*b*) Limit prescribed by the regulations for each disinfectant. (*c*) Limit of time according to regulations.

8. What communication is held with vessels in quarantine (and before quarantine by pilots, etc.) and how regulated? Is there any communication allowed among vessels in quarantine?

No communication allowed. All persons are forbidden to board vessels until after visit of sanitary inspector. No communication would be allowed among vessels in quarantine.

9. State what will be done with a vessel infected with cholera; second, a vessel infected with yellow fever; third, a vessel infected with smallpox (said vessels carrying or not carrying immigrants); and what conditions are regarded as giving evidence of the vessel's infection in each case.

So far no vessel having either of those diseases has entered the port. Should one arrive the sanitary inspector reports that he would notify the Department by telegraph (per instructions), and the vessel would be sent to Angel Island quarantine. Otherwise procedure provided by the regulations would be carried out.

10. State whether records are kept at the station of the cases of disease that have occurred during the voyage, on arrival, and during detention.

Provision made for keeping record. Have had no diseases so far.

11. There are no quarantine fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from ports in yellow fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

Arrival of vessels during the year 1895.

Month.	Foreign ports.	Domestic ports.a	Month.	Foreign ports.	Domestic ports.a
January	----------	10	July	----------	11
February	----------	11	August	----------	15
March	----------	13	September d	1	16
April b	1	13	October	----------	13
May c	1	12	November e	4	12
June	----------	12	December c	1	12

a Passenger and general merchandise.
b Ballast, from Australia.
c Cargo, from Australia.
d Ballast, from Siberia.
e Ballast, from Hawaiian Islands.

13. State the results of your visit to (*a*) custom-house; (*b*) the immigration bureau.

At the custom-house an intelligent understanding of quarantine procedure and what ought to be done should occasion arrive, of which there is but small probability. There is no immigration bureau.

14. In my opinion the quarantine facilities are sufficient to care for the shipping entering the port.

15. Name the quarantine regulations of the Treasury Department which are not properly enforced, and state specially whether the regulations regarding inspection and disinfection, and particularly the period of observation after disinfection, of vessels are observed.

I was informed that the inspector boarded all vessels, having the regulations with him, prepared to enforce them to the letter. So far, there has been no vessel needing treatment.

16. Does the certificate of inspection, or of pratique, signed by the quarantine officer, state that the Treasury regulations have been complied with as required by section 5, act of February 15, 1893? Transmit copy.

Yes; copy inclosed, marked A.

17. What disposition is made of the consular bills of health?

Filed in office of collector of customs.

18. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

No recommendations deemed necessary.

JUNE 15, 1896.

A.

CERTIFICATE OF DISCHARGE FROM NATIONAL QUARANTINE.

UNITED STATES QUARANTINE,
Eureka, Cal., March 30, 1896.

I certify that American schooner *Una*, of San Francisco, from Champerico, Central America, bound for Eureka, Cal., has in all respects complied with the quarantine regulations prescribed by the Secretary of the Treasury, and that, in my opinion, the vessel, cargo, and passengers are each and all free from infectious disease or danger of conveying the same. Said vessel is this day granted free pratique.

B. Y. HARRIS,
Sanitary Inspector, Marine-Hospital Service.

OREGON.

REPORTS ON LOCAL QUARANTINE AND INSPECTION STATIONS.

By P. A. Surg. J. C. PERRY, M. H. S.

COOS BAY.

1. There is no quarantine establishment on Coos Bay. The limit of anchorage for noninfected vessels is 1 mile; it is located 2 miles below Empire City and about the same distance from the entrance to Coos Bay. That for infected vessels is just inside the bar, in Charleston Bay, and Empire City is the nearest village, being 3½ miles distant. There are no facilities for inspection, the health officer having to provide boat and boatmen at his own expense.

There are no facilities for disinfection, removal and treatment of sick, or detention of suspects. There is a daily mail to and from Empire City, and a telegraph office.

2. The health officer is Dr. C. W. Tower, whose post-office address is Marshfield, Oreg.

3. The only quarantine laws and regulations observed at this port are those prescribed by the State law, a copy of which is transmitted with my report on the quarantine service of Astoria, Oreg. No regular inspection service is maintained. The pilots are instructed to take all vessels with sickness aboard to Charleston Bay, raise the yellow flag, and then the health officer comes down and inspects the vessel, etc. No infected vessel has entered this port.

4. The only quarantine procedures enforced at this port are the regulations contained in the State law. The health officer expressed a willingness to comply with the regulations of the Treasury Department.

5. Inspections are maintained throughout the year.

6. Only those vessels having sickness on board are inspected.

7. The health officer, upon inspection of vessels, inquires as to the sanitary condition at port of departure, sickness occurring during the voyage, and investigates the sanitary condition of the crew and the vessel. If the vessel is found to be infected, the facts are reported to the collector of customs, and he will inform the Department.

8. No communication is held with vessels in quarantine except by health officer. Pilots are detained on board infected vessels, and no intercommunication among vessels is permitted.

9. As there are no facilities for disinfection of vessels or for the care of the sick of any vessel infected with yellow fever, cholera, or smallpox, such vessel would be held in quarantine and the facts immediately telegraphed to the Department by the collector of customs and authority asked to remand the vessel to the nearest United States quarantine station for disinfection, etc. In the meantime the people detained on board would be inspected daily by the health officer, and the most rigid means taken to prevent dissemination of the contagion.

10. No records are kept by the health officer.

11. There are no fees connected with the quarantine work at this port.

12. No vessels were entered at the custom-house during the last fiscal year. The coasting vessels are not required to report at the custom-house; these vessels come in cargo of general merchandise.

13. I was informed by the collector of customs that no vessels would be allowed to enter until he was satisfied that such vessels were free from any quarantinable disease. If an infected vessel arrives, he would communicate the facts to the Department and ask authority to send the vessel to the nearest United States quarantine station. There is no immigration bureau at this port.

14. I consider the inspection service sufficient for the needs of this port, provided the health officer exercises due vigilance in the performance of his duties.

15. The quarantine regulations of the Treasury Department will be enforced as regards inspection and observation. There are no facilities for disinfection. I furnished the health officer a copy of the quarantine laws and regulations of the United States, and he said he would follow them in his quarantine work. He was glad to learn that authority would be given to remand any infected vessel to the United States quarantine station at San Francisco, Cal.

JUNE 13, 1896.

GARDINER.

[I have the honor to inform the Bureau that while at Empire I was fortunate enough to secure all the data concerning the quarantine service at Gardiner, on the Umpqua River, and consequently it is not necessary for me to visit that port. The town of Gardiner is situated on the bank of the Umpqua River, 8 miles from its mouth. The river has a depth of 13 feet at low water at its mouth, but is not navigable for vessels of deep draft beyond Gardiner. No vessels from foreign ports reach this river, the commerce being carried on by coastwise vessels from Portland and San Francisco.]

1. There is no quarantine station on the Umpqua River. The limits of anchorage for noninfected vessels are 3 miles, and it is 3 miles from the town. The limits for infected vessels are 2 miles, and 5 miles from Gardiner, near the mouth of the river. There is a daily mail; no telephone or telegraph. Transportation by stage to Coos Bay.

2. J. L. Ellwood, M. D., Gardiner, Oreg. No subordinates.

3. The quarantine laws and regulations observed at this port are those prescribed by the State law, a copy of which is transmitted with my report of Astoria, Oreg. I was informed by the health officer that he inspected all vessels, and if he found them in bad sanitary condition they were ordered to the lower anchorage and the yellow flag was raised. No infected vessel has entered this port.

4. The quarantine procedures consist in those prescribed by the State law. There is no unnecessary detention of vessels.

5. Inspection is maintained throughout the year, and the treatment of vessels is the same.

6. Vessels from other United States ports are inspected.

7. Upon inspection the health officer inquires as to the sanitary condition of the port of departure, sickness during the voyage, and present sanitary condition of crew and vessel. If he finds boat infected, he communicates the facts to the collector of customs at Empire, and the latter will inform the Department. No other procedures are had.

8. No communication is held with vessels in quarantine except by the health officer. No intercommunication is allowed among vessels in quarantine. Vessels do not employ pilots.

9. Since there are no facilities for the disinfection of vessels infected with cholera, yellow fever, or smallpox, and no hospital or place for the detention of suspects and treatment of sick, such vessels will be reported to the collector of customs at Empire, and directed by him to the nearest quarantine station for disinfection and treatment, or be held in quarantine until advised by the Department. In the meantime strict vigilance would be maintained and all precautions taken to prevent the spread of contagion. All persons on vessel infected with smallpox, except those suffering with the disease, would be vaccinated. All vessels suspected of being infected would be held in quarantine the period of incubation of the disease quarantined against. The conditions regarded as giving sufficient evidence of vessel's infection are: Prevalence of disease in port of departure, sickness during the voyage or on arrival, and unsanitary condition of the vessel.

10. Records are kept by the health officer of all cases of disease occurring during voyage, on arrival, and during detention.

11. There are no regular quarantine fees.

12. No foreign vessels entered this port during last year. A few domestic vessels from Portland and San Francisco, most of them in cargo of general merchandise, and a few empty to load lumber.

13. There is no custom-house or immigration bureau at Gardiner, Oreg.

14. I consider the inspection service on the Umpqua River is sufficient to care for the needs of the place.

JUNE 14, 1896.

YAQUINA BAY.

[Yaquina is situated on Yaquina Bay, 3½ miles from its mouth. The bay has a depth of 23 feet in most places and is navigable several miles for large vessels. The custom-house is located at Yaquina but the collector and health officer reside at Newport, a village situated near the mouth of the bay.]

1. There is no quarantine station. The anchorage for noninfected vessels is about 1½ miles from Yaquina. The anchorage for infected vessels is three-fourths of a mile nearer the mouth of the bay. There are no facilities for inspection and for disinfection. There is a daily mail and a telegraph line; also telephone service to Toledo, Oreg.

2. Dr. J. S. Bayley is health officer; post-office address, Newport, Oreg. There are no subordinates.

3. There are no quarantine regulations enforced at this station except those prescribed by the State law, a copy of which is transmitted with my report of Astoria. No regular inspection service is maintained. The collector of customs informed me that he boarded all vessels soon after they entered the bay, and if they had any sickness on board or were in unsanitary condition he directed them to the anchorage and notified the health officer, who then inspected them. As yet there has been no necessity for this, since an infected vessel has never entered the bay.

4. The only quarantine procedures in addition to those required by the Treasury Department are those prescribed by the State law.

5. The same inspection service is maintained throughout the year.

6. Only vessels having sickness on board are inspected.

7. The quarantine regulations of the Treasury Department as regards inspection of vessels will be followed. If the vessel is found to be infected, the health officer will report the facts to the collector of customs, and he will inform the Department, requesting authority to remand such vessel to the nearest United States quarantine station for disinfection.

8. Vessels do not take pilots, since only coasting vessels enter. No communication is held with vessels in quarantine except by health officer, and no intercommunication among vessels is allowed.

9. As there is no suitable apparatus for the disinfection of vessels infected with contagious diseases, and no facilities for the care of the sick and the detention of suspects, such vessels would be ordered by the collector of customs to proceed to the nearest quarantine station for disinfection, or held in quarantine until advised by the Department as to what disposition should be made of the vessel. In the meantime the health officer would take the proper precaution to prevent the spread of the contagion. All persons on vessel infected with smallpox would be vaccinated. Any vessel suspected of being infected would be held in quarantine the period of incubation of the disease suspected, dating from the last exposure. The conditions considered as evidence of infection are: Prevalence of the disease at port of departure, sickness during the voyage or on arrival, and an unsanitary condition of the vessel.

10. Records of all cases of sickness are kept by the health officer.

11. There are no regular quarantine charges.

12. The only vessels entering Yaquina Bay are a few that run between this port and San Francisco and other towns on the coast of Oregon; most of them carry cargo of general merchandise, and some few in ballast. No foreign vessels enter this port.

13. I learned upon my visit to the custom-house that vessels are not allowed to enter unless the collector of custom is satisfied they are not a menace to public health. There is no immigration bureau.

14. The inspection station is, in my opinion, sufficient to guard against the introduction of contagious or infectious diseases, since the shipping is small and the danger almost nil.

15. The Treasury regulations regarding inspection and observation will be enforced at this port. There are no facilities for disinfection.

16. There are no certificates of inspection given.

17. There are no consular bills of health.

18. The health officer has been recently appointed, and is not familiar with the Treasury regulations. Copies of the quarantine laws and regulations of United States were given both to the health officer and to the collector of customs.

JUNE 16, 1896.

ASTORIA.

[Astoria is situated near the mouth of the Columbia River, and is the only place on the river where the State has made provision for quarantine purposes.]

1. There is no quarantine station on Columbia River. Vessels are quarantined near its mouth, and all pilots who bring in vessels suspected of being infected are required to anchor them below Smiths Point, and to immediately notify the health officer by hoisting a flag. The anchorage for noninfected vessels is one-half a mile, and for those infected 1 mile. There is ample and excellent anchorage. The facilities for inspection are meager, consisting of a small boat and one boatman. There are no facilities for disinfection, treatment of sick, and removal and detention of suspects. There are ample mail and telegraph facilities.

2. Dr. J. A. Fulton, Astoria, Oreg., is the health officer. One subordinate, a boatman, completes the personnel of the service.

3. I transmit herewith a copy of Oregon State quarantine law:

SEC. 3537. There shall be appointed by the governor, and removed at his pleasure, a health officer to reside at the port of Astoria, who shall be a graduate of a medical college and whose duty it shall be to board and to take charge of every ship and vessel arriving from the sea which shall have on board any person or goods infected with smallpox, cholera, leprosy, or contagious diseases, or which shall have had on board any such infectious disease during the voyage, or which shall be in such condition by reason of the bad health of the people on board, or the filthiness of the ship, or the decaying state of the cargo, or other cause as to endanger the health of the inhabitants of this State.

SEC. 3538. Every pilot who shall bring into the said port any ship or vessel in bad sanitary condition, or which he suspects may be capable of propagating disease, shall anchor such ship or vessel below Smiths Point and give immediate notice to the health officer.

SEC. 3539. When the health officer shall board a ship or vessel to investigate her unsanitary condition, he shall raise a red flag at the mainmast, which will suspend all intercourse with the shore, except by permission of the health officer. He shall then proceed by personal inspection and by the examination of witnesses sworn by him to ascertain if there be cause for her detention, and if not, he shall give to the master a certificate to that effect and strike his flag; but if he shall find on board the ship any case of contagious disease, or that the ship proper or cargo are infected with such disease, or if for any reason he shall believe that she is likely to propagate disease if allowed to go into port, he shall cause the ship to be anchored, at a safe and convenient place to be designated by him, and to be subjected to such cleansing and renovation and her cargo and hold to such ventilation and other treatment as he shall think necessary for their purification, and he shall cause such of the people who are sick or infected to be subjected to such sanitary treatment on the ship or shore as he shall think necessary for their speedy

recovery, and the reasonable and necessary expenses of such treatment shall be borne by the owners, master, or by the ship if they make default. And when he shall think it safe to do so, he should give to the master a certificate of health and strike his flag.

SEC. 3540. It shall be the duty of the health officer during all the time a ship may be under his flag to give all his time and care to such ship and her people, without charge for professional or other services.

SEC. 3541. The health officer shall execute a bond to the State with sureties to be approved by the governor.

[Law enacted February 14, 1887.]

SEC. 3542. There shall likewise be appointed a health officer to reside at Coos Bay and one to reside at Gardiner, near the mouth of the Umpqua River, each with an annual salary of four hundred dollars, whose duties and liability shall be the same as are prescribed by this chapter for the health officer at Astoria, Oregon.

[Laws of 1889, legislative assembly.]

AN ACT to amend section 3542, Chapter XLVI, of the general laws of Oregon, as compiled and annotated by William Lair Hill.

Be it enacted by the legislative assembly of the State of Oregon:

SEC. 1. That section 3542, chapter 46, of the miscellaneous laws of Oregon, as compiled by William Lair Hill, be amended so as to read as follows:

"SEC. 3542. There shall likewise be appointed a health officer to reside at Coos Bay, and one to reside at Gardiner, near the mouth of the Umpqua River, and one to reside at Yaquina near the mouth of Yaquina Bay, each with an annual salary of four hundred dollars, whose duties and liability shall be the same as are prescribed by the chapter for the health officer at Astoria."—[Approved Feb. 25, 1898.]

The Signal Service officer at Fort Canby reports all incoming vessels to the office in Astoria, and this information is immediately transmitted to the collector of customs and to the health officer. The health officer informed me that he meets the vessel at the anchorage and boards her, raising a red flag at the mainmast, which prevents communication with the shore until his inspection is complete. If the vessel is found free from any infectious or contagious disease, she is given free pratique; if infected, she will be directed to proceed to the nearest United States quarantine station for disinfection; and if suspicious, she will be placed in quarantine and developments watched. All foreign vessels are inspected.

4. Only those quarantine procedures prescribed by the State law are enforced. There is no unnecessary detention of vessels.

5. There is the same inspection and treatment of vessels throughout the entire year.

6. Only those having sickness on board are inspected.

7. Describe quarantine procedures in the inspection of vessels, and, if infected, the treatment. Give time in quarantine (*a*) between arrival and commencement of disinfection, (*b*) time occupied by disinfection, and (*c*) time after completion of disinfection of vessels until discharged.

(*a*) Vessels are inspected soon after arrival; the consular bills of health are examined, and any sickness among crew and passengers occurring during the voyage is ascertained; then the crew and passengers are examined and the general sanitary condition of the vessel ascertained by rigid inspection. (*b*) As there are no facilities for disinfection at this port, the vessel will be directed to the nearest United States quarantine station for treatment.

8. No communication is held with vessels in quarantine except by the health officer, and no intercommunication among them is permitted.

9. When a vessel is infected with cholera, yellow fever, or smallpox the regulations prescribed by the Treasury Department will be carried out as far as possible. The health officer will immediately report the facts to the medical officer in charge of United States Marine-Hospital Service at Portland, Oreg., and he

will inform the Department. The conditions regarded as showing infection are: Prevalence of disease at port of departure, sickness during the voyage or on arrival, and bad sanitary condition of the vessel.

10. Records of all cases of sickness are kept by the health officer.

11. No fees are charged except those prescribed by the State law.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

I inclose a list of vessels entered at the custom-house during the fiscal year ending June 30, 1896, as follows:

From foreign ports.

Month.	Where from.	Number.	Cargo or ballast.
July	Yokohama, Japan	1	General cargo.
October	Nanaimo, British Columbia	1	Do.
November	Yokohama, Japan	1	Do.
	Rio de Janeiro, Brazil	6	Ballast.
	Liverpool, England	1	General cargo.
	Santos, Brazil	3	Ballast.
	Belfast, Ireland	1	General cargo.
	Santa Rosalia, Mexico	1	Ballast.
	Cape Town, Africa	1	Cargo.
	Panama	1	Ballast.
December	Talcahuana, Chile	2	Cargo.
	Dundee, Ireland	1	General cargo.
	Nanaimo, British Columbia	1	Do.
January	Montevideo, Uruguay	1	Do.
	Liverpool, England	2	Do.
	Newcastle, New South Wales	1	Coal.
	Hongkong, China	1	General cargo.
	Santa Rosalia, Mexico	1	Cargo.
	Rio de Janeiro, Brazil	1	Ballast.
February	Acapulco, Mexico	1	Do.
	Pisagua, Chile	1	Cargo.
	Santa Rosalia, Mexico	1	Do.

There were no arrivals from foreign ports in yellow-fever latitudes via domestic ports.

From domestic ports.

Month.	Where from.	Number.	Cargo or ballast.
July	San Francisco, Cal	15	General cargo.
	New York, N. Y	1	Ballast.
	Coquille, Oreg	1	General cargo.
	Portland, Oreg	15	Do.
	Tillamook, Oreg	4	Do.
	Seattle, Wash	2	Do.
	Redondo, Cal	1	Do.
August	Portland, Oreg	16	Do.
	San Francisco, Cal	18	Do.
	Tillamook, Oreg	5	Do.
	Florence, Oreg	3	Do.
	Eureka, Cal	1	Do.
	Redondo, Cal	1	Ballast.
	Seattle, Wash	1	General cargo.
	San Pedro, Cal	1	Do.
	Nehalem, Oreg	1	Do.
	San Diego, Cal	1	Ballast.
September	Coquille, Oreg	1	Cargo.
	New York, N. Y	2	General cargo.
	Philadelphia, Pa	1	Do.
	Seattle, Wash	1	Do.
	Redondo, Cal	2	Ballast.
	Tillamook, Oreg	7	General cargo.
	Portland, Oreg	20	Do.
	San Francisco, Cal	11	Do.
October	Portland, Oreg	23	Do.

From domestic ports—Continued.

Month.	Where from.	Number.	Cargo or ballast.
October	San Francisco, Cal	18	General cargo.
	Seattle, Wash	1	Do.
	Nehalem, Oreg	4	Do.
	Tillamook, Oreg	5	Do.
	San Diego, Cal	3	Ballast.
November	Portland, Oreg	17	General cargo.
	San Francisco, Cal	9	Do.
	Seattle, Wash	2	Do.
	Tillamook, Oreg	4	Do.
	San Diego, Cal	2	Ballast.
	Florence, Oreg	1	General cargo.
	New York, N. Y	2	Do.
	Redondo, Cal	3	Ballast.
	Boston, Mass	1	Do.
	Empire, Oreg	1	General cargo.
December	Portland, Oreg	19	Do.
	San Francisco, Cal	13	Do.
	Seattle, Wash	1	Do.
	Nehalem, Oreg	1	Do.
	Tillamook, Oreg	1	Do.
	New York, N. Y	1	Do.
	San Pedro, Cal	1	Ballast.
January	Portland, Oreg	17	General cargo.
	San Francisco, Cal	17	Do.
	Seattle, Wash	3	Do.
	Tillamook, Oreg	4	Do.
	San Diego, Cal	1	Ballast.
	Redondo, Cal	3	Do.
	San Pedro, Cal	1	Do.
February	Portland, Oreg	24	General cargo.
	San Francisco, Cal	16	Do.
	Seattle, Wash	2	Do.
	Nehalem, Oreg	1	Do.
	Tillamook, Oreg	1	Do.
	Florence, Oreg	1	Do.
	Los Angeles, Cal	1	Do.
March	Portland, Oreg	16	Do.
	San Francisco, Cal	19	Do.
	Tillamook, Oreg	4	Do.
	Redondo, Cal	1	Ballast.
	Port Townsend, Wash	1	General cargo.
April	Portland, Oreg	21	Do.
	San Francisco, Cal	16	Do.
	Seattle, Wash	2	Do.
	Tellamook, Oreg	3	Do.
	Thorn Bay, Alaska	1	Do.
May	Portland, Oreg	15	Do.
	San Francisco, Cal	15	Do.
	Seattle, Wash	2	Do.
	Tillamook, Oreg	4	Do.
	Redondo, Cal	1	Ballast.
	Port Townsend, Wash	1	General cargo.
	Skonakawa, Alaska	1	Do.
June	Portland, Oreg	7	Do.
	San Francisco, Cal	8	Do.
	Tillamook, Oreg	2	Do.
	Thorn Bay, Alaska	1	Do.
	Skonakawa, Alaska	1	Do.

13. I was informed by the collector of customs that the health officer made an inspection as soon as a vessel arrived, and if she had a clean bill of health and no sickness during the voyage she was given a certificate and allowed to proceed to her destination. If suspicious, the vessel was detained in quarantine and developments watched. There is no immigration bureau.

14. The quarantine facilities at this port are inadequate. There should be a well-equipped station at the mouth of the Columbia River, since many foreign vessels come to Astoria and to Portland, several of them having sailed from ports in the yellow-fever zone. There is also a line of steamers plying between this port and ports in the Orient. The facilities for inspection are not good, since in rough weather considerable difficulty is experienced in boarding vessels with the present means.

15. The quarantine regulations of the Treasury Department as regards inspection and observation are observed.

16. The certificate of inspection, or pratique, signed by the quarantine officer, does not state that the Treasury regulations have been complied with, as required by section 5, act of February 15, 1893.

17. The consular bills of health are given to the collector of customs.

18. In this connection, I wish to reiterate the necessity for the establishment of a modern quarantine station at the mouth of the Columbia River.

JUNE 18, 1896.

[NOTE.—A bill for the establishment of a United States quarantine station at the mouth of the Columbia River is now pending in Congress.]

PORTLAND.

[Portland is the only port of entry on the Willamette River, and is situated 4 miles from its mouth. This river is navigable for vessels of deep draft for a distance of 14 miles.]

1. There is no quarantine station on the Willamette River. The limits of anchorage for noninfected vessels is 1 mile; that for infected vessels about 1 mile from Portland and one-half mile from Cross Island. There are no facilities for disinfection. In case of infection, the city pesthouse would be used for the isolation of the sick, and near it is a building for the detention of suspects. The mail and telegraphic facilities are adequate.

2. There is no quarantine officer appointed by the State. Dr. C. H. Wheeler, the city health officer, attends to the quarantine work, and has authority to place in quarantine any vessel suspected of being infected with any contagious disease. His address is Portland, Oreg. There are no subordinates.

3. There are no laws or regulations for the government or maintenance of this quarantine service. The city physician follows the requirements of the quarantine regulations of the Treasury Department.

4. There are no additional quarantine procedures, and there is no unnecessary detention or disinfection of vessels.

5. Inspection is maintained throughout the year, and the same treatment is enforced.

6. Only those vessels with sickness on board are inspected.

7. The following are the quarantine procedures at this port: (*a*) Vessels are inspected immediately upon arrival; all foreign vessels are inspected; (*b*) time absolutely necessary; (*c*) the period of incubation of disease quarantined.

8. No communication is held with vessels in quarantine except by health officer, and no inter communication among vessels is allowed.

9. As there are no facilities for the disinfection of vessels infected with cholera or yellow fever, such vessels would be sent by the city health officer to the nearest United States quarantine station for disinfection and treatment. If the vessel was infected with smallpox, all the sick would be removed to the city pesthouse, and suspects detained, and everybody exposed to contagion vaccinated. The ship would be disinfected with a solution of bichloride of mercury and sulphurous acid gas, according to the instructions in the quarantine laws and regulations of the United States. The following facts are regarded as evidence of infection of a vessel: (1) Prevalence of disease at port of departure; (2) sickness during the voyage or on arrival, and (3) bad sanitary condition of vessel.

10. Records of all cases of disease are kept by the city physician.

11. There are no regular and fixed quarantine fees.

12. Make a statement showing the number of vessels arriving at the port during the preceding calendar year, by months—(*a*) from foreign ports; (*b*) from foreign ports in yellow-fever latitudes via domestic ports; (*c*) from domestic ports. Show also the character of the commerce carried on by the port, i. e., from what countries chiefly the vessels come, and whether in cargo, ballast, or empty.

I inclose a list showing the number of vessels entered at the custom-house during the last fiscal year, as follows:

From foreign ports.

Month.	Where from.	Number.	Cargo or ballast.
July	Yokohoma, Japan	1	General cargo.
August	do	1	Do.
September	do	1	Do.
	Newcastle, New South Wales	2	Coal.
October	Dunkerque, France	1	Ballast.
	Antwerp, Belgium	1	General cargo.
	London, England	1	Do.
November	Newcastle, New South Wales	1	Coal.
	Yokohoma, Japan	1	General cargo.
	Antwerp, Belgium	2	Ballast.
December	Hongkong, China	1	General cargo.
	Newcastle, New South Wales	1	Coal.
	Antwerp, Belgium	1	General cargo.
January	Hongkong, China	1	Do.
	Liverpool, England	1	Do.
	London, England	1	Do.
	Newcastle, New South Wales	1	Coal.
February	Yokohoma, Japan	1	General cargo.
March	do	1	Do.
	Newcastle, New South Wales	1	Coal.
	Hongkong, China	1	General cargo.
April	Yokohoma, Japan	1	Do.
May	do	1	Do.
	Hamburg, Germany	1	Do.
	Hongkong, China	1	Do.
June	Hongkong and Yokohoma	1	Do.
	Calcutta, India	1	Ballast.

From foreign ports in yellow-fever latitude via domestic ports.

September	Panama, via Astoria	1	Ballast.
October	Santos, via Astoria	1	Do.
November	Santos, via Astoria	3	Do.
	Rio de Janeiro, via Astoria	7	Do.
December	Panama, via Astoria	1	Do.
January	Santos, via Astoria	1	Do.
	Rio de Janeiro, via Astoria	1	Do.

From domestic ports.

July	San Francisco, Cal	13	Cargo.
	New York, N. Y	1	Do.
	Astoria, Oreg	3	Do.
August	San Francisco, Cal	9	Do.
	Astoria, Oreg	2	Do.
September	New York, N. Y	2	Ballast.
	San Francisco, Cal	10	Cargo.
	Astoria, Oreg	1	Do.
	San Diego, Cal	1	Ballast.
	Philadelphia, Pa	1	Do.
October	San Francisco, Cal	12	Cargo.
	Astoria, Oreg	1	Do.
	San Diego, Cal	2	Ballast.
November	San Francisco, Cal	9	Cargo.
	Boston, Mass	1	Ballast.
	Redondo, Cal	1	Do.
	New York, N. Y	1	Do.
	Astoria, Oreg	2	Cargo.
	San Diego, Cal	1	Ballast.
December	San Francisco, Cal	10	Cargo.
	Astoria, Oreg	1	Do.
January	San Francisco, Cal	10	Do.
	New York, N. Y	1	Ballast.
	Astoria, Oreg	3	Cargo.
	San Diego, Cal	1	Ballast.
February	San Francisco, Cal	11	Cargo.
	Astoria, Oreg	3	Do.
March	San Francisco, Cal	12	Do.
	Astoria, Oreg	2	Do.
April	San Francisco, Cal	14	Do.
	New York, N. Y	1	Ballast.
May	San Francisco, Cal	10	Cargo.
	Astoria, Oreg	1	Do.
	Boston, Mass	1	Ballast.
June	San Francisco, Cal	9	Cargo.
	Astoria, Oreg	2	Do.

13. The collector of customs informed me that the regulations in regard to the bills of health and quarantine certificates are being observed. The original bill of health is taken up by the collector of customs at Astoria. When a vessel enters that port, a certificate is issued by the health officer at Astoria to the master of the vessel which is delivered to the collector of customs at Portland. Eighty-four immigrants arrived at this port during the last fiscal year, all of whom were from Japan.

14. The inspection service as maintained is probably sufficient for the needs of this port, and capable of preventing the introduction of contagious diseases.

15. The quarantine regulations of the Treasury Department regarding inspection and observation are enforced by the health officer of the city.

16. Mention any facts which in your opinion should be known to the Department, bearing directly or indirectly upon the quarantine service, and make such recommendations as seem proper.

Since there is no disinfecting plant at Astoria, there should be some facilities at this port for the disinfection of vessels.

JUNE 25, 1896.

WASHINGTON.

REPORT UPON THE UNITED STATES QUARANTINE STATION, PORT TOWNSEND.

By P. A. Surg. WILLIAM G. STIMPSON, M. H. S.

Name of quarantine station: Port Townsend Quarantine Station.
When was the station last inspected? December 31, 1893.
Name of inspecting officer: P. A. Surg. J. O. Cobb.

I. PERSONNEL.

Name of officer in command: P. A. Surg. W. G. Stimpson.
Date of assignment to duty: September 10, 1894.
Name and rank of assistants, including acting assistant surgeons; also give number of members in each family: No assistants.
Name of steward and number of members in family: No steward.
Name and duties of each attendant: H. M. Duane, engineer; M. Drysdale, carpenter; George Pink, cook and nurse; John Lawrence, W. D. Pattison, boatmen; C. M. Weymouth, keeper of *Iroquois* and laborer; R. McDonnell, laborer and stableman; H. Hammond, laborer (temporary).

II. GENERAL DESCRIPTION OF STATION.

Number of buildings: Seven; hospital, attendants' quarters, surgeon's quarters, barracks, warehouse on wharf, tank house, stable.
Limit of anchorage for noninfected vessels: Upper part of Discovery Bay.
Limit of anchorage for infected vessels: Lower part of Discovery Bay.
Facilities for inspection of vessels: Two boatmen and a rowboat.
Apparatus for disinfection of vessels and of baggage: Steam disinfecting chamber and sulphur fumigating apparatus.
Facilities for removal and treatment of sick: Patients removed from wharf to hospital by horse and cart.
Facilities for removal and detention of suspects: Suspects detained in barracks holding about 200 persons and in quarantine steamer *Iroquois*. No facilities for detention of cabin passengers.
Mail and telegraph facilities: A telegraph line is being built from the Puget Sound telegraph line at Eagle Creek to the station at Diamond Point.
Give number of wharves: One.

What is the length of the wharf frontage? One hundred and nine feet.

Are the wharves in good condition? Yes. It has just been repaired at an expense of $280.

Are the mooring facilities ample? A mooring buoy to cost $895 has been contracted for.

What is the depth of water at mean low tide along the front of the wharf? Eighteen feet.

What is the source of water supply? Spring, one-half mile distant.

Is it sufficient? No; proposals for digging a well were opened October 1, 1896.

Is it potable? Yes.

Hard or soft? Hard.

If hard, does it injuriously affect the boilers in use at the station? The water used in the boiler is rain water from the roof of warehouse on wharf.

How is it distributed and stored, if storage is necessary? Rain water stored in iron tank on wharf.

III. DISINFECTING MACHINERY.

Enumerate the machinery constituting the disinfecting plant: Boiler, steam-chamber vacuum pump, salt-water pump, bichloride pump, sulphur furnace, engine and fan, sulphur reservoir, and sulphur chamber.

What is the general condition of all machinery? Good.

Does it appear well taken care of or neglected? Yes; well taken care of.

Is there a steam hoisting engine for ballast? No.

Are there ballast tubs and a ballast car for the distribution of ballast? No.

How is ballast disposed of? No ballast has been taken out of vessels in quarantine.

Is it disinfected prior to being discharged, and what facilities exist for supplying ballast to vessels needing it? No occasion has arisen requiring the disinfection of ballast. There are no facilities for supplying ballast to vessels.

What are the dimensions of the steam disinfecting chamber? Four feet 4 inches by 5 feet 4 inches by 15 feet 10 inches.

Is it rectangular or cylindrical? Rectangular.

How many cars are provided? One.

Are infected articles put in at one end and brought out at the other after disinfection, or is one end of the chamber used for loading and unloading? Infected articles are put in at one end of the chamber and taken out at other end.

Is the chamber provided with thermometers for indicating the temperature during the process of disinfection? Yes; two thermometers.

Is the chamber equipped with any apparatus for the production of a partial vacuum? What is the nature of the appliance? Is it efficient in operation? Yes. Steam vacuum pump. Yes.

What vacuum is produced, and how long does it take to obtain it? Three to 7 inch vacuum, produced in about five minutes.

Is a sulphur furnace provided? Yes.

How many feet of sulphur hose are provided? One hundred feet.

What is its condition? Good.

What is the condition of the fan and engine? Good.

What is the method of storing bichloride solution? In tank.

What is the capacity of the tank or tanks? Five thousand gallons.

Are they of wood or iron? Wood.

What is the elevation of the tanks above the wharf flooring? Twenty-five feet 7 inches.

Is the solution distributed by gravity or is there a pump for the purpose? By both methods.

How many feet of hose are provided for the distribution of the bichloride solution, and what is its size and condition? Three hundred and fifty feet 1½-inch hose, in good condition.

How many steam boilers are provided? One.

What is their condition, and do they supply sufficient steam for all purposes? Good; yes.

IV. BOATS.

Is the station provided with a steam tug or other steam vessel? No.

Is the station provided with a steam or naphtha launch? Yes; naphtha launch.

Give dimensions: Length, 38 feet; width, 8 feet; depth, 3½ feet.

What is its condition? Good.

Give report of medical officer as to the efficiency of the launch: The launch is not powerful enough for the waters of Puget Sound.

How many small boats are provided, and what is the condition of them and their equipment? Three; in good condition; equipped with oars and sails.

Are more boats necessary or desirable? A steam tug or a large steam launch is necessary for this station.

V. HOSPITAL.

Give location of building used as hospital: About 200 yards from surgeon's quarters.

Give general description of the building: Building is a cottage hospital, with one ward, 28 by 35 by 12 feet. Veranda in front. There are three small rooms and a kitchen and water-closet besides the ward.

Dimensions: Fifty-eight by 43 feet.

Number of beds in each ward: Twelve.

How many beds can be added for emergencies? Twelve.

Cubic air space allowed each patient? One thousand cubic feet.

Heating, lighting, and ventilating: Heated by fireplaces and stoves; lighted by lamps; ventilated by windows and fireplaces.

Has the hospital sufficient furniture? Yes, except tables and bedside stands.

What kind of bedsteads and what kind of mattresses and bedding? Iron bedsteads, cotton mattresses, hair pillows.

Condition of bedding occupied by patients: None occupied at present.

Are the beds clean and free from vermin? Yes.

What is the condition of wards as to general cleanliness? Clean.

Is the nursing sufficient, and is the nurse immune? Yes.

Does the character of the diet furnished conform to that prescribed in the diet table for marine hospitals? No diet furnished except when patients in hospital.

Is a proper record of the patients under treatment kept? Yes.

VI. OUTBUILDINGS AND GROUNDS.

Describe general condition of outbuildings: In good condition; barracks should be repainted one coat.

Are the grounds well policed? The grounds are not policed. When persons are in quarantine, care is taken by the surgeon in command to keep them apart from the rest of the people on the reservation.

Describe officers' quarters and condition of furniture: Surgeon's quarters should be given one coat of paint. Inside in good condition, but only one room carpeted. No furniture except bedroom set and office furniture.

Describe steward's and attendants' quarters and condition of furniture: These quarters need one coat of paint. No furniture except a few rough tables, chairs, and iron beds.

Describe dining room, condition of table furniture and tableware: No dining-room furniture; only small quantity of tableware for use of hospital.

Describe kitchen and furniture: Good range in kitchen, but no furniture.

Describe dispensary: Contains sufficient medicines for a small station.

Describe laundry: No laundry.

Describe approaches to the station: The station can be reached only by water.

Describe condition of fences and grounds: No fences. Roads in good condition. About 5 acres have been sown in grass seed. Rest of ground full of stumps. Only 20 acres cleared.

Describe drainage and condition of water-closets: Sewers from all buildings, but no water to flush them. Water-closets have never been used.

Describe disposal of slops: Everything possible is burned. Liquid slops go through sewers.

State whether any animals not authorized by the Department are kept on reservation? No.

VII. EQUIPMENT.

State approximately age and condition of each horse, and how long in service at this station: Six years old; in good condition. Only one horse; purchased February 13, 1896.

Give number and character of vehicles: One dump cart.

Are they properly cared for? Yes.

Are harnesses in good condition? Yes.

Is there a blacksmith's forge provided? Yes.

Are there farming implements, and if so, are they in good condition? No.

Is there a fire apparatus provided; and if so, is there a fire drill organized? No; buckets of water are kept around the buildings, and barrels of water on the roofs.

VIII. DISCIPLINE.

Are officers and employees supplied with uniforms in compliance with the revised uniform regulations dated June 20, 1896? No; but they will be by January 1, 1897.

Are uniforms properly worn? Yes.

Give method of granting leaves to officers and employees: Employees are granted leave when no vessels are in quarantine; a couple of days at the time.

Describe when and how inspection, muster, and fire drills are conducted: The station is inspected whenever the medical officer in command goes to Diamond Point. There have been no musters, on account of the small number of attendants and the frequent changes which have been made since the station was opened.

IX. GENERAL ADMINISTRATION.

Make a statement showing the number of vessels arriving at the station during the preceding calendar year, by months:

From foreign ports: January, 10; February, 12; March, 14; April, 13; May, 19; June, 17; July, 15; August, 18; September, 19; October, 14; November, 14; December, 16.

From foreign ports in yellow-fever latitudes via domestic ports: None.

From domestic ports: One.

From what countries chiefly do the vessels come? Hawaiian Islands, Chile, China, British Columbia, Mexico, Japan, Central America.

Are they in cargo, ballast, or empty? Some in cargo, most of them in ballast; a few empty.

State whether in your opinion the quarantine facilities are sufficient to care for the shipping arriving at the station: They are not; there should be a steam

boarding vessel, a bath house, and a house for the detention of cabin passengers at this station.

Give annual amount expended at station for last three years: In 1894, $3,949.42; in 1895, $6,928.16; in 1896, $5,210.41.

Give the immediate needs of the station as stated by the commanding officer:

(1) Recommend that a hospital steward or an acting assistant surgeon be put in charge of the station at Diamond Point under the direction of the medical officer in command; the latter has to stay at Port Townsend to board and inspect vessels, so he has little control over the station, which is 12 miles away.

(2) A steam tug or a steam launch at least 60 feet in length should be provided for this station, as the boarding has now to be done in a rowboat. In rough weather the station is completely isolated, as the naphtha launch which is at present in use can not go there except on smooth water. This launch is too small, and the expense of running her is so great she should not be used very often. If this launch remains at this station, I would recommend that the naphtha engine be taken out and a boiler and steam engine substituted, as the expense for fuel would then be only one-tenth what it is at present.

(3) A house should be built for the accommodation of cabin passengers.

(4) A bath house is needed, and also some cheap clothing for the patients to put on while their body clothing is being disinfected.

(5) The swamp in front of the buildings should be drained.

(6) A fence should be built around the reservation.

(7) Two cisterns should be built; one at the surgeon's quarters and one at the attendants' quarters.

(8) The buildings should receive one coat of paint.

I certify that the foregoing is a careful and correct statement of the condition of the service at the Port Townsend Quarantine Station, inspected by me this 2d day of October, 1896.

WM. G. STIMPSON,
Passed Assistant Surgeon, M. H. S., Inspector.

REPORT ON LOCAL QUARANTINE INSPECTION STATIONS.

By P. A. Surg. J. O. COBB, M. H. S.

PORT ANGELES.

The health officer of Port Angeles makes careful inspection of all foreign vessels and charges a fee of $5 for such inspections. He has inspected ships at night, but will not do so again.

Foreign ships that make Port Angeles a "port of call" average about two a month, and I think this number will fall off now that they know they will have to be inspected here.

The health officer is willing and anxious to conduct an efficient quarantine, and will proceed in all matters to the entire satisfaction of the Bureau.

AUGUST 6, 1895.

SEATTLE.

All ships that have entered here have been inspected at Port Townsend, and the health officer does not inspect unless requested. I visited the secretary of the Chamber of Commerce, and he said that, so far as he knew, the shipping men were well satisfied with the present quarantine arrangements. However, there might be some dissatisfaction if a ship could enter at Port Angeles and proceed direct to Seattle without further inspection at Port Townsend. This matter will be referred to under separate cover.

MARCH 11, 1895.

TACOMA.

Since my last inspection of Tacoma, two months ago, only two ships from Asiatic ports have entered at this port. These ships had been previously inspected at Victoria and at Port Townsend, and they were entered without further inspection here.

The last ship in from China was the *Sikh*, and more than the usual routine inspection was accorded her at Victoria. The ship's surgeon reported to me that the baggage, bedding, etc., of the Chinese members of the crew had been sterilized by steam at the quarantine station at Victoria. I made a close and thorough examination of the quarters (forecastle) allotted to these men, and my opinion is that the bedding, etc., had not been disinfected, as claimed. Nothing had been done to the baggage, etc., of the officers, the white crew, or the few passengers on board.

The danger to be anticipated from these boats is not so much the cases of contagious diseases that might be found on board as from the clothing of such cases. I am thoroughly convinced that if there had been a case of contagious or infectious disease on the voyage that the ship's officers would do all in their power to conceal it. The voyage being so very long, a case will have terminated before arrival here, and thus deceive the health officers, and the disease be introduced by infected clothing.

I feel very anxious about this matter, and would respectfully urge the Bureau to hasten the construction of a steam sterilizing plant at Port Townsend and compel these ships to wait there until these articles could be sterilized. Such a plant can be placed on the *Iroquois*, and not more than two hours would be necessary to detain the ships at the Port Townsend Quarantine Station.[1]

I had a conversation with the ship's surgeon in regard to the plague in Hongkong. He said that he had visited the city hospitals for contagious diseases, one in the city and one floating, and that he had seen many cases. The hospitals are conducted by Chinese doctors, but the general sanitation is performed by Europeans or under their direction. The water supply is scarce, and filth abounds. From his description the disease is undoubtedly a typical plague. He said the accounts had been grossly exaggerated, that the disease and the conditions were not as bad as reported, and that it was well quarantined and was rapidly subsiding.

A new health officer has been appointed for Tacoma, but I did not succeed in finding him at his office. He had made an inspection of the *Sikh* before I went aboard. He does not receive fees for this work.

JUNE 25, 1894.

Nothing of importance has transpired at Tacoma since my last report. The health officer is a civilian, but the work of inspecting foreign ships is rigidly performed by the city physician. No charge is made for these inspections.

FEBRUARY 15, 1896.

ABERDEEN.

I would invite your attention to the geographical situation of Grays Harbor. Mostly a lumber business is done here, and the largest vessels can not cross the bar. There are several foreign vessels during the year, and they enter direct.

During the fiscal year of 1895 there were 218 vessels arrived in Grays Harbor, 10 of which were from foreign ports. The foreign vessels came in ballast from Mexico, Guatamala, Honduras, China, and Hawaii.

There is a civilian health officer, but he does not inspect vessels. In case of sickness aboard the deputy would wire the collector for instructions.

I would recommend that foreign vessels be inspected by a physician.

JUNE 6, 1895.

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[1] A complete disinfecting plant has been installed at Port Townsend Quarantine. See report on United States Quarantine Station, Port Townsend.

In accordance with telegraph instructions I visited Aberdeen for the special purpose of selecting a physician for recommendation as quarantine inspector, and as previously reported by wire September 13, 1895, I recommended Dr. T. C. Frary to be United States quarantine inspector for Grays Harbor, with compensation at the rate of $50 a month from the 11th instant. Pending your advice in the matter, I directed the doctor to speak all vessels and make thorough inspection of all foreign ships and ships from foreign ports. He was especially directed to use unusual precaution with vessels from the Hawaiian Islands and upon any suspicion being attached to the ship to hold her and wire you for instructions.

I drove to Hoquiam and consulted with the tug boat company whose headquarters are at that point. It will be seen by the map forwarded that this is the most convenient point, as all vessels must either pass within a half mile of Hoquiam or enter the Hoquiam River. All shipping is lumber outgoing and in rock ballast incoming. Some of the vessels load lumber direct for Honolulu and return to San Francisco with fruit, rice, etc., and then come to Grays Harbor for lumber. The principal lumber trade is with San Francisco.

SEPTEMBER 10, 1895.

[NOTE.—A sanitary inspector of the Marine-Hospital Service has been appointed for Grays Harbor.]

BLAINE.

The health officer of Blaine is a civilian. No inspection of foreign vessels is made at all. No fee is charged. In case of sickness aboard the deputy collector would wire the collector for instructions.

I would again invite your attention to former report on quarantine matters at Blaine, and in this connection I have to report that, in company with the deputy collector and the former health officer, Dr. King, I inspected most of the roads and environs of Blaine. The doctor pointed out to me the various roads and paths by which people quarantined in British Columbia tried to enter the State clandestinely to escape quarantine.

The line between British Columbia and the United States is practically through the town, just over the line being known as Douglass. I would invite your attention to a good map of Blaine Harbor, and especially to a point of land which I believe is called Point Roberts. The international line runs through this point, and I am informed that it was next to impossible to keep people from getting in at that point during the last epidemic of smallpox. It is also noted for a smuggler's point.

There are a great number of fishing boats in this harbor that run outside, and two small steamers ply between Blaine and fishing points on the other side.

The deputy collector informs me that he has had a great deal of trouble with the Japanese, who try to enter there. These men are landed from the Empress Line of steamers at Vancouver, and, through motives of economy and other reasons, walk from Vancouver via Westminster and Blaine to Seattle and their final destination. Of course the greater number of these men enter the State through the regular passenger traffic channels.

In time of an epidemic in British Columbia I would suggest that a medical officer with a launch be stationed at Blaine, as I deem it the hardest point to guard in the State.

I would recommend the employment of a sanitary inspector to be stationed at Blaine to inspect all boats and trains from British Columbia.

JUNE 3, 1895.

WHATCOM.

I called upon the health officer and inquired into his methods of inspection, etc. There have not been any foreign ships entered at this port for several months.

There are no means at this port for disinfection, and vessels would be ordered to Port Townsend.

JUNE 28, 1894.

There have been no foreign ships entered direct at Whatcom since last report.

The health of Whatcom is good.

MARCH 10, 1895.

SOUTH BEND.

All vessels have been allowed to enter South Bend without inspection.

Under the present conditions I deem it advisable that the few foreign ships entering here be inspected by a United States quarantine inspector, and for this duty I have the honor to recommend (as reported by wire the 15th instant) the appointment of Dr. Wilson Gruwell, with compensation of $5 for each inspection, his duties dating from September 13, 1895.

As explained by map inclosed, the most convenient and efficient point is South Bend for such inspection. The larger number of vessels clearing from South Bend are bound for Honolulu, but return to San Francisco with fruit, rice, etc., and thence here for lumber.

Only two foreign ships entered last year. The lumber trade is improving, and it is expected that all these small lumber stations will have many foreign entries this year.

SEPTEMBER 11, 1895.

[NOTE.—A sanitary inspector of the Marine-Hospital Service has been appointed at South Bend at a compensation for each vessel inspected.]

GENERAL REPORT UPON QUARANTINE AND SHIPPING INTERESTS IN THE STATE OF WASHINGTON.

By P. A. Surg. J. O. COBB, M. H. S.

This part of the country has settled up so rapidly, with its railroads and steamboat routes established, that it may be hard for one to exactly comprehend the relative positions and the many means of communication between the towns in the northwestern part of the State and the adjoining towns in British Columbia. It is because of the vagueness of information in regard to this section that this report, with sectional and railroad maps, is submitted for your assistance in directing a quarantine against British Columbia in case it should ever become again necessary.

To make myself perfectly familiar with all the details, important and minor routes connecting the towns of British Columbia with towns on the borders of this State, I made it a point to travel over most of these routes by boat or rail. I found many ways that one could, if well informed, enter the State from British Columbia and evade the quarantine inspectors on this side.

In this connection I would respectfully invite your attention to the map of the State and the waters of the Strait of Juan de Fuca, Washington Sound, and Puget Sound. One must not confuse the names and positions of these waters, as Puget Sound is a very small part, being a narrow body of water commencing at Port Townsend and ending at Olympia, and ships bound into the sound from foreign ports, as most of them are, must pass Port Townsend. It will readily be seen that in so far as the quarantine at Port Townsend is concerned, no great fear need be entertained that epidemic diseases will be introduced into the State by this point. An infected ship can be easily treated, but with an epidemic in

any of the British Columbian cities the main trouble to be feared is that the disease will be introduced into the northwestern part of the State from said places. If one of these cities should have an epidemic disease the other places would certainly become infected, for in the last epidemic Vancouver quarantined Victoria, and travel was suspended between the two places; but the quarantine had to be raised, as the high courts of the Dominion decided that the quarantine was illegal.

If a well-informed person found himself in Victoria and quarantine were declared against British Columbia, he would have several ways of getting into the State without entering by Port Townsend, where he would certainly be inspected and possibly detained. There are a great many small craft in these waters that ply among the islands, carrying fruits and produce to the various cities. One of these boats could be hired in Victoria and a passenger could be landed in a short time anywhere on the islands, and could reach the mainland by one of the regular steamers that run on the island route, and as said steamers do not touch at any point outside of the State, they would escape inspection.

From San Juan Island to Victoria it is just 13 miles. In the summer months there is a boat running direct from Victoria through the islands to Whatcom. It would be well to have the boat inspected at Friday Harbor, in the islands, as a passenger could leave the boat there, join a regular steamer, and get back to the State at Whatcom without inspection. This boat (from Victoria to Whatcom) should be compelled to report to the local health officer at Whatcom at each trip. The Revenue-Marine Service has a steam launch stationed at Friday Harbor to patrol the islands, and during an epidemic it would be advisable to have an inspector stationed with the launch to watch this the most dangerous point at which persons can enter the State and elude inspection.

A person in Victoria wishing to enter the State could also leave that place by the Canadian Pacific Railway steamer *Channer*, go to Vancouver in six hours, go from there to New Westminster (13 miles) by an electric tram car, and there take the train on the Great Northern and ride to Douglas, just at the State line, leave the train on the British Columbia side, stay over a day at the charming little hotel there, and at any time walk a few hundred yards to Blaine and take train or boat to his destination. Or the person could leave Victoria every other day on the steamer *Princess Louise* and go direct to New Westminster and proceed as above. Or still another way would be to go from Vancouver via Mission Junction to Huntington, leave the train there and walk to Sumas, not a great distance. From Vancouver there is a weekly boat, the *Utopia*, that touches at Blaine, Friday Harbor, and other cities. It carries freight and passengers, and would have to be inspected at Blaine and again after leaving the islands, as it might pick up a passenger in the islands that had gotten over from Victoria. One could also take the Canadian Pacific east-bound overland train at Vancouver, go several miles into the interior, and join the west-bound overland train that runs a baggage car, coach, and sleeper direct to Seattle over the Great Northern via Mission and Sumas. The only other way that I know that one could enter the State and avoid inspection is to go direct from Vancouver via Canadian Pacific to Revelstoke, take a branch line there to the Arrow Lakes, thence by steamer to Little Dalles or Northport, and return to the State at that point. A young gentleman and his wife actually did this in the last epidemic. They were visiting in Victoria and were stopped at Sumas by the inspector, and they went by Revelstoke and returned to the State that way.

In case it should become necessary to quarantine British Columbia, it would be advisable to station inspectors at Blaine, Sumas, Friday Harbor, and Little Dalles or Northport. The inspector at Blaine should inspect all small boats and the steamer *Utopia*, which runs on a regular weekly trip, as above mentioned, to Vancouver. The Great Northern runs one train south from (New) Westminster

daily, and the inspector should accompany the train from that place and note all passengers that leave the train at Douglas. By inspecting the next train before it left Blaine any passenger trying to elude inspectors could thus be detected. The Great Northern also runs a daily train direct from Vancouver via Mission, over the Canadian Pacific, to Seattle, and an inspector would have to be stationed at Sumas. This inspector should also inspect the passengers of the west-bound Canadian Pacific overland train, which runs a baggage car, coach, and sleeper direct to Seattle via Mission. An inspector at Little Dalles could effectually guard the State at that point.

The customs department has an inspector stationed at Vancouver to look after bonded freight and bonded passengers bound for the United States. Some Chinese merchants have passed through Vancouver in bond, and smallpox has appeared among these passengers. The Canadian Pacific officials try to conceal these cases; and last summer, as I then telegraphed you, there was a case of smallpox in one of these bonded warehouses for three days and it was concealed from the inspector, though he suspected that something was wrong. He informed us just as soon as he was certain that it was smallpox. He has promised that he will watch these cases closely and wire on the least suspicion.

In conclusion, I have to invite your attention to the inclosed newspaper article from the Port Angeles Democrat-Leader, which comments on the quarantine of this district. I have inspected Port Angeles and am familiar with the conditions. In this connection your attention is also invited to Department letter of July 15, 1892, in regard, incidentally, to vessels entering at Port Angeles. The instructions contained in said letter are capable of misconstruction, owing to the use of the words "Puget Sound," and said instructions only apply to vessels bound for Port Townsend or points on Puget Sound. I can not conceive that any other idea was entertained, for it is manifestly unjust to require a ship whose destination is Port Angeles, on the Strait of Juan de Fuca, 28 miles west and outside of Puget Sound, to go to Port Townsend for the purpose of being inspected by the United States quarantine officer with the view of entering at Port Angeles. It would be equally unjust to require vessels bound for points on Washington Sound, viz, Roche Harbor, Blaine, and Whatcom, to make as long a detour by Port Townsend for the same purpose. The affair referred to is not of this nature, for it is well known that the British bark *Glenesch* (not *Gilcruix*, as reported) in tow (to avoid delay over night at Port Townsend, which it would not reach until after nightfall) put in to Port Angeles, was inspected at night by the local health officer, entered by the customs officer, and then proceeded on its way up the Sound, by Port Townsend without stopping. There is nothing to hinder all foreign ships from doing likewise, and as I write this communication a vessel in tow has passed in without stopping, and I am informed that it previously put in at Port Angeles.

The Chinese steamers, sailing under the British flag, do not like to stop here for inspection, and have tried time and again to evade the regulation referred to in Department letter of July 15, 1892. These steamers run in connection with the Northern Pacific Railroad, and they want their steamers entered direct at Tacoma on the local health officer's certificate. These ships are hard to deal with and will avoid this station if possible, and unless some ruling is made to the contrary, I expect that they will soon adopt the Port Angeles method of entering. The excuse for entering at Port Angeles is that the ship, not knowing its destination, puts in there for orders.

Shipping agents in Seattle and Tacoma want to have these vessels enter there direct, for if the ship puts in at Port Townsend it is boarded by the local agent, and they lose the business. They have raised the point before, and are again grumbling that if a vessel can be inspected by the local health officer at Port Angeles and then the vessel pass into Puget Sound without inspection by the United States quarantine officer at Port Townsend, why not allow them to

proceed direct to the port of destination, be examined by the local health officer, and entered? I think the point well taken.

There are conditions existing which render it wise and expedient that your attention be invited to the fact of the existence of the Puget Sound board of health (the State laws governing said board are on file in the Bureau and in the Department), whose jurisdiction extends to all maritime ports and towns of Washington. This board requires that vessels from foreign ports bound for points on Puget Sound must be inspected at Port Townsend by its medical officer, whether the boat has previously called or entered at some port outside or not. It is to prevent evasion of this inspection by entering at a subport outside of the Sound that this regulation was made. The letters of instruction formerly issued to the United States quarantine officer and the collector have practically ignored this board and the State law. If I interpret the law correctly, former instructions in regard to quarantine in this district have lead to the misconstruction of the spirit of said act.

As serious and unpleasant misunderstandings are likely to arise, and to simplify matters for the collector, I would respectfully suggest that it be recommended to the Department that uniform instructions be issued to the collector that all vessels bound to any port situated on the waters of the Strait of Juan de Fuca or Washington Sound, viz, Port Angeles, Roche Harbor, Blaine, and Whatcom, permitting them to enter direct on the certificate of the local health officer. But if the ship's destination is any point on Puget Sound, or it receives final orders to proceed to some point on said Sound while making one of the above-named places a "port of call for orders," said ship must in that case call at Port Townsend for inspection by the United States quarantine officer, such action being deemed necessary to thoroughly protect the more populous cities of the interior situated on Puget Sound.

MARCH 20, 1895.

RELATIONS WITH STATE AND LOCAL QUARANTINE AUTHORITIES.

The relations with the State and local quarantine authorities during the past year have been amicable, although a number of differences of opinion as to relative rights and propriety of procedure have arisen. Effort has been made in the enforcement of the provisions of the quarantine act of February 15, 1893, and in meeting the obligations imposed upon the National Government by this act, to demonstrate to local authorities a desire for cooperation, keeping in mind, as the sole object of the law, the exclusion of pestilential disease from abroad, or its introduction from one State into another. Nothing has been allowed to prompt other than a temperate and judicial consideration of the differences which naturally have arisen, and a spirit of conciliation has been exhibited to a degree possible without impairing efficiency of administration. Evidences of cordial cooperation and support, and even of desire to have the local quarantines come under the national quarantine system, have not been wanting.

At Portland, Me., overtures were made to the Bureau for the turning over of the quarantine station on House Island to the Government, and a bill to that effect is now pending in Congress.

Following is a letter from the secretary of the board of health, inclosing resolutions passed by the city council and draft of a bill to be presented in Congress:

OFFICE OF BOARD OF HEALTH,
Portland, Me., February 16, 1896.

DEAR SIR: By direction of the board of health of Portland, Me., I herewith inclose a copy of resolution passed by the city council of Portland relating to quarantine station at this port.

This resolution was passed upon the recommendation or suggestion of the board of health, and I trust that it will meet with your approval.

I also inclose a copy of a draft of an act relating to the same matter. The mayor of this city has forwarded to Congressman Dingley a personal letter and a copy of the inclosed draft. He also has written Speaker Reed asking his assistance, and I think that you can safely confer with these gentlemen in regard to the matter.

It is perhaps unnecessary for me to mention that Dr. Banks has not only written the different members of this board, but has seen us personally, and from our correspondence with him we infer that the proposed legislation will meet with the approval of your Department.

Yours, truly,

EDWIN L. DYER,
Secretary Board of Health.

WALTER WYMAN, M. D.,
Surgeon-General Marine-Hospital Service, Washington, D. C.

[Inclosure.—Resolutions of city council of Portland, Me.]

Whereas the United States Government owns the quarantine stations at several important ports of entry in the United States, and its officers have the immediate supervision and enforcement of the law relating to the quarantine of vessels arriving at said ports;

Resolved, That the city council of Portland does heartily approve of the passage of a law authorizing the United States Government to purchase the quarantine station and its equipments at this port, and placing the management and control and the enforcement of the law relating to quarantine under the supervision of the officers of the United States Government, and that our Senators and Representatives be, and are respectfully, requested to use all honorable means to secure the passage of a law for the purpose mentioned.

And that the mayor be, and is hereby, requested to convey to our Senators and Representatives in Congress the sentiments embodied in this resolution.

IN BOARD OF MAYOR AND ALDERMEN, *February 15, 1896.*

Read and adopted and sent down for concurrence.

Attest: EDWIN L. DYER, *City Clerk.*

IN COMMON COUNCIL, *February 15, 1896.*

Read and adopted in concurrence.

Attest: ELLIOTT C. MITCHELL, *Clerk.*

A true copy.

Attest: EDWIN L. DYER, *City Clerk.*

[Inclosure.—Bill prepared for presentation in Congress.]

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That the Secretary of the Treasury is hereby authorized and directed to purchase the buildings and contents comprising the quarantine establishment of the city of Portland, Maine, located on House Island, in Portland Harbor, and the same when purchased shall be maintained and operated under the provisions of the quarantine laws of the United States.

SEC. 2. That the sum of twelve thousand dollars be, and is hereby, appropriated, out of any moneys in the Treasury not otherwise appropriated, of which six thousand dollars, or so much thereof as may be necessary, shall be applied for the purchase of said quarantine establishment, and six thousand dollars, or so much thereof as may be necessary, for the maintenance of same during the remainder of the fiscal year ending June 30, 1896, and the fiscal year ending June 30, 1897.

SEC. 3. That three commissioners shall be appointed by the Secretary of the Treasury, of whom one shall be an officer of the Marine-Hospital Service, to appraise the value of said quarantine establishment; and the value as assessed by such commission shall be the sum to be paid by the Secretary of the Treasury for said establishment, including the expense of the commission.

SEC. 4. That the use of the land on which said establishment is now situated, being a part of the military reservation, is hereby authorized, under such regulations as the Secretary of War may from time to time prescribe.

This bill has been advocated by the State board of health of Michigan, whose communication upon the subject will be found in the chapter devoted to the consideration of a strictly national quarantine system. It is proper to remark that the State board of health of Michigan is interested in the management of the quarantine at Portland, Me., inasmuch as a number of immigrants land at that station destined for points in the State of Michigan.

INSPECTION THROUGHOUT THE YEAR AT THE BALTIMORE QUARANTINE.

In an examination of the report from the medical officer detailed to inspect the local quarantine for Baltimore, it appeared that provision for the inspection of vessels was made only for the portion of the year between April 30 and November 1, and that no provision was made for the inspection of vessels during the winter months. The quarantine regulations of the Treasury Department require that vessels from foreign ports shall be inspected throughout the entire year. Accordingly, a letter was addressed to the health commissioner of Baltimore, calling his attention to Paragraph B, Article I, page 24, of the Quarantine Regulations of the Treasury Department, and necessity of compliance therewith. A reply was received to the effect that the regulation would thereafter be observed, and special arrangements were made by the mayor and health commissioner to provide for the maintenance of said quarantine service. The following letter was addressed to the collector of customs at Baltimore:

TREASURY DEPARTMENT,
Washington, January 11, 1896.

SIR: I am informed by the Surgeon-General of the Marine-Hospital Service that from an examination of the printed regulations of the health department of the city of Baltimore it appears that no provision is made for the inspection of vessels from foreign ports during the closed quarantine season. By reference to the quarantine laws and regulations of the United States, page 24, article 1, section 1, Paragraph B, it will be seen that all vessels from foreign ports must be inspected throughout the year.

Some correspondence with the commissioner of health has lately been had, and it appears that arrangements will be made to carry the regulations alluded to into effect, and you are directed before entering a vessel from a foreign port to require the production of a certificate of inspection of the quarantine officer in accordance with article 1 of the regulations.

Respectfully, yours,

S. WIKE,
Acting Secretary.

COLLECTOR OF CUSTOMS, *Baltimore, Md.*

The necessity of this provision of the quarantine regulations is illustrated by the following correspondence, showing that a vessel arrived at Baltimore, was not inspected, and was the carrier of smallpox to Brooklyn:

DEPARTMENT OF HEALTH, COMMISSIONER'S OFFICE,
Brooklyn, N. Y., January 9, 1896.

DEAR SIR: Two cases of smallpox have recently occurred in this city. One patient, John Sullivan, longshoreman, is said to have worked on the steamship *Alsatia*, of the Anchor Line, which vessel left this port on December 31 on her way to Genoa, Leghorn, and Naples.

Will you kindly inform me what steps, if any, will be taken by you to follow the course of the vessel?

The second case is that of a sailor, George Evans, from the steamship *North Cambria*, of Wright's Line. That vessel is still at this port. The facts in the case are known to the health officer of the port. This vessel is said to be loading with grain for Cork, Ireland. It is now partially loaded.

Yours, respectfully,

Z. TAYLOR EMERY, M. D.,
Commissioner.

Supervising Surgeon-General WYMAN,
Marine-Hospital Service.

STATE OF NEW YORK, HEALTH OFFICER'S DEPARTMENT,
Quarantine, Staten Island, January 18, 1896.

DEAR SIR: In answer to your inquiry concerning the steamships *North Cambria* and *Alsatia*, I have to say that on December 6 the steamship *North Cambria* left Bona, and arrived in Baltimore on December 29 and was examined at the latter place. After discharging a part of her cargo she was cleared from this place (Baltimore) and arrived at this station January 6. As she was from a domestic port having the United States clearance papers, and arriving at a period between November 1 and May 1, the crew were not examined, but a declaration from the master of said vessel that all were well and no sickness of any kind had occurred on the voyage to this port was accepted, and she proceeded to her dock in Brooklyn. I was subsequently informed by the officials of the Brooklyn health department that two days after the arrival of the *North Cambria* at her dock one of the sailors was taken sick and removed to the hospital with what proved afterwards to be smallpox. On the receipt of this information I ordered the vessel back to quarantine and found that one of the sailors, John Williams, a native of Wales, had been very slightly ill on the voyage from Bona to Baltimore, but was able to do his work. A few spots which appeared on his face at this time were supposed by the captain to have been due to syphilis. The man had fully recovered by the time the vessel reached Baltimore, and the captain stated to me that he made no mention of this fact, either at Baltimore or at this station, as he believed it to have been due to syphilis, and of no special interest to quarantine officials. The crew were immediately removed to Hoffman Island, where their clothing and baggage and the bedding, cushions, etc., belonging to the ship were thoroughly disinfected. The forecastle and cabins were washed down with a solution of bichloride of mercury and afterwards fumigated, and the ship allowed to proceed to her destination, which I believe to be Cork. I have already notified the consul at Queenstown to this effect. * * *

I was subsequently informed by Dr. Morton, chief of the bureau of contagious diseases, Brooklyn health department, that after a careful investigation he was inclined to believe that the *Alsatia* was not the source of infection in this particular case.

Respectfully, yours,

A. H. DOTY,
Health Officer, Port of New York.

FAIRFAX IRWIN, M. D.,
Surgeon, M. H. S.

OFFICE OF THE COLLECTOR OF CUSTOMS,
Port of Baltimore, January 22, 1896.

SIR: I have your letter of the 20th instant, requesting a copy of the certificate of inspection of the British steamship *North Cambria*, which arrived at this port December 30, 1895, with iron ore from Bona, Algeria, and in reply I have to state that there was no inspection of this vessel at the local quarantine station.

* * * * * * *

Since your communication of the 11th instant, however, inspection of all vessels is made at the local station and proper certificates are issued.

Respectfully, yours,

JAMES A. DIFFENBOUGH,
Special Deputy Collector.

DR. WALTER WYMAN,
Supervising Surgeon-General, M. H. S., Washington, D. C.

RELATIONS WITH THE QUARANTINE AUTHORITIES OF FLORIDA.

Under date of December 6, 1895, a communication was received from the State health officer of Florida, inclosing copies of amendments to the quarantine regulations of the State, one of which is as follows:

(*a*) No person except the State health officer, the port sanitary inspector, and his employees shall be permitted to board or leave any vessel subject to quarantine inspection until after the vessel has been inspected by the port sanitary inspector (quarantine officer) and, if said vessel is ordered into quarantine for detention or disinfection, until after the period of detention or completion of disinfection and the discharge of said vessel: *Provided*, That after inspection and before final discharge opportunity shall be given to the official representative of the United States Marine-Hospital Service to examine the said vessel for the purpose of ascertaining whether the quarantine regulations prescribed by the Secretary of the Treasury have been or are being complied with.

The following reply was sent to the State health officer:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., December 12, 1895.

SIR: I have to acknowledge the receipt of your letter of the 6th instant, transmitting certain regulations adopted by the State board of health of Florida at their meeting held on the 5th ultimo.

Referring to the article incorporated in the rules and regulations of the board of health of the State of Florida, as subdivision (*a*) of section 24, it is considered that this enactment is not intended to conflict with Article XI, entitled "Inspection of State and local quarantines," page 31 of the Quarantine Laws and Regulations of the United States. The Marine-Hospital Service will insist upon the right, in the performance of the duties imposed on it by the act of February 15, 1893, to inspect the local maritime quarantines of the United States whenever it shall be considered necessary, and that the officer detailed as inspector shall visit, at his discretion, any incoming vessel or any vessel detained in quarantine and all portions of the quarantine establishment for this purpose, at such times as he may deem proper.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

JOSEPH Y. PORTER, M. D.,
State Health Officer, Jacksonville, Fla.

Subsequently a letter was received, signed by the president of the State board of health of Florida, addressed to the Secretary, protesting against the position taken in the above letter.

But it may be stated that the terms of the letter are those embraced in the promulgated regulations of the Treasury Department, Article XI, page 31. This article was made necessary by the refusal of a former

quarantine officer at the port of New York (in 1893) to permit a representative of this Service to witness the disinfection of the baggage and wearing apparel of certain immigrants who had been treated for or detained on account of cholera. Before the regulation was issued it was submitted to the Attorney-General, who returned a written opinion affirming its legality.

STEAM DISINFECTING CHAMBER FOR KEY WEST.

Reports of the inspection of the disinfecting process at the Key West local quarantine have shown that until very recently the disinfection of clothing has been by sulphur fumes, instead of by steam, as required by the Treasury regulations. The attention of the health officer of Florida was several times called to this matter, which, in view of the large number of persons coming from Habana, was considered of serious importance. The Bureau felt an additional responsibility with regard to this disinfection, because it was assisting the State board of health, through the sanitary inspector of the Marine-Hospital Service stationed in Habana, who was directed to label all baggage which required disinfection with a proper label, bearing the mark "to be disinfected." Thus the Government was assisting in enforcing a system of disinfection not in accordance with its own regulations. The following letter, therefore, was addressed to the State health officer:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, D. C., April 21, 1896.

SIR: In connection with the subject-matter of this letter, I beg leave to invite your attention to letter from this office, August 22, your reply, August 24, 1894; from this office again, August 28, and your reply, September 10, 1894, all relating to the furnishing of a steam disinfecting chamber for the Key West Quarantine. Your last letter, September 10, 1894, stated that the State board of health would provide a steam cylinder for Key West as soon as the board completed the construction of the Fernandina plant. This plant has been completed now, I believe, about one year, and no steam chamber is yet provided at Key West, and if I am correctly informed no appropriation has been made either by the legislature or by your State board to this end. Therefore, while at every other point in the South, from Galveston to Norfolk, steam disinfection is invariably used in connection with clothing and dunnage requiring disinfection under the regulations, at Key West sulphur fumigation is relied on. It is unnecessary to more than mention to you the unreliability of this method of disinfection, you yourself having urged the substitution of steam. My sole motive in broaching this matter is one with which I believe you will be in full accord, namely, to leave nothing undone which will prevent, so far as quarantine measures can, the introduction of infectious disease. The Bureau is desirous of having this deficiency rectified, and that, too, without interfering with the local administration of quarantine. It is my belief that it is your intention still to have a steam chamber at Key West, but that its purchase and installation can not be consummated by you at the present time. I have therefore to offer you the assistance of the Bureau in this matter. Plans have been prepared, and in a comparatively short time a small-sized disinfecting chamber can be installed at Key West, to be operated there until such time as you may be able to supplant it with one of your own. The chamber will then be removed and form a part of the equipment of the portable detention camp. It will

be operated under the supervision of Passed Assistant Surgeon Guiteras, who is an immune and already stationed at Key West in charge of the marine hospital.

There is no desire on the part of the Bureau to interfere in any way with the quarantine inspection, or other quarantine function, and with this assurance I submit the matter to you for your earnest consideration, and beg that you will send me a reply as soon as possible.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General Marine-Hospital Service.

Dr. JOSEPH Y. PORTER,
State Health Officer of Florida, Key West, Fla.

[Reply.]

EXECUTIVE OFFICE, STATE BOARD OF HEALTH OF FLORIDA,
Jacksonville, Fla , May 15, 1896.

DEAR SIR: Permit me to acknowledge the receipt of your letter of the 21st ultimo, in relation to a steam disinfecting chamber for Key West, and to apologize for the delay attending an answer. This delay occurred through your communication being forwarded to Key West, then forwarded from there, and again reforwarded, which necessarily consumed some time. In addition to this the matter had to be referred to the board, and up to the present I have not been able to get sufficient information to give you an intelligent answer. I am happy to inform you, however, to-day that the Kensington people will very likely be requested to furnish a steam plant on a small scale, such as you proposed to loan us. The Kensington firm informs us to-day, by wire, that they can erect it at Key West within four weeks' time.

Last Monday I had the pleasure of an interview with Dr. Guiteras, at Key West, in regard to quarantine matters, when occasion was taken to show him the sulphur plant lately erected at Key West, and to apprise him of the probable early installation of the steam chamber. The matter will be pushed until completed, which we anticipate will be at an early date.

Very truly, yours,

JOSEPH Y. PORTER,
State Health Officer.

Dr. WALTER WYMAN,
Supervising Surgeon-General M. H. S., Washington, D. C.

No positive information having been received as to definite action in the matter, the following telegram was sent:

[Department telegram.]

JUNE 6, 1896.

Dr. JOSEPH Y. PORTER,
State Health Officer, Jacksonville, Fla.:

Referring to letter from Marine-Hospital Bureau, April 21, and your reply, May 15, concerning steam disinfecting chamber Key West, please wire what steps have been taken to provide said quarantine equipment.

C. S. HAMLIN, *Acting Secretary.*

To which the following is a reply:

[Telegram.]

JACKSONVILLE, FLA., *June 6, 1896.*

Hon. CHAS. S. HAMLIN,
Acting Secretary Treasury, Washington, D. C.:

Negotiations pending with Kensington Engine Company, Philadelphia, for steam plant at Key West. Francis has been asked to come to Key West to determine size.

JOSEPH Y. PORTER, *State Health Officer.*

A steam chamber has since been purchased and is now in operation.

QUARANTINE SERVICE AT APALACHICOLA, FLA.

December 26, 1895, a telegram was received from the collector of customs at Apalachicola, as follows:

[Telegram.]

OFFICE OF THE COLLECTOR OF CUSTOMS,
Port of Apalachicola, Fla., December 26, 1895.

SECRETARY OF TREASURY, *Washington, D. C.:*

Your letter of July 20, 1895, directs that no vessel be admitted from infected ports without a certificate from a quarantine station. Vessels now from Habana bring a bill of health from consul and United States sanitary inspector at Habana direct for this port, and the local quarantine is off here. Am I permitted to let them enter from Habana?

J. E. GRADY, *Collector.*

The following reply was sent:

[Telegram.]

DECEMBER 27, 1895.

COLLECTOR OF CUSTOMS, *Apalachicola, Fla.:*

Quarantine regulations, Treasury Department, 1894, page 24, article 1, paragraph 1 B, requires inspection of all vessels from foreign ports throughout the year. In view of your statement that local quarantine is off and there is no local quarantine inspection, Department letter of July 20, 1895, must remain in force. If State or local quarantine authorities will continue inspection throughout the winter, the certificates of free pratique of their inspector for infected vessels may be accepted until May 1. Notify Surgeon-General Marine Hospital Service of any action taken.

S. WIKE, *Acting Secretary.*

Later, January 27, the following telegrams were received and sent:

APALACHICOLA, FLA., *January 27, 1896.*

Hon. SECRETARY OF TREASURY:

The Russian bark *Southern Belle*, Karlsson, master, from Cherbourg, France, wants to enter and has no consular bill of health. Our local quarantine is off, but in my opinion the vessel is clean and healthy. Wire reply.

J. E. GRADY, *Collector Customs.*

JANUARY 27, 1896.

COLLECTOR CUSTOMS, *Apalachicola, Fla.:*

Employ physician to inspect the *Southern Belle*, $5 compensation. Accept his certificate, and proceed then as previously directed in Department circular.

W. WYMAN, *Surgeon-General.*

APALACHICOLA, FLA., *January 28, 1896.*

SURGEON-GENERAL, MARINE-HOSPITAL SERVICE,
Washington, D. C.:

Since wiring about *Southern Belle* I find the American consul's certificate on the back of French bill health, certifying to the good condition of vessel and healthy condition of Cherbourg. Will not send physician unless you further instruct me.

J. E. GRADY, *Collector.*

JANUARY 28, 1896.

COLLECTOR OF CUSTOMS, *Apalachicola, Fla.:*

Regulations require you to have a quarantine certificate; therefore, employ physician.

WYMAN, *Surgeon-General.*

From the above it appears that no inspection at all was being conducted at Apalachicola after November 1, consular bills of health only being required, which was manifestly a violation of the regulations. Authority was therefore given to the collector of customs to employ a physician, and for necessary boat hire, for the purpose of making the required quarantine inspections, and until the 1st of May this work was carried on under the auspices of this Bureau, the expenses being paid from the epidemic fund. In the meantime the following letter was received from the secretary of the local board of health, announcing an intention to surrender the management of the local quarantine to the State authorities:

BOARD OF HEALTH,
Apalachicola, Fla., February 10, 1896.

SIR: I beg to intimate to you that in all probability the board of health of Franklin County, covering the port of Apalachicola, will resign to the governor, for the reason that there are no funds to operate. Hence the State board must take charge of this port. We, however, await the wishes of the State board and suggestions of the governor.

Have you any suggestions?

Yours, etc.,

J. G. RUGE,
Secretary.

SURGEON-GENERAL, MARINE HOSPITAL SERVICE.

[Reply.]

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., February 26, 1896.

SIR: Your letter of the 10th instant has received the careful consideration which its subject-matter demands.

I have to inquire whether you have formally made overtures to the governor or to the State board of health for the conduct of the Apalachicola quarantine.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

J. G. RUGE, Esq.,
Secretary Board of Health, Apalachicola, Fla.

BOARD OF HEALTH,
Apalachicola, Fla., February 29, 1896.

SIR: Referring to your favor 26th instant, this board has submitted to the governor and to the State board of health the condition here, and asked for action herein. Will you please communicate with Governor H. L. Mitchell?

Yours, etc.,

JOHN G. RUGE, *Secretary.*

Hon. WALTER WYMAN,
Supervising Surgeon-General, Marine-Hospital Service.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., March 7, 1896.

SIR: I have to acknowledge the receipt of your letter of the 29th ultimo, stating that the board of health of Apalachicola has submitted to the governor and the State board of health a statement of the conditions at Apalachicola, and asked for action; furthermore, requesting me to communicate with Governor H. L. Mitchell.

In reply I have to state that, inasmuch as the matter has been presented to the governor of the State and the State board of health, no action at the present time seems to be necessary on the part of this Bureau, and if no action is taken by the State authorities you are requested to again communicate with me concerning the matter.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

JOHN G. RUGE, Esq.,
Secretary Board of Health, Apalachicola, Fla.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., March 10, 1896.

SIR: Referring again to your letter of the 29th ultimo, and to the letter of this Bureau in reply, dated March 7, in regard to the quarantine inspection at the port of Apalachicola, I have to inform you that the quarantine regulations of the Treasury Department require inspection of vessels throughout the year, and the collector of customs under the law can not allow entry of a vessel without a certificate from a quarantine inspector. Recently the collector wired the Bureau of the arrival of a vessel and that no provision had been made by local authorities for its inspection. This Bureau thereupon authorized him to employ an inspector, and to-day I am in receipt of a letter from the collector stating that he has made an arrangement for the payment of an inspector each time an inspection of a vessel is made, and for the payment of necessary expenses in hiring a boat for this purpose. This action of the collector is approved.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

JOHN G. RUGE, Esq.,
Secretary Board of Health, Apalachicola, Fla.

It should be stated that the port of Apalachicola, as well as the port of Pensacola, Fla., was excepted in the State quarantine law from the direct or exclusive management of the State quarantine officer.

On May 1, however, as reported by the medical officer of the Marine-Hospital Service in his inspection report on the Apalachicola quarantine, the State board of health assumed control of this station.

In October, 1896, from the reports received it was observed that vessels were being admitted to this port without a full compliance with the Treasury regulations; in other words, that vessels from Havana and other Cuban ports infected with yellow fever were being admitted to entry without the careful and scientific disinfection provided by the regulations. Apalachicola has no disinfecting machinery, and the same class of vessels subjected to scientific disinfection at all other Southern ports were being admitted here without proper disinfection. It was for this same cause that vessels bound for Pascagoula last season,

as well as this, were compelled to obtain pratique at the United States quarantine, Ship Island. These lapses in quarantine administration at small ports are perhaps the chief source of danger of the introduction of yellow fever. Imperfect quarantines are the weak links about which so much has been written in the chain of quarantine defense. The action taken by the Bureau is set forth in the following correspondence:

[Telegram.]

TREASURY DEPARTMENT,
Washington, D. C., October 14, 1896.

COLLECTOR OF CUSTOMS, *Apalachicola, Fla.:*

Refuse entry to all vessels from Cuban ports unless provided with quarantine certificate from quarantine officer at Pensacola, Tampa Bay, Tortugas, Fernandina, Brunswick, or South Atlantic quarantine. Notify Apalachicola authorities of this order and deputy collector at Carrabelle. See Quarantine Regulations, page 25, article 2, paragraph 2; also page 29, article 8. This action is necessary because it is learned that vessels from yellow-fever infected Cuban ports are being admitted without the required disinfection and contrary to regulations.

C. S. HAMLIN,
Acting Secretary.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., October 14, 1896.

SIR: I have to confirm telegram sent you this day, as follow:

"Your attention called to vessels from yellow-fever infected Cuban ports being admitted at Apalachicola without disinfection required by quarantine regulations. Collector of customs, Apalachicola, has been directed by Secretary to refuse entry to vessels from Cuban ports without quarantine certificate from Pensacola, Tampa Bay, Tortugas, Fernandina, Brunswick, or South Atlantic, all of which are fully equipped quarantines.

"W. WYMAN, *Surgeon-General.*"

From the report of Surgeon Murray it appears you assumed charge of the quarantine at Apalachicola on May 1, 1896.

The telegram above quoted was made to include Cuban ports only as being the most dangerous at the present time.

From the public health reports you will see that Cienfuegos and Sagua la Grande are both badly infected with yellow fever. Vessels from other yellow-fever infected ports, such as Santos, should also be required to have the same pratique.

I trust that you will give this matter your attention.

Very respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

Dr. JOSEPH Y. PORTER,
State Health Officer, Jacksonville, Fla.

CORRESPONDENCE RELATING TO REDISINFECTION AT PENSACOLA QUARANTINE OF VESSELS THAT HAVE BEEN DISINFECTED AT THE TORTUGAS (UNITED STATES) QUARANTINE STATION.

MARINE-HOSPITAL SERVICE,
Tortugas, Key West, Fla., September 10, 1896.

SIR: I have the honor to report that Captain Aldamez, of the Spanish steamship *Alicia*, of the Serra Line, recently in quarantine at this station, has informed me that the general agent of that line in Habana has been notified officially by the quarantine officer of Pensacola that any ship of said line entering the port of Pensacola after undergoing quarantine at Tortugas will be again disinfected and detained.

All ships of the Serra Line entering eastern Gulf ports have been ordered by the officials of the line to report at Tortugas for quarantine. The action of the Pensacola quarantine officer, as reported, appears to be an attempt to compel such of these vessels as may enter Pensacola to undergo quarantine at the latter port.

As such action would be an apparent violation of section 6 of the quarantine act of February 15, 1893, as well as an act of discourtesy to the Service, I deem it my duty to report the matter.

Very respectfully,

L. L. WILLIAMS,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., September 21, 1896.

SIR: I have to inclose herewith for your information copy of a letter from P. A. Surg. L. L. Williams, Marine-Hospital Service, in command of the national quarantine station, Tortugas, Fla. I have to inform you that should the information contained in this letter be correct the redisinfection or unnecessary detention of a vessel arriving with a certificate of pratique, the destination of the vessel being mentioned, would be a violation of section 6 of the quarantine act of February 15, 1893, and would render the officer taking such action liable to the penalties for illegal detention.

I have further to invite your attention to section 7 of the preamble, page 24, Quarantine Laws and Regulations of the United States, 1894, which is as follows:

"Vessels having been treated at national quarantine stations that are located a considerable distance from the ports of entry of said vessels may be inspected by the local quarantine officer, and if for any sanitary reason it is considered inadvisable to admit the vessel he should report the facts immediately, by telegraph when possible, to the Supervising Surgeon-General, Marine-Hospital Service, detaining the vessel pending his action."

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

B. R. PITT, Esq.,
President Escambia County Board of Health, Pensacola, Fla.

STATE BOARD OF HEALTH OF FLORIDA,
Port Tampa, Fla., September 26, 1896.

DEAR SIR: Acknowledging the receipt of copies of letters from L. L. Williams, passed assistant surgeon Marine-Hospital Service, from Tortugas, and communication from your office to the Escambia County board of health, remonstrating against the refusal of that body to accept pratique certificates issued by members of your Service, allow me to thank you for the same and to state that such action on the part of Pensacola officials is without warrant from this board or myself. At the same time, I submit that it is not exactly in equity to the States which have competent quarantine disinfecting establishments along their respective coasts to order that ships shall go out of their way to visit Tortugas or other United States quarantine or refuge station. It should be left entirely to the masters of vessels as to what station they prefer to report at, provided that it is a steam plant.

This recalls the circular of the Secretary of the Treasury of some year or two ago ordering all vessels from Habana to stop at Dry Tortugas. I have frequently been informed by masters of vessels that this is not always convenient. The weather and other contingencies at times render it unsafe, and when the craft is bound for a port

where there is a competent quarantine equipment and where the work is known to be efficient, it would seem a hardship for the ship to be compelled to go to a station quite distant.

However, I will take the matter up with the county board of health of Escambia and prevent in future any seeming contempt of the quarantine regulations of the United States, whose authority the State board of health and the writer fully recognize and respect.

Very truly, yours,

JOSEPH Y. PORTER,
State Health Officer.

Dr. WALTER WYMAN,
Supervising Surgeon-General M. H. S., Washington, D. C.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL M. H. S.,
Washington, D. C., October 1, 1896.

SIR: I have to acknowledge the receipt of your letter of September 26, 1896, acknowledging the receipt of copy of my letter of September 21 to the president of the Escambia County board of health, inclosing copy of a letter from P. A. Surg. L. L. Williams, Marine-Hospital Service, Tortugas quarantine, relative to the alleged redisinfection of vessels at Pensacola after receiving pratique at Tortugas.

I deem it now but just to transmit herewith copies of letters received from the president of the Escambia County board of health relative to the matter.

Referring to that portion of your letter of the 26th relating to the circular of the Secretary of the Treasury "ordering all vessels from Habana to stop at Dry Tortugas," I beg leave to invite your attention to the terms of the said circular, which may be found on page 296 of the Annual Report of the Marine-Hospital Service for 1894, from a perusal of which it will be seen that the order was not mandatory.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

Dr. JOSEPH Y. PORTER,
State Health Officer, Jacksonville, Fla.

BOARD OF HEALTH OF ESCAMBIA COUNTY,
Pensacola, Fla., September 24, 1896.

SIR: Replying to your letter of September 21, 1896, inclosing letter of passed assistant surgeon Marine-Hospital Service dated Tortugas, September 10, 1896, in which he says "that Captain Aldamez of the Spanish steamship *Alicia*, of the Serra Line, informed him that the general agent of that line in Habana has been notified officially by the quarantine officer of Pensacola that any ship of said line entering the port of Pensacola, after undergoing quarantine at Tortugas, will be again disinfected and detained," I beg to say that no communication of any kind has been sent from this office to the agents of the Serra Line relative thereto.

I inclose copy of letter from Port Sanitary Inspector R. C. White, the quarantine officer of this board, which explains itself.

I also send a copy of a letter written to said agents, in which you will see there is no reference whatever made relative to vessels being fumigated at other stations.

Very respectfully, your obedient servant,

ALEX. GRANT, *Secretary and Treasurer.*

Hon. WALTER WYMAN,
Surgeon-General M. H. S., Washington, D. C.

BOARD OF HEALTH OF ESCAMBIA COUNTY,
Pensacola, Fla., August 31, 1896.

SIRS: Your letter to Dr. R. C. White, our port sanitary inspector (by him referred to this board), in which you request that the steamship *Amethyst* be allowed to come to the city after one day's detention in quarantine (after fumigation), we note what you say in reference to the matter, and duly appreciate same, but we must carry out the law in her case, as in others, and our law demands "that all vessels from Cuban ports shall be fumigated and detained five days after said fumigation for observation.

Very respectfully, your obedient servant,

ALEX. GRANT, *Secretary and Treasurer.*

Messrs. DEALOFEN, HIJO & Co.,
Habana, Cuba.

BOARD OF HEALTH OF ESCAMBIA COUNTY,
Pensacola, Fla., September 24, 1896.

DEAR SIR: I have read Surgeon-General Wyman's communication, also Surgeon Williams's letter.

In answer, I would respectfully state that I have made no official communication to anyone about the Spanish steamers. Official communications are made by the president of the Escambia County board of health. I have no doubt said to captains that if vessels arriving from other stations were not in my opinion clean, I would detain them, reporting the facts to you.

The British steamship *Amethyst*, plying between this port and Habana, has on several occasions been disinfected at Tortugas and given pratique on arrival here.

Respectfully,

R. C. WHITE, *Port Sanitary Inspector.*

Capt. ALEX. GRANT,
Acting President Board of Health.

SUPPORT TO STATE HEALTH OFFICER.

Aid was given to the Florida State board of health during the past season in the furnishing of a naphtha launch for the use of the customs inspector at Anclote Key, the latter being instructed to aid and extend the facilities afforded by the launch to the State sanitary inspector at that point. By request of the State health officer a physician was employed to vaccinate the crews of boats on the Chattahoochee and confluent rivers, and by request of the same officer a camp of twenty tents was established at Key West, as he was without funds for the purpose. Details regarding this camp will be found in the chapter on smallpox.

Some difficulty was experienced by the State health officer in removing the people from infected houses, as well as the sick in Key West; and a sharp controversy arose between the city council and the State health officer regarding the matter. The city council requested this Bureau to cooperate with the board of city commissioners, complaining of the action of the State health officer. Following is the reply, declaring that the Bureau recognized the State health officer as the proper authority; also a letter from the State health officer, expressing his thanks for the Bureau's action.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 27, 1896.

SIR: I have to acknowledge receipt of your telegram of July 21, submitting certain resolutions adopted by the board of city commissioners concerning the action of the State health officer in his efforts to enforce a suppression of smallpox in Key West, and requesting that the National Government cooperate with the city authorities when necessary.

In reply I have to state that this Bureau has instructed the medical officer specially detailed as its representative to cooperate with State Health Officer Porter, who is recognized as the legal and proper sanitary authority in suppressing smallpox in Key West, and preventing its spread therefrom.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

MR. HUGH GUNN,
City Clerk, Key West, Fla.

STATE BOARD OF HEALTH,
Jacksonville, Fla., August 3, 1896.

DEAR SIR: I have to thank you for copy of your letter to the clerk of the city of Key West in connection with the smallpox situation there, and for emphasizing to the city officials that the State board of health and the State health officer are the legal and properly constituted authorities charged with the management and control of such outbreaks of epidemic communicable disease as has recently threatened the island of Key West.

Very truly, yours,

JOSEPH Y. PORTER,
State Health Officer.

DR. WALTER WYMAN,
Supervising Surgeon-General, M. H. S., Washington, D. C.

CORRESPONDENCE WITH THE STATE BOARD OF HEALTH OF MISSISSIPPI CONCERNING THE GULF (UNITED STATES) QUARANTINE STATION AT SHIP ISLAND.

STATE OF MISSISSIPPI, EXECUTIVE DEPARTMENT,
Jackson, Miss., August 4, 1896.

MY DEAR SIR: The State board of health are very much alarmed because of the danger of yellow fever which appears to them, and at their suggestion and request I write to ask you that you give careful consideration to a report of Dr. Haralson, which I inclose to you; and I also ask that you grant their request in the removal of the Government quarantine station from Ship Island to Chandeleur Island. Also, if you will instruct the custom-house officers to recognize the pratique of the State board of health, which I hope you will do, it will obviate the necessity of healthy vessels coming in contact with those infected with yellow fever, and thereby avoid a great danger. The report of Dr. Haralson speaks for itself. It is indorsed by Drs. Hunter and Kiger. These gentlemen rank with the first of their profession in the State, and are of high character and standing as gentlemen.

I am so thoroughly impressed with the wisdom of the suggestions of these physicians and the necessity of their adoption to avert danger that I hope you will see your way clear to give the relief immediately.

Faithfully, etc.,

A. J. MCLAURIN.

HON. JOHN G. CARLISLE,
Secretary of Treasury, Washington, D. C.

TREASURY DEPARTMENT,
Washington, August 27, 1896.

SIR: I have to acknowledge the receipt of your letter of the 4th instant, inclosing a report regarding the Gulf Quarantine Station, made by Dr. H. H. Haralson to the chairman of the executive committee of the Mississippi State board of health.

In reply I have to inclose herewith for your information a letter, with inclosures, prepared by the Surgeon-General of the Marine-Hospital Service.

Awaiting any further communication, I remain, respectfully, yours,

C. S. HAMLIN, *Acting Secretary.*

Hon. A. J. MCLAURIN,
Governor of Mississippi, Jackson, Miss.

[Inclosure.]

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., August 25, 1896.

SIR: I have the honor to make the following statement with reference to the letter of the governor of Mississippi, inclosing a communication from Dr. H. H. Haralson, quarantine inspector at Biloxi, addressed to the chairman of the executive committee of the Mississippi State board of health:

The general object of the letter of Dr. Haralson is a complaint concerning the United States quarantine station at Ship Island, Mississippi, and a demand that it shall be removed from its present location to the former location at Chandeleur Island. The reasons for this removal given by Dr. Haralson are that the proximity of the Gulf station is dangerous to the inhabitants of the town of Biloxi and the people of Mississippi generally, on account of the possibility of infection by yellow fever, and because, as he states, the quarantine is carelessly administered and by a service which allowed yellow fever on two occasions to invade the States of Mississippi and Georgia.

With regard to the administration of this quarantine, I have every reason to believe that its administration has always been conducted with the utmost care by the various officers in command of the station, and in order to indicate the method by which assurance is had from time to time as to its careful conduct I inclose a copy of the last report of inspection of this station, made by Surg. R. D. Murray, quarantine inspector.

The statement of Dr. Haralson that this Service was responsible for the epidemic of yellow fever at Brunswick, Ga., in 1893 is denied. This Service was not in charge of the quarantine at Brunswick when yellow fever was admitted in 1893, but the quarantine was at that time administered by the Brunswick local board of health. The Service subsequently assumed charge because of the inefficiency of the local quarantine and its failure to protect the State from epidemic diseases.

Concerning yellow fever at Biloxi in 1886, it has been strenuously denied that yellow fever existed there at that time. It was officially reported, after investigation, not to be yellow fever, and a letter on file in this Bureau, signed by F. W. Elmer, member of the legislature, written from Biloxi October 23, 1886, states as follows:

"All our physicians, four in number, say the disease is bilious or remittent fever."

It should be added, moreover, that in that year the quarantine at Ship Island was a refuge station, operated under the law of 1878 in aid of State and local authorities.

In a letter from the then Surgeon-General of the Marine-Hospital Service, dated November 10, 1886, in response to an inquiry, he replied as follows:

"The evidence on file in this office is not conclusive as to the precise nature of the sickness at Biloxi. Only a few fatal cases have been reported. The quarantine lately maintained at Biloxi was by the local authorities, and not under the control of this office."

It may be added that the present effective and scientific appliances which have revolutionized quarantine methods were not in use anywhere at that date, nor was the present effective quarantine system provided for by the act of Congress approved February 15, 1893, in operation.

With regard to the request for the removal of the Gulf Quarantine Station to Chandeleur Island, it is inconceivable that such a demand should be made in face of the fact that when Chandeleur Island was occupied by the station—the point to which it is desired it should be removed—the buildings were destroyed by a hurricane and by seas that swept entirely over the island October 2, 1893, and five persons—a steward, nurse, boatman, and two patients—were lost, demonstrating very clearly the unfitness of this point for a quarantine station. The following is a report of the officer in charge of the station at that time; dated Gulf Quarantine, October 4, 1893:

"SIR: Referring to my telegram of the 2d instant, reporting the destruction of this station, I have the honor to report the following details:

"The hurricane commenced about 8 p. m. on Sunday, October 1, 1893, the wind blowing from the southeast, the water rapidly rising, and a heavy sea sweeping over the island. The only communication between the surgeon's quarters and dispensary and hospital building was soon carried away. This was a light structure recently erected by the attendants. After this the inmates of each building were left to their own unaided resources. The laundress was fortunately saved by being brought up to my quarters shortly before those she occupied were swept away. The hurricane reached its height about 6 a. m. Monday, at which time the hospital ward was completely destroyed and carried out to sea. Its inmates at the time are supposed to have been the following five persons who are missing: Steward L. A. Duckert, Nurse John McKenzie, Boatman Johan Muller, and two patients, George Salmon, from the American bark *R. Goddard*, and Herman Gallen, from the British steamship *Ravendale*, the former suffering from an incised wound of chest, the latter from some pulmonary trouble.

"It is to be hoped that some of the missing may yet be heard from; but I am of the opinion that the chances are very poor, as at the time of the collapse of the ward the wind had hauled to the southwest, sweeping everything out to sea. Every possible effort has been made to find some trace of them, but without success.

"The effect of the storm upon Government property may be briefly stated as follows: All outbuildings, surgeon's laundry, cabin (occupied by female attendant), disinfectant storeroom, condemned-property room, bridges, landings, hospital ward, and pier head completely destroyed, not a vestige remaining except a piece of piling here and there. Flagstaff blown away.

"The remaining buildings are more or less total wrecks, the surgeon's quarters being the worse off, and liable to fall at any moment. The contents of the buildings are either injured or destroyed. Some of the records, I fear, are lost. Of the floating property nothing remains but the steamer *Welch*, the naphtha launch, and the whaleboat. Of these the only serviceable one is the latter. The *Welch* is high and dry on the north point, and I doubt if the naphtha launch engine can be repaired. Of this, however, I have some hopes." (Signed) G. M. Guitéras, P. A. Surgeon, M. H. S.

The following is a further statement made by Dr. Haralson in his communication already alluded to: "The same officer or officers come in contact with infected vessels and persons and places that immediately afterwards and without disinfection inspects and comes in contact with noninfected persons and vessels, thus opening the way for the propagation and discrimination (?) of infection." This danger has been provided against by the assignment of two medical officers to the station, one of whom is an immune to yellow fever, whose principal work it is to inspect suspected vessels at quarantine, while the general administration of the station is in the hands of the commanding officer. For that reason the fact that the commanding officer has never had yellow fever is of little importance. As a matter of fact, there has

been no yellow fever at this station during the year, and there can be no objection to the medical officer going aboard any vessel when it has been ascertained by his junior, who is, as already stated, immune, that the vessel is not infected.

With regard to the guarding of the station and its waters from trespass, the incidents cited by Dr. Haralson are of the most trifling description, consisting principally in the rapid passage across the quarantine waters of a small boat under full sail, and it is well known that such an accident is liable to occur at any quarantine station, and just as probably at the one recently established by the Mississippi State board of health at Cat Island, where there are, so far as ascertained, no buildings, no guards, and none of the paraphernalia of an equipped quarantine station.

Referring to the statement that a vessel from Port Elizabeth came into the port of Biloxi on June 22, after passing the quarantine, that a pilot had met her some distance out, and that subsequently the quarantine physician had found a case of fever aboard, and being only malarial fever, in his opinion, had not detained her, it would seem that the quarantine physician is there for the purpose of making a diagnosis of all cases of disease, and the fact that Dr. Haralson subsequently considered that the case simulated typhus fever is no proof that the quarantine physician was wrong in his diagnosis, while subsequent facts have proved that he was quite correct. Further, the fact that a pilot had boarded the vessel does not affect the case at all, because it was necessary that the vessel should have a pilot, and if infectious disease had been found aboard the pilot would have been detained with the rest of the vessel's personnel.

From the above it may be seen that the apprehension concerning the United States quarantine station at Ship Island and its administration is unfounded.

I invite attention again to a copy of the report of the inspecting officer, dated March 24, 1896, in which is shown the thorough equipment of this station, with its residences, executive building, and hospital on shore, its well-defined anchorages, its boarding steamer, barges, and complement of small boats, its complete machinery for the disinfection of vessels, and its personnel, consisting of two experienced medical officers, a hospital steward, and thirteen attendants. I will add that, for the proper guarding of any vessel in quarantine, the medical officer has authority to employ additional guards from time to time as may be needed.

I have yet to learn that the Cat Island Quarantine, which has been recently established by the Mississippi State board of health, almost adjoining the national station, has any appurtenances whatever, and I deem it pertinent here to transmit a copy of a letter received from Surgeon Murray, showing the emoluments to be derived and the tax imposed upon commerce by its establishment.

Finally, I will add that, in accordance with the law and the custom of this Service, assistance is given at all national quarantine stations in the enforcement of the State and local regulations. The establishment of a new station at Cat Island, therefore, is obviously unnecessary, and I have, furthermore, to invite attention to section 6 of the law of February 15, 1893, which provides that, "after treatment of any infected vessel at a national quarantine station, and after certificate shall have been given by the United States quarantine officer at said station that the vessel, cargo, and passengers are each and all free from infectious disease, or danger of conveying the same, said vessel shall be admitted to entry to any port of the United States named within the certificate."

The attention of the medical officer in command of the station at Ship Island will be called to this section.

I inclose also copy of a report received from P. A. Surg. A. C. Smith upon the equipment of the State quarantine at Cat Island.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

The SECRETARY OF THE TREASURY.

MARINE-HOSPITAL SERVICE,
Gulf Quarantine Station, August 20, 1896.

SIR: As directed in Bureau letter (F. I.) of the 14th instant, I have the honor to report upon the equipment of the State "quarantine" at Cat Island, and I return by mail to-day the lithographic map sent me, having indicated thereon such vestiges of a quarantine station as I discovered.

The location of the pretended quarantine is a little more than 10 miles due west from this station. I visited the spot yesterday, and as a result I have to report that there is no quarantine station on Cat Island at the place described in the "rules and regulations for Cat Island quarantine station and inspecting service of the Mississippi State board of health." No quarantine officer, boarding officer, watchman, or employee is regularly stationed there, and there is nothing to indicate a quarantine anchorage. The sole equipment consists of two small tents and a stake 10 or 12 fees high supporting a yellow flag. I could not find any human being at the supposed station, although I stood by the tents and called aloud and searched the landscape with a glass from the top of Great Sand Hill. There are no buoys to mark the anchorage, no wharf or barge or other landing place, and no boat for boarding or other purposes was at the island. My visit was paid in the middle part of the day. The quarantine has been in nominal operation since July 23.

From the view of the place which I had yesterday I believe that the State board of health does not intend to establish a real quarantine there. * * * The location is unsuitable even for an inspection station such as was proposed by the president of the State board of health last spring. Without a proper anchorage of its own, it is 6 miles distant from Ship Island Harbor and 3 miles from the nearest deep water. It would appear that the State board of health is seeking the removal of this station merely in the hope of squatting in our establishment.

* * * * * * *

Very respectfully, yours, A. C. SMITH,
Passed Assistant Surgeon, M. H. S.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

MARINE-HOSPITAL SERVICE,
Mobile, Ala., August 15, 1896.

GENERAL: I have the honor to report further on the new quarantine on Cat Island, Miss., viz:

Dr. H. H. Haralson, member of the State board of health, as quarantine inspector at Biloxi, receives per month	$250
Dr. C. W. Brooke, quarantine physician at Cat Island, receives per month	100
Two boatmen receive, per month, $30 each	60
Estimated cost of subsistence at	30
Monthly cost to the State	440

Vessels are to pay $5 for each inspection.

The Ship Island harbor master is to receive $5 for such mooring of the vessels—two will generally be required, thus making the extra cost to the vessel about $10 in every case, and $15 in some cases.

I am, very respectfully, your obedient servant, R. D. MURRAY,
Surgeon, Marine-Hospital Service.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

No rejoinder has been received from the governor of the State or the State quarantine authorities other than an acknowledgment only of the receipt of the letter of the Secretary of the Treasury.

CAT ISLAND QUARANTINE AN OBSTRUCTION TO COMMERCE.

MARINE-HOSPITAL SERVICE,
Gulf Quarantine, September 19, 1896.

SIR: I have the honor to forward herewith a copy of a letter received from the collector of customs for the Pearl River district in reply to inquiries from me concerning the detention of vessels by the Cat Island quarantine. I forward also a copy of a letter from Capt. Fred Mewman, of the U. S. schooner *Palos*, which gives an interesting account of his experience with the Cat Island quarantine. I have no explanation from Dr. H. H. Haralson to show where the quarantine force were, by his orders, on August 6, the date of the departure of the *Palos* from this quarantine station. This case of the *Palos* is conspicuous proof not only of the fact that Cat Island quarantine is not regularly attended by anyone, but also that the actual inspection or quarantine service done by Dr. Haralson, either in person or through subordinates, is not made of any importance by him, since this vessel is one which especially merited careful inspection on account of several very severe cases of fever (Chagres fever) having been taken from it.

I make a practice of warning vessels bound for the Mississippi coast of the existence of the State quarantine to enable them to avoid trouble on shore.

I would be glad if a copy of Captain Mewman's letter could be transmitted to the governor of Mississippi, to supplement the information already given concerning the Cat Island quarantine.

Very respectfully, yours,

A. C. SMITH,
Passed Assistant Surgeon, M. H. S.

SUPERVISING SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

OFFICE OF THE COLLECTOR OF CUSTOMS,
Port of Shieldsboro, Miss., September 17, 1896.

SIR: In reply to your letters of the 10th and 12th instant, relative to detention of vessels by the State quarantine authorities, I have to state that the *Palos*, subsequent to her entry at this port August 7, was ordered by Dr. Haralson, in charge of State quarantine, to report at the quarantine station at Cat Island to undergo inspection, fumigation, or whatever else was deemed necessary. Captain Mewman, master of the *Palos*, informed me a few day after that he went to see the State quarantine physician and succeeded in inducing him not to compel the *Palos* to go back to Cat Island, explaining to him that he did not know there was a quarantine station at Cat Island, not seeing any sign of it in passing the island on his way to Shieldsboro.

Mr. Elmer, the deputy collector at Biloxi, informs me that the enforcement of the State quarantine regulations necessarily causes detention and annoyance to arriving vessels, citing as an instance the case of the steamship *Hispania*, arrived coastwise from New Orleans and compelled to go to the Cat Island station, thereby involving a loss of time and the expenditure of about 20 tons of coal.

Respectfully, yours,

J. H. ESPY,
Special Deputy Collector.

Dr. A. C. SMITH,
Ship Island, Mississippi.

COMPLAINT OF CAPTAIN REGARDING CAT ISLAND QUARANTINE.

NEW ORLEANS, *September 14, 1896.*

DEAR SIR: Yours of the 9th instant duly to hand and contents noted. The day I left your station, on the 6th or 7th of August, I proceeded toward Cat Island, and approached the shore so near as the draft of the *Palos* would allow me, and looked for the quarantine station, but I could not find or see a sign of a quarantine station of any

kind whatsoever, and, as I had no direct information of said station, I kept off for Pass Christian and came to anchor, sent my crew to New Orleans, and entered the vessel in custom-house at Bay St. Louis (Shieldsboro) without any trouble; same time I asked the deputy collector about the Cat Island quarantine and he could not give me any information about it. Naturally I never troubled myself any more about it. About the 12th or 13th of August the owners of the *Palos*, Messrs. Poitevent & Favre, of Pearlington, received a letter from Dr. Haralson, of Biloxi, inspector of Cat Island quarantine, informing them that I had violated the State quarantine law by passing by Cat Island station without being inspected, and also demanded that I should return with vessel and crew to Cat Island for inspection.

Messrs. Poitevent & Favre telegraphed to me at Pass Christian to come to Pearlington immediately, which I did. I explained the case to Mr. Poitevent and he directed me to go to Bay St. Louis and see their lawyer, Mr. Bowers, and put the case before him, which I did. I got a letter from Mr. Bowers to Dr. Haralson at Biloxi. I went to Biloxi and delivered the letter to Dr. Haralson, in person, and explained the whole case to him. I told him that I had no direct information about Cat Island quarantine; all the information I had was from Dr. A. C. Smith, and Dr. Smith could give me no direct information or particulars about it. For all that, I did my best to find the station, and as nobody came near me and couldn't see no sign of a station, and while I was lying at Ship Island quarantine I noticed vessels got released from quarantine at Ship Island, proceeded direct to their loading place and didn't go near Cat Island. I also told Dr. Haralson the day and hour I passed Cat Island that there was nobody on or near the island belonging to the quarantine. What else could I do than proceed to my destination?

The consequence was that Dr. Haralson recalled his order and said that I needn't take the vessel back to Cat Island; that I could go ahead with my business. He saw that I didn't violate the law intentionally. Same time he gave me some copies of the rules and by-laws of Cat Island quarantine station.

I see in the by-laws where the board charges vessel quarantine fees according to tonnage. I think they have to alter that. The State of Louisiana used to charge quarantine fees according to tonnage; but it went to court and the superior court decided that no State could charge quarantine fees by tonnage. Now they charge vessels according to their rig. Dr. Haralson didn't demand any fees from me, so I got nothing to say. Only the trouble and travel expenses it put me to; somewhere about $8.

The *Palos* is out of commission and will probably never go to sea again, consequently I am out of work and job and looking for another situation. Any further information you wish to obtain in my knowledge I will be glad to furnish you.

Very truly, yours,

FRED MEWMAN, *New Orleans.*

DR. A. C. SMITH,
Gulf Quarantine.

STATE BOARD OF HEALTH, LOUISIANA.

The attitude of the State board of health toward this Service may perhaps be illustrated by the following copy of a resolution introduced by the president of that board at the meeting of the American Public Health Association at Montreal, September 25–28, 1894:

Dr. S. R. Oliphant, of New Orleans, offered the following resolution:

"*Resolved*, That it is the sense of this association that Federal surveillance, control, or interference with State quarantine, when efficient quarantine service is maintained, is unwarranted and meddlesome; that the test of the efficiency of a quarantine service should be its past record and the confidence and approval of neighboring States and other quarantine officials; that the solution of the quarantine problem should be

left to the local health authorities, to be worked out in accordance with their individual requirements, and all progressive steps encouraged so long as such advances are made within the limits of safety; that the formulation of regulations by the United States Marine-Hospital Service for the control of State quarantine stations, without conference with the local quarantine officials, is to be deprecated, and can result only in conflict between State and National authorities; that the United States Marine-Hospital Service has rendered valuable assistance in the way of collecting and disseminating information bearing on quarantinable disease, and that it can become otherwise useful by rendering assistance when called upon."

This resolution was referred to the executive committee, who presented to the association the following as a substitute:

Resolved, That in the opinion of this association, quarantine questions being of such importance to all countries on this continent, there should be no enactment and exaction of quarantine regulations in conflict between Federal, State, provincial, and local authorities.

The above substitute was then laid upon the table. Notwithstanding this action on the part of the Public Health Association, the original resolution as offered by Dr. Oliphant was published in certain periodicals, though not by the Louisiana board, in such manner as to convey the impression that it had been adopted by the association.

Again, at the national conference of State boards of health, held in Chicago in June, 1896, the following telegram was received:

NEW ORLEANS, LA., *June 10, 1896.*

DR. C. O. PROBST,
Conference Boards of Health, Auditorium, Chicago:

Executive this board detained by urgent legislative interests. We hope conference will continue to discountenance national interference with State quarantines.

G. F. PATTON,
Secretary Louisiana Board of Health.

No action was taken on this telegram.

RELATIONS WITH THE BOARD OF HEALTH OF SAN FRANCISCO.

The necessity of the Service performing the entire quarantine function at the port of San Francisco, where, until the present season, the boarding and inspection of vessels had been conducted by the local quarantine officer, while the quarantine station was under the control of this Bureau, is set forth in sufficient detail in the following letter addressed to the chairman of the Committee on Appropriations in the Senate, requesting an appropriation of a sufficient sum to place the boarding vessel in commission for service throughout the year:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., April 20, 1896.

To the Chairman Committee on Appropriations, United States Senate.

SIR: In the regular estimates submitted by the Secretary of the Treasury for the fiscal year 1897 (see published estimates, 1896–97, p. 248), $137,000 was included for the quarantine service, namely, for the maintenance and ordinary expenses, including pay of officers and employees of eleven quarantine stations. In the sundry civil bill as passed by the House but $125,000 is appropriated. (See H. R. 7664, p. 48, line 4.) I respectfully ask that the original amount asked for ($137,000) be included

in the bill when reported to the Senate. This increased amount is necessary to enable this Service to place in commission a boarding steamer at the San Francisco quarantine, and includes the salary of a medical officer, who is to inspect incoming vessels, the pay and subsistence of pilot, engineer, and crew, cost of fuel, repairs, etc. The vessel has been constructed, in accordance with an act of Congress making appropriation therefor.

The Government has erected on Angel Island, California Bay, one of the most complete quarantine establishments in the world, but owing to the want of funds the boarding and inspection of incoming vessels has to the present time been conducted by the local quarantine officer. The total amount ($125,000) allowed by the House committee for the quarantine service is barely sufficient to cover the present cost of the Service, and since, at the beginning of the next fiscal year, a new station, Southport, N. C., will be completed and put in full operation, a very stringent economy will be necessary to keep the expenditures within the appropriation. To inspect the vessels at San Francisco, therefore, will require the additional amount called for.

The present arrangement by which the Government maintains a national quarantine at San Francisco, but does not inspect the vessels entering, creates a division of responsibility and authority, is dangerous, and should be immediately terminated. A joint resolution was passed by the legislature of California at its last session and forwarded by Senator Perkins to the Treasury Department, requesting the Secretary of the Treasury to assume entire control of the maritime quarantine service at the port of San Francisco, meaning the inspection of vessels in addition to the quarantine function now performed. The chamber of commerce of San Francisco passed a resolution to the same effect. During the quarantine season last summer, when cholera appeared in epidemic form in China and Japan and in Honolulu, an infected vessel was allowed to enter at the port of San Francisco without the sanitary precautions which were highly essential for safety. The local quarantine officer was new to his duties, but if cholera had been admitted through that vessel there is no question but the General Government would have shared largely in the censure, because permitting this divided authority to exist.

It is the opinion of the sanitary inspector of the Marine-Hospital Service stationed at Yokohama that cholera will appear again in Japan and China during the coming summer. The plague is already epidemic in Hongkong, and within a few days a cable dispatch has been received from the consul at Yokohama stating that a case of "the plague" had appeared on a vessel bound for San Francisco. The Government should perform its full quarantine function and duty and inspect these vessels arriving at San Francisco, and to this end the amount estimated for by the Secretary of the Treasury is absolutely necessary.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

In response to the above request half of the sum required was appropriated, namely, $6,000; and it will be necessary to call upon Congress for a deficiency appropriation of $6,000 to enable the Service to continue the boarding throughout the whole year. Some alterations to the boarding steamer were necessary as a preliminary to placing the vessel in commission; but on June 20 the following letter was addressed to the medical officer in command of the national quarantine station:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., June 20, 1896.

SIR: You are directed to place the steamer *Sternberg* in commission on the 1st of July, or as near thereafter as possible, and to begin the boarding and inspection of all vessels subject to quarantine inspection under the quarantine regulations of the Treasury.

Assistant Surgeon Blue has been directed to report to you for duty.

You are informed that the collector of customs at San Francisco has been directed by the Secretary of the Treasury to refuse entry to vessels from foreign ports without the certificate of the national quarantine officer at San Francisco. After he has been informed by you that you have begun the boarding and inspection as directed in this letter (copy inclosed), you will give the collector the formal certification. You will also notify the local quarantine officer and the board of health of the receipt of your orders to place the *Sternberg* in commission and begin the inspection of vessels.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

P. A. Surg. M. J. ROSENAU,
San Francisco Quarantine, Angel Island, Cal.

In addition to the above letter, one was addressed to the board of health of San Francisco, notifying them of the coming assumption of this function. A protest was received from the board on the ground that the State quarantine laws required them to perform this function; and accordingly the collector of customs was directed to admit vessels for the time being upon the quarantine certificate of either the local or national quarantine officer. Subsequently, however, a letter was addressed by the medical officer in command of the national quarantine station to the board of health, complaining of certain violations, on the part of the local quarantine officers of the health and quarantine laws of San Francisco and also of the United States Quarantine Regulations, giving details. And finally the board of health addressed the following letter to the Secretary of the Treasury, requesting that the order to the collector of customs be again changed to the effect that the vessel could not be admitted to entry unless it had the quarantine certificate of the national quarantine officer. Following is the letter:

BOARD OF HEALTH,
San Francisco, October 2, 1896.

DEAR SIR: The board of health of the city and county of San Francisco, with the view of increasing the effectiveness of the quarantine service at the city of San Francisco, a port peculiarly liable to be a starting point for infectious and contagious diseases, hereby expresses its desire that the free pratique of the national quarantine officers shall be necessary to the entry of vessels in this port in addition to the requirements of the laws of the State of California.

Yours, respectfully,

ADOLPH SUTRO,
J. F. MORSE,
GIRALD FITZGIBBON,
JOHN M. WILLIAMSON,
HENRY H. HART,
Board of Health,
Per EDMOND GODCHAUX,
Secretary Board of Health.

The SECRETARY OF THE TREASURY,
Washington, D. C.

In accordance with the above request, the following telegram was sent to the collector of customs:

WASHINGTON, D. C., *October 9, 1896.*

COLLECTOR OF CUSTOMS, *San Francisco, Cal.:*

Hereafter no vessel requiring quarantine certificate under the Treasury regulations will be admitted to entry at the port of San Francisco without the proper quarantine certificate of the national quarantine officer.

W. E. CURTIS, *Acting Secretary.*

The full quarantine function is now performed at San Francisco by the National Government, and there is no question that a dangerous division of responsibility has been removed and the quarantine inspection conducted with greater efficiency.

RELATIONS OF THE PORT TOWNSEND QUARANTINE WITH THE PUGET SOUND BOARD OF HEALTH.

As will be seen under the caption "Necessity for a strictly national quarantine," there are two inspections conducted at Port Townsend, one by the National Quarantine Service, the other under the authority of the Puget Sound Board of Health—the latter being unnecessary, as is the inspection by the local quarantine officer at San Francisco, at Marcus Hook, Pa., and Cat Island, Mississippi. Vessels are not admitted, however, at this port (nor at the others named) without the quarantine certificate of the national quarantine officer.

COMMENDATORY RESOLUTION.

UNITED STATES QUARANTINE STATION,
Port Townsend, Wash., October 29, 1895.

SIR: I have the honor to forward a resolution adopted by the city council of Seattle, Wash.; also copy of my letter acknowledging the same.

Very respectfully,

WM. G. STIMPSON,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL,
Marine-Hospital Service.

[Board of aldermen joint resolution No. 30.]

The board of aldermen and house of delegates of the city of Seattle gratefully recognize your prompt action in quarantining the suspected ship, and beg your continued diligence in behalf of our State and our country.

L. MILLER,
Acting President Board of Aldermen.
J. E. CRICHTON,
President House of Delegates.

UNITED STATES QUARANTINE STATION,
Port Townsend, Wash., October 29, 1895.

SIR: I have the honor to acknowledge the receipt of your letter of the 24th instant, inclosing a copy of a resolution of the city council in regard to the quarantining of the bark *Retriever*, September 21, 1895. I have forwarded this resolution to the

Surgeon-General of the United States Marine-Hospital Service, Washington, D. C., as he will be gratified to learn that the board of aldermen and house of delegates of the city of Seattle have approved of this action of the United States quarantine service of Puget Sound.

Very respectfully,

WM. G. STIMPSON,
Passed Assistant Surgeon, M. H. S.

R. F. STEWART, Esq.,
City Clerk, Seattle, Wash.

REPORT UPON THE NECESSITY OF A STRICTLY NATIONAL QUARANTINE SERVICE.

Following is a copy of a report which I had the honor to make to you in May last upon the necessity of a strictly national quarantine service, suggested by the two bills which had been introduced in Congress providing for the purchase of the local quarantine station at Portland, Me., and for the establishment of a quarantine station at the mouth of the Columbia River:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., May 26, 1896.

SIR: I beg leave to submit herewith statements showing the necessity of a strictly national quarantine service. This subject is one to which I have already adverted with recommendations in the Annual Report of the Marine-Hospital Service for 1895, and it is again brought to the attention of the Bureau and the Department by two bills which have been introduced in Congress, namely, Senate bill 2308, "providing for the purchase by the Government of a quarantine station at Portland, Maine," with an appropriation of $12,000 for the same, and Senate bill 2487, "providing for the establishment of a quarantine station at or near Astoria, Oregon," and appropriating $30,000 for the same. These two bills have been referred to the Department for an expression of opinion as to the propriety of their passage. Unquestionably, in my mind, both bills should be passed, and in recommending the same there is forced upon the Bureau a consideration of the unequal benefits extended by the Government in the matter of quarantine to the different States and municipalities of the United States, and at the same time a consideration of the dangers involved in the present double system which gives national control in one section or State, and allows State or local control in another. It is true that these dangers have been met from time to time, and corrected under the present law of February 15, 1893, which gives the National Government the right to demand uniform restraints throughout the whole of the coast; yet the difficulties involved in meeting them, some of which are still pressing upon this Bureau, the necessity of extreme tact in requiring a State or local government to execute regulations which are provided by the National Government without unduly interfering with the State or local machinery, the actual division of authority, while the total responsibility is popularly placed upon this Department, all combine to demonstrate that one quarantine administration under one authority and charged with one responsibility is not only a desideratum but a necessity.

UNEQUAL BENEFITS.

Considering first the unequal benefits derived by commerce in States and municipalities under the present law, I give below a list of the national quarantine stations owned and operated exclusively by the Treasury Department. They are twelve in number, extending from the Delaware Breakwater on the Atlantic Coast to Port Townsend on the Pacific:

Delaware Breakwater, at the mouth of Delaware Bay; Reedy Island, 45 miles below

Philadelphia, in the Delaware River; Cape Charles Quarantine, at the entrance of Chesapeake Bay; Southport Quarantine, Southport, N. C.; South Atlantic Quarantine (Blackbeard Island), off the coast of Georgia; Brunswick Quarantine, Brunswick, Ga.; the Tortugas Quarantine (Dry Tortugas), Florida; Gulf Quarantine, Ship Island, Gulf of Mexico, off Biloxi, Miss.; San Diego Quarantine, Cal.; San Francisco Quarantine, Cal.; Port Townsend Quarantine, Wash.; Camp Low, Sandy Hook, N. J. (not in operation).

These stations have been established by act of Congress from time to time on the representations made by the Senators and Representatives from the States directly interested. Appropriation is made annually by Congress, both for necessary additions to their equipment and for their maintenance, and no charge is made either for inspection of vessels, their fumigation, the disinfection of baggage, dunnage, or cargo, or for the detention of the sick from contagious sick, in hospital. Thus, while at Portland, Me., Boston, New York, and Baltimore, all vessels entering are subject to a virtual tax in the quarantine fee exacted by the State or local authorities, at Philadelphia and all ports on the Delaware Bay and River quarantine defense is maintained by the General Government without cost to the shipping or to the respective municipalities. At Brunswick, Ga., the expense is borne totally by the Government, while the neighboring cities of Charleston and Savannah are obliged to maintain expensive quarantine establishments, although it is true that they utilize the South Atlantic Quarantine (Blackbeard Island, Georgia) for the disinfection of badly infected vessels. Vessels arriving at any point on the Gulf of Mexico, in Mississippi and Alabama, may be inspected and disinfected at Ship Island National Quarantine without cost to the vessels or to the municipality to which they are bound (though an inspection fee is still charged by local authorities), while at ports in Florida and Louisiana they are subject to an onerous quarantine tax. At San Diego, San Francisco, and Port Townsend all quarantine of vessels is free (excepting that at the last two a duplicate inspection is made and charged for by the local authorities), while at ports such as Astoria, in Oregon, a local quarantine fee is exacted. This matter has already attracted considerable attention in several States and cities. Brunswick, Ga., being a national quarantine station, deriving the benefits of national administration without a quarantine tax upon its commerce, the cities of Savannah and Charleston have naturally wished the same beneficial provision, and overtures have been made to the Bureau for assuming entire quarantine control over them. The expense and the burden to commerce on account of State or local quarantine fees has caused an active agitation in the State of Florida of the proposition to turn over the whole maritime quarantine to the National Government, and a bill to this end was introduced in the last legislature. I inclose newspaper clippings showing the state of public sentiment in Pensacola concerning this matter. The same subject has been agitated in the State of Texas. I inclose newspaper clippings from the leading journals, showing the trend of public sentiment there.

The bills above referred to, which have been introduced into the present Congress, simply reflect public sentiment concerning this matter, and the city of Portland, Me., and other cities on the Atlantic Coast, and the cities of Oregon, on the Columbia River, are desirous of sharing in the benefits of national protection without the local tax on their commerce. Local quarantine, in a number of instances, has been the pretext for an undue taxation upon shipping for the sake of revenue far in excess of what is necessary for maintaining the quarantine establishment, and devoted to purposes quite foreign to shipping, such as paving of streets of cities, the payment of excessive salaries as a reward for local political service, so that this measure, so necessary to the protection of the whole people, and which should be conducted on scientific principles—for quarantine is now a science—has too frequently degenerated into a pretext for the collection of funds devoted to extraneous matters. There are quarantines for protection and there are quarantines for revenue. As has been previously stated, this latter feature does not attach to the national service.

USELESS LOCAL QUARANTINES.

Attention is called to the fact that some local quarantines are still maintained at points where they are entirely useless. For example, as may be seen in the Annual Reports of this Service for 1893, 1894, and 1895, in response to a request by joint resolution of the legislature of Pennsylvania, February 28, 1893, duly approved by the governor of the State, and forwarded to the President of the United States; by request also of the director of public safety of Philadelphia, and of a joint committee representing the States of Pennsylvania and Delaware, a national quarantine was established at Reedy Island, in the Delaware River, for the protection particularly of Philadelphia and other cities on the Delaware River. An expensive plant has been established and is maintained there, and no vessel passes up the Delaware Bay or River without inspection by a national quarantine officer, either at the breakwater or at Reedy Island; yet the State board of health of Pennsylvania maintains an inspection service at Marcus Hook, a few miles above the Reedy Island Quarantine, where vessels are inspected after having been inspected and passed by the national quarantine officer. Fees are collected for this inspection in Philadelphia, and the chief quarantine officer of the State board receives, I am informed, a salary of $5,000 per annum, and has two assistants, each with a large salary. The State board has no apparatus for disinfection.

At Port Townsend, Wash., an inspection service is maintained by the State and local board of health, although said board is entirely unprovided with any means of disinfection of infected vessels, or for the proper detention of suspects, or treatment of the sick; and though every vessel is rigidly inspected by the national quarantine officer, the Government having an expensive plant, including steam and sulphur disinfecting apparatus, vessels, hospitals, quarters, etc., the local board has even demanded that the Treasury Department should assist in the collecting of the fees for their inspection by requiring the collector of customs to demand the local quarantine certificate in addition to the national quarantine certificate before admitting vessels to entry.

DANGER OF THE PRESENT DOUBLE SYSTEM.

Having shown above the unequal benefits derived by the several States and municipalities, it is now pertinent to call attention to the danger inherent in the present double system.

It is not proposed to enter into all the details connected with the administration of the Service since the passage of the national quarantine act of February 15, 1893. That act has been the means of the promulgation of uniform quarantine regulations for every port in the United States, and under its provisions many glaring faults and inconsistencies have been rectified, but in some instances the weakness and the danger of the present system have been strikingly developed, and it is my duty to call attention to the dangers which have become obvious to me in the enforcement of this law—dangers which, under the law, can not be anticipated, and which threaten in the future a visitation of calamity before the machinery of the national quarantine act can be brought into execution. It is true that a regular inspection is made of all local quarantines, and where gross deficiences of apparatus or appliances have been discovered the attention of the proper authorities has been called thereto; but while admitting the deficiencies and promising to make them good, there is tardiness in action, by reason, perhaps, of deficiency of funds. Moreover, through the fear of national quarantine, and the consequent loss of the revenue from local quarantine taxation, direct antagonism has at times developed against the national authority. It requires no argument to show that in a clash of authority there is great danger of inefficient administration. State and local authorities have resented the discovery of inefficient quarantine methods, or lack of proper appliance, and occasionally, therefore, to bolster their own weakness, have indulged in attacks upon national quarantine.

In view, therefore, of the foregoing considerations I recommend that a favorable reply be sent to the committees of the House and the Senate concerning the bills for the purchase of a quarantine station at Portland, Me., and the establishment of a station at or near Astoria, Oreg., and urge that the national system be extended at every possible point.

I beg leave to again invite attention to the Annual Report of the Marine-Hospital Service for 1895, and to the following extract therefrom, pages 455 and 456:

"A STRICTLY NATIONAL QUARANTINE.

"Attention is respectfully invited to the fact that there appears to be a growing sentiment in several sections of the United States for the undivided control of all the quarantine service by the National Government. Since the passage of the act of February 15, 1893, the subject of turning over the local quarantines to the National Government has been favorably discussed by the authorities of Portland, Me., Savannah, Charleston, and Mobile. Two States, namely, Pennsylvania and North Carolina, have practically surrendered their quarantine functions to the Government. A bill was introduced into the last legislature of Florida turning over the quarantine system of the State to the General Government, and many communications were printed in certain Florida papers favoring this change. The leading daily journals of Texas have advocated a like change with regard to the quarantine of their own State, and, as previously stated, the National Government now exercises quarantine control over the whole of the Pacific Coast, the Gulf Coast east of Louisiana to Mobile Bay, in Georgia, North Carolina, Virginia, Delaware, and Pennsylvania.

"Section 8 of the quarantine act of February 15, 1893, empowers the Secretary of the Treasury to receive and pay for the use of such local quarantine establishments as may be voluntarily surrendered to the General Government, but there was no appropriation made to carry out the provision of this section. I believe that the General Government should fully exercise the rights given to it by the Constitution and establish a strictly national quarantine. In carrying out such a proposition it would be necessary and economical to establish two forms of quarantine stations—one of inspection only, and the other a station of refuge for the disinfection of infected or suspected vessels and detention of crews or passengers. This measure would result in a relief from the burden of taxation upon commerce. A measure to this effect should include some provision relating to the personnel of the quarantine service, in order that the General Government might avail itself of the experience and knowledge gained by years of service by some of the local quarantine officers. A limited number of these might receive appointments under the Treasury Department for the purpose named, and, in this event, their position should be made to depend upon efficiency and zeal, and should be entirely removed from all political influence.

"The arguments for national quarantine have already been made, and are to be found not only in the columns of the daily press and medical journals, but also in the expressions of various mercantile bodies and sanitary authorities, some of which may be enumerated as follows—copies of the same being on file in this Bureau:

"First. The report of the special committee of the Chamber of Commerce of the State of New York on quarantine at the port of New York during the cholera of 1892.

"Second. The report of the New York Board of Trade on national quarantine, dated January 6, 1893, the conclusion of which is as follows:

"'The conclusion of your committee, therefore, is that it is essential to the safety of our people and the protection of their lives that a national quarantine system be established in the United States at the earliest possible day. We believe that to be effective the system adopted must be national, and that any systems maintained at ports of entry under State or local control should not be allowed to conflict or hinder the national system.'

"Third. Resolutions by the Maritime Exchange of Philadelphia, December 31, 1892.

"Fourth. Speech of Dr. Joseph Holt, of New Orleans, on quarantine control,

delivered before the Chamber of Commerce and Industry in New Orleans, January 11, 1893.

"Fifth. Resolutions by the physicians of the State of Illinois on national control of quarantine."

RELATION OF INTERIOR STATES TO MARITIME QUARANTINE.

As supplemental to the above and in illustration of the interest which the interior States have in maritime quarantine, and their desire for a strictly national system, and as demonstrating that the expenses of quarantine should be met by the whole people, rather than by vessels entering the several ports, I insert here the following communication from the board of health of Michigan, a copy of which was forwarded to the Marine-Hospital Bureau.

"STATE BOARD OF HEALTH, MICHIGAN, OFFICE OF THE SECRETARY,
"*Lansing, March 18, 1896.*

"*To the Honorable the Senators and Congressmen from Michigan, Washington, D. C.*

"GENTLEMEN: We, the officers of the Michigan State board of health, having in mind especially the protection of the citizens of Michigan from danger of contracting communicable diseases from immigrants and immigrants' baggage passing through the port at Portland, Me., to which port many immigrants bound for Michigan and beyond sometimes come, especially in winter when the St. Lawrence River is not navigable, and understanding that it is the desire of the local and of the State health authorities of Maine that a national quarantine station be established at the port of Portland, Me., do most respectfully urge the honorable, the Senators and Representatives in Congress from Michigan, to use their influence to bring about this desired improvement.

"We believe that a frequently changing municipal government, with its varying ideas of the expediency of making expenditures which are more largely for the protection of citizens of other parts of this country than of the citizens of Maine, is not equal to the task of the continuous maintenance of a quarantine station which shall meet the requirements for safety to the health of our people.

"We believe that the interests of the whole country would be much better served if there were at Portland, Me., a quarantine station under the control of the National Government.

"Again expressing a desire that you use your influence in bringing about this desired change,

"We remain, very respectfully,

"FRANK WELLS, *President.*
"HENRY B. BAKER, *Secretary.*"

In conclusion, I would recommend that a bill be introduced in Congress requiring the National Government to assume control of all quarantines, and empowering the Secretary of the Treasury to establish or purchase quarantine stations at such points as may be necessary to the National Service. Since it may be shown that the people of the interior are equally benefited by maritime quarantine with the people of the coast, the quarantine service is properly chargeable to the whole country, and I believe that Congress should be asked to make yearly appropriation.

In the establishment of such a system the total expenses of the whole quarantine service would be less than at present, for the plan proposed would obviate the necessity of maintaining expensive disinfecting establishments at smaller ports, making of the latter simply inspection stations, and requiring the use of availably located quarantine stations for the treatment of vessels actually infected. It is estimated that the new quarantine stations to be established by the National Government in accordance with this proposed plan, including the great ports of New York, Boston, and New Orleans, could be established and equipped at a total cost of $600,000. The total cost of establishing the quarantine stations at present owned and operated by the Government has been about $750,000.

It is further estimated that the quarantine service of the United States under the proposed plan could be operated at an annual cost of $360,000. The Government already appropriates for the quarantine establishments now conducted by this Service $137,000 per annum, so that the additional cost of maintenance would be but $233,000. When it is considered that the annual cost of maintaining the two quarantine stations at New York and New Orleans, under State and local management, approaches $100,000, the diminished expense to commerce through a national system is evident.

I have the honor to remain, respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General M. H. S.

The SECRETARY OF THE TREASURY.

In continuation of this subject, I submit herewith a portion of an editorial in the Trade Register, of Seattle, Wash., August 8, 1896, showing the inutility of the local quarantine service:

A COMMERCIAL BARNACLE.

Shipping in many of the most important ports of the world is inflicted with the evils of compulsory pilotage, the rapacity of customs officers who participate in the proceeds of fines assessed by them for technical offenses, excessive harbor dues, towage and lighterage charges. Puget Sound is free of all the foregoing restraints of trade, which is one of its great advantages in competition for shipping on the Pacific Coast; but it has one maritime blot, and that one should be wiped out at once. To do this will require active and united effort. The shipping of the Sound should be free of every unnecessary charge.

The Puget Sound board of health, which was created by the Territorial legislature in 1869, consists of three members appointed by the governor, and their only qualification is that of a resident of the city of Port Townsend. They appoint the health officer for the Puget Sound district and are not supposed to participate in the fees of their appointee. The present health officer is * * * whose fees for inspecting vessels range from $5 to $10. This is unnecessary and can not fail to work mischief in time to shipping.

Since the location of a Federal quarantine officer at Port Townsend in 1888, the duties of the State officer duplicate the work of the former.

The only effort to abolish the Puget Sound health officer was made by Judge W. P. McElwain, when a member of the State legislature, but owing to the peculiar prominence of the Port Townsend legislative delegation at that time nothing could be accomplished.

We now have a State board of health, the county boards of health (the county commissioners), a United States Marine-Hospital surgeon, the municipal boards of health, a United States quarantine officer, and lastly the Puget Sound board of health. The latter has outlived its former usefulness and should be abolished at the earliest possible moment, much as the shipping interests and taxpayers may regret to part with a very pleasant official who has more salary than duties, and no reason for official existence.

DIVISION OF SANITARY REPORTS AND STATISTICS.

The regular work of editing and preparing for publication the Public Health Reports has been carried on as outlined in my last annual report, in the Division of Sanitary Reports and Statistics. The statistical arrangement and tabulation of weekly and monthly sanitary reports has been continued, there having been a slight diminution in the number of cities of the United States reporting weekly to this office, as compared with the preceding year. This may, however, have been due to the fact that there was, during the past fiscal year, another bureau collecting mortality statistics of American cities.

In all other respects, however, the amount of statistical information received by the Bureau has increased materially, as will be seen from a perusal of the Public Health Reports.

After due deliberation it was decided to change the title of the Abstract of Sanitary Reports, under which name the United States Marine-Hospital Service had published its sanitary information for nine years. This change was decided on, as the name Abstract of Sanitary Reports hardly fitted the increased size and scope of the publication. Accordingly, the first issue of the calendar year 1896 was made under the new title, Public Health Reports. This is the third title under which the publication in question has been issued, the first being Bulletins of the Public Health, a designation employed only during the first year of its existence, viz, the fiscal year 1879.

Investigation by letter or telegraph, when considered necessary, has been made of press reports of the existence of cholera, yellow fever, smallpox, or plague, and the facts obtained in response published.

That portion of the Public Health Reports devoted to reports of transactions of quarantine stations has been enlarged during the past year. In previous years reports from national quarantine stations alone were published, but in April, 1896, it was decided to embrace in this portion of the publication reports from the various State and local quarantines throughout the United States.

With this in view, the following letter was addressed to all State and local quarantine officers throughout the United States:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., April 27, 1896.

——— ———, *Quarantine Officer.*

SIR: It is believed that a weekly report from every quarantine station in the United States would be of great value to all quarantine officers, since, by reference thereto when published in the weekly Public Health Reports of this Bureau, much necessary information would be available concerning the sanitary history of vessels. The Bureau has determined, therefore, to request the cooperation of State and municipal quarantine officers to this end.

I inclose herewith a sample of a blank form, which should be filled out at the close of each week (Saturday) and transmitted to the Marine-Hospital Bureau for publication. Please inform me whether you will agree to furnish these reports. Upon receipt of a favorable reply sufficient number of blanks will be forwarded you.

I have to request, also, that if you do not regularly receive the Public Health Reports you will so inform the Bureau, and your name will be placed upon the mailing list.

An early reply is requested.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

The replies to this letter were in the main satisfactory, and the publication of these reports in tabular form was begun in No. 22 of the current volume of the Public Health Reports.

Since that date the number of State and local quarantines from which reports have been and are being received and published has kept on increasing. At this date reports are received from all the important quarantines, with the exception of those on the coast of Louisiana, the Louisiana board having declined to have the weekly reports transmitted. The table prepared forms a valuable record of quarantine transactions. The reports from the national quarantine stations are also published in tabular form, and include not only the national quarantines where disinfection can be practiced, but the national inspection stations as well.

The tables showing the prevalence of smallpox in the United States and of cholera and yellow fever throughout the world have been continued; and, when taken together with those previously published, make a continuous tabular record, in the case of smallpox since October 10, 1894, and in the case of cholera and yellow fever since August 24, 1894.

MORTALITY STATISTICS—CALENDAR YEAR 1895.

In order to obtain as accurate an estimate as possible of the mortality—and morbidity where reported—throughout the United States during the calendar year 1895 the following letter was addressed to all

cities and towns in the United States having a population, according to the United States census of 1890, of 1,000 or more:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., January 15, 1896.

To the Secretary of the Local Board of Health or Local Health Officer.

SIR: I have to request that you will furnish this office, at your earliest convenience, with the following information relative to the mortality and (as far as possible) the morbidity statistics of ——— during the year 1895:

Estimated population.....
Total number of deaths from all causes (stillbirths excluded).....
Death rate per 1,000 of the estimated population.....

Disease.	Cases.	Deaths.	Disease.	Cases.	Deaths.
Phthisis pulmonalis			Measles		
Smallpox			Scarlet fever		
Varioloid			Diphtheria		
Typhus fever			Membranous croup		
Typhoid fever			Whooping cough		

A penalty envelope, addressed to this office, is inclosed for the return of this circular letter, and you are further requested to return the letter in case it is found impossible to make the desired entries in the above table, with a statement to that effect.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

Name of city or town, ———.
Reported by ———.

Three thousand seven hundred and fifteen of these circular letters were sent out addressed as above, and to these 1,715 replies were received, of which number but 1,461 could be utilized in the preparation of statistics. From these replies the table of "mortality statistics of 1,461 cities and towns in the United States for the twelve months ended December 31, 1895," was prepared and published as a supplemental issue to the regular issue of date of July 17, 1896. The table shows the total mortality of each city and town, the mortality rate per 1,000 population, based upon the population reported in the United States Census Bulletin No. 165 (February 19, 1892) as being the population in 1890, the mortality rate based upon the estimated population of the city in 1895 as reported by the one to whom the letter was addressed, and the total mortality from the following infectious diseases: Phthisis pulmonalis, smallpox, enteric fever, typhus fever, measles, scarlet fever, diphtheria, membranous croup, and whooping cough.

In the preparation of this table the populations of the various cities, towns, and villages are in almost every instance given in two columns. One containing the population according to the United States Census of 1890, and the other that reported as the estimated population. The first, being now six years old, is manifestly an underestimate, and as such is not capable of being used alone with any degree of accuracy

in the compilation of the mortality rates, and the second, the estimated, while in the majority of cases probably an approximately correct estimate, leaves much to be desired. It must, therefore, be taken merely for what it is stated to be—an estimate, the liability of which to error (and error usually in excess), is manifest and natural.

The table shows at a glance the great dissimilarity in the attention paid to the collection of mortality statistics in the various States. The reports from some of the States being very full, and from others amounting to virtually nothing.

ANNUAL MORTALITY RATE IN THE UNITED STATES.

The total number of deaths reported was 341,823, among an estimated population of 20,386,608 (United States Census, 16,335,323), this number corresponding to an annual mortality rate of 16.7 (20.9 if estimated on the basis of the United States Census) per 1,000 of the population reporting.

Thirty-six thousand four hundred and eighty-six deaths were reported from phthisis pulmonalis, or 10.9 per cent of the total number of deaths, a percentage 2.2 greater than that from all the other infectious diseases specified in the table combined. The total percentage of deaths from infectious diseases was 19.6 per cent of the total number of deaths.

The following is the table arranged alphabetically and by States:

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Alabama	915	55,823	16.39	79,778	11.49	93	....	38	15	1	5	14	5
Attalla	18	1,254	14.35	1,500	12	1	....	.....	.....	....	1	....	...
Avondale	16	1,642	9.73	2,500	6.4	2	....	.....	.....	....	.....	.....	...
Bessemer	96	4,544	21.12	8,000	12	10	....	3	3	....	3	2	1
Cullman	17	1,017	13.27	1,000	17	2	....	2	.....	....	.....	2	...
Decatur	107	2,765	38.69	7,136	14.99	3	....	2	3	....	.....	4	...
Evergreen	20	1,783	11.21	2,500	8	1	....	2	.....	....	.....	.....	...
Florence	30	6,012	4.99	7,000	4.28	5	....	15	5	....	.....	.....	...
Fort Payne	20	2,698	7.41	1,275	15.68	5	....	.....	.....	....	1	1	1
Gadsden	61	2,901	21.02	4,000	15.25	7	....	2	1	....	.....	2	...
Greensboro	22	1,759	12.5	2,000	11	2	....	.....	.....	....	.....	.....	...
Greenville	43	2,806	5.32	3,000	14.33	7	....	.....	.....	....	.....	.....	...
Jacksonville	13	1,237	10.51	1,300	10	5	....	2	.....	....	.....	.....	...
Montgomery	383	21,883	17.5	35,000	10.96	32	....	8	3	....	.....	2	3
Oxford	14	1,473	9.5	1,550	9.03	.....	....	.....	.....	1	.....	1	...
Union Springs	55	2,049	26.84	2,017	27.27	11	....	2	.....	....	.....	.....	...
Arkansas	293	18,758	15.62	24,700	11.86	32	....	7	1	3	2	5	1
Batesville	31	2,150	14.41	2,600	11.92	10	....	.....	.....	....	.....	.....	...
Fort Smith	196	11,311	17.32	14,000	14	20	....	2	.....	3	2	2	...
Magnolia	8	1,486	5.37	2,500	3.2	1	....	2	.....	....	.....	1	1
Malvern	3	1,520	1.97	1,600	1.87	.....	....	2	.....	....	.....	1	...
Marianna	35	1,126	31.08	2,000	17.5	1	....	1	1	....	.....	1	...
Stuttgart	20	1,165	17.17	2,000	10.	.....	....	.....	.....	....	.....	.....	...

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
California	10,114	516,148	19.59	613,992	16.47	1,757	....	211	16	12	59	37	15
Bakersfield	96	2,626	36.37	5,000	19.20	18	....	8	4	....	1	2	4
Berkeley	107	5,101	20.98	10,000	10.70	10	....	2	.....	....	2	....	...
Colton	36	1,315	27.37	2,500	14.40	9	....	1	.....	....	1	1	1
Colusa	20	1,336	14.97	2,000	10	5	....	5	2	....	.....	.....	...
Eureka	73	4,858	15.02	8,000	9.12	17	....	.....	.....	1	.....	....	...
Lodi	12	1,013	11.84	1,200	10	2	....	1	.....	1	.....	....	...
Los Angeles	1,181	50,395	23.43	79,690	14.82	185	....	31	2	2	22	5	1
Marysville	105	3,991	26.3	5,000	21	22	....	1	.....	....	.....	1	...
Modesto	34	2,402	14.11	2,200	15.45	6	....	2	.....	....	.....	1	...
National City	12	1,353	8.87	1,300	9.23	4	....	.....	2	....	.....	....	...
Nevada	64	2,524	25.36	4,500	14.22	6	....	3	.....	2	3	1	...
Oakland	737	48,682	15.13	60,000	12.28	106	....	17	4	3	3	2	...
Pasadena	182	4,882	37.27	12,000	15.16	54	....	4	.....	....	2	....	...
Redding	26	1,821	14.77	3,000	8.66	1	....	.....	.....	....	.....	....	3
Redlands	67	1,904	35.18	4,000	16.75	33	....	1	.....	....	.....	1	...
Redwood	9	1,572	5.73	1,800	5	.....	....	.....	.....	....	1	....	...
Sacramento	487	26,386	18.45	30,000	16.23	75	....	6	2	2	8	1	1
San Francisco	5,914	298,997	19.78	330,000	17.92	1,049	....	107	.....	1	15	20	...
San Jose	282	18,060	15.61	25,000	11.28	59	....	4	.....	....	.....	1	...
San Luis Obispo	73	2,995	24.37	3,502	20.81	11	...	4	.....	....	.....	....	1
Santa Ana	133	3,628	36.65	10,000	13.30	18	....	3	.....	....	1	1	2
Santa Barbara	111	5,864	18.93	6,000	18.50	19	....	2	.....	....	.....	....	...
Selma	23	1,150	20	1,500	15.33	3	....	3	.....	....	.....	....	1
Stockton	200	14,424	13.86	17,000	11.76	37	....	4	.....	....	.....	....	...
Truckee	12	1,350	8.88	1,300	9.23	.....	....	.....	.....	....	.....	....	...
Vallejo	96	6,343	15.11	6,000	.16	3	....	2	.....	....	.....	....	1
Willows	22	1,176	18.7	1,500	14.66	5	....	.....	.....	....	.....	....	...
Colorado	2,632	157,987	16.66	222,700	11.82	547	....	78	1	138	56	4	16
Canon	63	2,825	22.30	5,000	12.6	11	....	1	.....	12	.....	....	3
Central City	108	2,480	15.42	7,000	15.43	9	....	2	.....	6	6	1	...
Colorado Springs	278	11,140	24.95	18,000	15.44	130	....	6	.....	1	2	....	...
Denver	1,626	106,713	15.23	145,000	11.21	309	....	43	.....	105	40	1	9
Greeley	43	2,395	18.06	3,500	12.28	5	....	1	1	4	2	1	...
Lajunta	20	1,439	13.89	3,000	6.66	3	....	2	.....	1	.....	1	2
Manitou	9	1,439	6.25	1,200	7.5	6	....	.....	.....	1	1	....	...
Montrose	12	1,330	9.02	1,500	8	3	....	3	.....	....	.....	....	...
Ouray	21	2,534	8.28	2,500	8.4	.....	....	.....	.....	....	.....	....	...
Pueblo	448	24,558	18.24	33,000	13.57	71	....	10	.....	7	5	....	2
Rico	4	1,134	3.52	3,000	1.33	.....	....	.....	.....	1	.....	....	...
Connecticut	7,337	376,867	19.47	431,569	17.01	609	1	121	8	17	127	67	64
Avon	18	1,182	15.22	1,200	15	.....	....	.....	.....	....	.....	....	...
Bethel	59	3,401	17.34	3,500	16.85	4	....	1	.....	....	.....	....	...
Bozrahville	16	1,005	15.92	1,000	16	2	....	.....	.....	....	.....	....	...
Branford	99	4,460	22.19	5,000	19.80	11	....	1	.....	....	1	2	2
Bridgeport	1,044	48,866	21.36	59,341	17.59	108	....	5	1	4	37	12	7
Canton	40	2,500	16	2,500	16	8	....	.....	.....	....	1	....	...
Cheshire	40	1,929	20.73	1,900	21.5	1	....	.....	.....	....	.....	....	...
Chester	11	1,301	8.46	1,300	8.46	.....	....	.....	.....	....	.....	....	...
Colchester	39	2,988	12.18	2,000	19.5	7	....	.....	.....	....	.....	....	...
Colebrook	10	1,098	9.10	1,000	10	.....	....	.....	.....	....	.....	....	...
Cornwall	21	1,283	16.36	1,250	16.8	.....	....	2	.....	1	.....	....	...
Coventry	39	1,875	20.80	1,700	22.94	4	....	.....	.....	....	.....	....	...
Danbury	344	16,552	20.78	20,000	17.20	34	....	10	.....	1	8	4	5
Darien	39	2,276	17.56	2,400	16.25	4	....	1	.....	....	.....	....	...
East Hartford	95	4,455	21.42	5,000	19.20	8	....	2	.....	1	2	3	...
East Lyme	34	2,048	16.60	2,048	16.60	.....	....	.....	.....	....	.....	....	...
Essex	34	2,035	16.71	2,000	17	2	....	.....	.....	....	.....	....	..
Fairfield	75	3,868	19.39	3,900	19.23	6	....	.....	.....	....	3	....	...
Glastonbury	45	3,457	13.04	3,600	12.5	7	....	.....	.....	....	.....	1	...
Granby	28	1,251	22.34	1,200	23.33	3	....	.....	.....	....	.....	2	...
Griswold	97	3,113	31.15	3,550	27.32	6	....	1	4	....	1	....	...
Groton	84	5,539	15.16	5,539	15.16	6	....	.....	.....	....	.....	....	...
Haddam	40	2,095	19.1	2,300	17.39	3	....	2	.....	....	3	1	...

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Connecticut—Continued.													
Hartford	1,033	53,230	19.4	60,000	17.21	101	....	35	.....	1	18	14	5
Hebron	25	1,039	24.06	1,000	25	2	....	.....	.....	....	1	....	1
Huntington	61	4,006	15.22	5,200	11.73	1	....	.....	.....	1	.....	1	...
Kent	14	1,383	10.23	1,400	10	2	....	.....	.....	....	1	1	...
Lebanon	23	1,670	13.77	1,670	13.77	2	....	.....	.....	....	.....	.....	...
Ledyard	19	1,183	16.06	1,628	11.67	1	....	.....	.....	....	.....	.....	...
Mansfield	36	1,911	18.83	2,000	18	.....	....	.....	.....	....	.....	.....	...
Meriden	385	21,652	17.78	28,500	13.5	55	....	3	.....	3	1	21	2
Middlefield	10	1,002	9.98	1,000	10	2	....	1	.....	....	.....	.....	...
Milford	61	3,811	16.01	4,000	15.25	5	....	.....	.....	....	.....	.....	...
Naugatuck	133	6,218	21.39	9,000	14.77	17	....	4	.....	....	11	1	3
New Haven	1,890	81,293	22.14	100,000	18.9	210	....	34	2	....	27	....	34
New Milford	89	3,917	22.72	4,000	22.25	7	1	2	.....	....	.....	.....	...
Newtown	36	3,539	10.17	3,500	10.28	3	....	1	.....	....	1	.....	...
Norfolk	22	1,546	14.23	1,546	14.23	2	....	.....	.....	....	.....	.....	...
North Haven	32	1,862	17.17	2,000	16	4	....	1	.....	1	.....	.....	...
Old Lyme	19	1,319	14.41	1,325	14.33	2	....	.....	.....	....	.....	.....	...
Old Saybrook	14	1,484	9.43	1,500	9.33	1	....	.....	.....	....	.....	.....	...
Orange	92	4,537	20.27	5,080	18.11	4	....	2	.....	....	.....	.....	...
Plymouth	36	2,147	16.76	2,153	16.72	2	....	.....	.....	....	.....	.....	...
Pomfrét	41	1,471	27.94	1,470	27.89	2	....	.....	.....	....	.....	.....	...
Redding	24	1,546	15.52	1,500	16	4	....	.....	.....	....	.....	.....	...
Rocky Hill	16	1,069	14.96	1,100	14.54	1	....	.....	.....	....	.....	.....	...
Saybrook	15	1,484	10.1	1,500	10	.....	....	.....	.....	....	.....	.....	...
Seymour	49	3,300	14.85	3,000	16.33	2	....	1	.....	1	.....	1	...
Sharon	34	2,149	15.81	2,500	13.6	1	....	.....	.....	....	.....	.....	...
Southbury	18	1,089	16.52	1,100	16.36	.....	....	.....	.....	....	.....	.....	...
South Windsor	35	1,736	20.16	1,700	20.58	2	....	3	.....	....	.....	1	...
Sterling	21	1,051	19.98	1,100	19.09	.....	....	.....	1	....	.....	.....	...
Stonington	127	7,184	17.12	7,500	16.93	15	....	.....	.....	....	3	.....	...
Suffield	58	3,169	18.3	3,169	18.3	11	....	.....	.....	....	.....	.....	...
Thomaston	37	3,278	11.28	3,000	12.33	3	....	1	.....	2	.....	.....	...
Vernon	124	8,808	14.07	9,000	13.77	12	....	1	.....	....	4	.....	1
Wallingford	107	6,584	16.17	8,000	12.12	11	....	.....	.....	....	2	1	...
Watertown	33	2,323	14.21	2,800	11.78	7	....	2	.....	....	.....	1	...
West Hartford	25	1,930	12.9	2,000	12.5	3	....	.....	.....	....	1	.....	...
Wethersfield	49	2,271	21.57	2,300	21.3	4	....	1	.....	....	.....	.....	...
Winchester	110	6,183	17.78	7,200	15.27	8	....	3	.....	1	.....	.....	4
Woodbury	33	3,911	8.43	1,900	17.36	.....	....	.....	.....	....	.....	.....	...
Delaware	1,262	64,960	19.42	73,900	17.07	132	....	27	5	2	21	12	9
Milton	11	1,074	10.24	1,200	9.16	2	....	.....	.....	....	9	.....	...
Smyrna	53	2,455	21.63	2,700	19.62	3	....	.....	.....	....	.....	.....	...
Wilmington	1,198	61,431	9.5	70,000	17.11	127	....	27	5	2	12	12	9
District of Columbia	5,582	230,392	24.22	275,000	20.29	671	9	211	11	28	59	12	41
Washington	5,582	230,392	24.22	275,000	20.29	671	9	211	11	28	59	12	41
Florida	510	23,737	21.48	31,100	16.39	50	....	23	1	....	.....	2	3
Apalachicola	42	2,727	15.40	3,500	12	2	....	.....	1	....	.....	1	2
Ocala	90	2,904	30.97	5,000	18	2	....	4	.....	....	.....	1	...
Palatka	69	3,039	22.7	4,000	17.25	11	....	1	.....	....	.....	.....	...
Pensacola	247	11,750	21.02	15,000	16.46	22	....	12	.....	....	.....	.....	...
Sanford	36	2,016	17.85	2,500	14.4	7	....	6	.....	....	.....	.....	...
Warrington	26	1,301	19.98	1,100	23.63	6	....	.....	.....	....	.....	....	1
Georgia	1,002	49,257	20.34	59,503	16.84	56	....	11	41	....	1	5	17
Carrollton	25	1,451	17.22	2,500	10	1	....	3	4	....	.....	2	3
Cartersville	45	3,171	14.19	3,200	14.06	.....	....	.....	.....	....	.....	.....	...
Columbus	a 134 b 237	17,303	21.44	a 10,276 b 9,027	13.04 26.25	14 26	....	3 2	 3	....	....	....	2 6

a White. b Colored.

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Georgia—Cont'd.													
Dawson	25	2,284	10.94	3,000	8.33	.....	....	.....	.....	....	.....	....	...
Lithonia	25	1,182	21.15	1,500	16.66	.....	....	3	21	....	1	3	6
Macon	506	22,746	22.24	28,000	18.07	14	....	.....	9	....	.....	....	...
Toccoa	5	1,120	4.46	2,000	2.5	1	....	.....	4	....	.....	....	...
Idaho	15	1,174	12.77	1,400	10.71	.....	....	.....	.....	....	.....	....	...
Montpelier	15	1,277	12.69	1,400	10.71	.....	....	.....	.....	....	.....	....	...
Illinois	28,866	1,366,845	21.11	1,986,016	14.53	2,546	168	660	34	99	1,896	105	36
Amboy	35	2,257	15.50	2,500	14	.....	....	.....	.....	....	.....	....	...
Ashland	16	1,045	15.31	1,300	12.30	2	....	2	.....	....	.....	....	...
Ashley	12	1,035	11.59	1,200	10	2	....	1	.....	....	.....	1	...
Atlanta	16	1,178	13.58	1,200	13.33	3	....	2	1	....	.....	....	...
Aurora	285	19,688	14.47	25,000	11.40	18	8	19	12	9	3	9	...
Austin	158	4,051	39	24,000	6.58	7	....	4	2	2	8	3	...
Batavia	40	3,543	11.29	4,600	10	7	....	.....	.....	....	1	....	1
Belleville	187	15,361	12.17	20,000	9.35	13	....	9	.....	....	.....	....	1
Bunker Hill	21	1,269	16.54	1,434	14.64	3	....	.....	.....	....	.....	....	2
Camp Point	13	1,150	14.90	1,300	10	1	....	1	.....	....	.....	....	...
Carmi	73	2,785	26.21	3,500	21.85	7	....	4	.....	....	2	1	...
Chicago	24,319	1,099,850	22.10	1,600,000	15.19	2,169	160	518	.....	77	1,775	....	...
Colchester	22	1,643	13.39	2,500	8.8	.....	....	.....	.....	....	.....	....	...
Cuba	10	1,114	8.97	1,200	8.33	4	....	.....	.....	....	.....	....	...
Delavan	22	1,176	18.80	2,000	11	1	....	.....	.....	....	.....	....	...
Dixon	105	5,161	20.34	7,051	14.89	2	....	.....	.....	....	12	2	1
Earleville	20	1,058	18.90	1,200	16.66	1	....	1	.....	....	.....	....	...
East Dundee	16	1,150	13.91	1,336	11.97	2	....	.....	.....	....	.....	3	...
East St. Louis	298	15,169	19.64	28,000	10.64	19	....	6	.....	1	6	9	1
Elgin	267	17,823	14.98	22,000	12.13	2	....	3	.....	....	13	3	4
El Paso	18	1,353	13.30	1,800	10	.....	....	1	.....	1	3	1	...
Eureka	11	1,481	7.42	1,800	6.11	.....	....	.....	.....	....	.....	....	...
Freeport	290	10,189	28.46	15,000	19.33	23	....	2	2	4	9	3	2
Galesburg	250	15,264	12.19	20,500	12.12	33	....	10	.....	....	3	....	...
Galva	59	2,409	24.49	3,000	19.66	.....	....	.....	.....	....	.....	....	...
Gardner	6	1,094	5.48	1,000	6	.....	....	.....	3	1	.....	....	...
Gibson	36	1,803	19.96	2,000	18	4	....	1	.....	1	.....	....	...
Gilman	15	1,112	13.49	1,300	11.54	.....	....	3	.....	....	.....	....	1
Girard	20	1,524	13.12	2,000	10	5	....	3	.....	....	.....	....	...
Harrisburg	50	1,723	29.02	3,000	16.66	8	....	5	.....	....	.....	25	3
Henry	30	1,512	19.84	2,000	15	.....	....	.....	.....	....	.....	....	...
Highland Park	35	2,163	16.18	3,500	10	3	....	1	.....	....	12	1	1
Hinsdale	7	1,584	4.42	2,500	2.8	1	....	.....	.....	....	1	....	...
Kewanee	126	4,569	27.57	8,000	15.77	8	....	2	.....	....	8	3	2
Lasalle	160	9,855	16.2	10,750	14.88	14	....	3	.....	....	3	....	...
Mascoutah	25	2,032	14.27	2,500	10	4	....	.....	1	....	.....	1	...
Metropolis	75	3,573	20.99	4,000	18.75	.....	....	.....	.....	....	.....	....	...
Moline	227	12,000	18.91	15,000	15.13	5	....	9	.....	....	6	16	...
Mount Pulaski	8	1,357	5.89	1,600	5	1	....	.....	.....	....	.....	....	...
Nauvoo	19	1,208	15.72	1,500	12.66	.....	....	.....	.....	....	.....	1	1
Nokomis	57	1,305	43.67	8,400	6.78	45	....	5	.....	....	7	1	...
North Utica	11	1,094	10.05	1,200	9.16	3	....	1	.....	....	.....	....	4
Pecatonia	42	1,059	39.65	1,200	35	.....	....	.....	.....	....	.....	....	...
Plano	12	1,825	6.57	2,000	6	3	....	.....	.....	....	1	....	...
Polo	21	1,728	12.73	2,200	9.54	.....	....	.....	.....	....	.....	....	...
Quincy	548	31,494	17.4	40,000	13.7	53	....	24	5	1	8	11	2
Rockford	350	23,584	14.41	30,000	11.66	26	....	6	6	1	3	3	8
Rock Island	148	13,634	18.55	21,000	7.05	10	....	3	.....	....	1	5	2
Savanna	38	3,097	12.26	3,800	10	2	....	5	2	1	1	1	...
Sterling	73	5,824	12.53	6,745	10.82	.....	....	2	.....	....	5	....	...
Taylorville	27	2,829	9.54	5,000	5.4	4	....	.....	.....	....	3	....	...
Tuscola	32	1,897	16.98	4,000	8	5	....	3	.....	....	1	1	...
Vandalia	15	2,144	6.99	3,000	5	3	....	.....	.....	....	.....	....	...
Waverly	30	1,337	22.43	2,000	15	5	....	.....	.....	....	.....	1	...
Woodstock	40	1,683	23.75	2,000	20	25	....	1	.....	....	1	....	...

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Indiana	5,295	305,287	17.34	473,131	11.19	695	2	286	28	50	301	82	46
Anderson	158	10,741	14.71	23,000	6.87	20	....	5	1	1	36	....	...
Angola	29	1,840	15.76	2,000	14.49	4	....	.....	.....	....	.....	....	...
Aurora	36	3,929	9.16	3,800	9.47	10	....	1	.....	....	1	3	...
Batesville	21	1,169	17.96	2,200	9.54	1	....	1	.....	....	7	1	...
Brazil	85	5,905	14.39	9,000	9.44	6	....	10	.....	3	7	3	...
Bremen	3	1,076	2.78	1,500	2	.....	....	.....	.....	....	.....	....	...
Brightwood	20	1,387	14.42	2,200	9.09	3	....	2	1	3	1	1	...
Brookville	41	2,028	20.21	2,000	20.5	12	....	.....	.....	....	1	....	...
Brownstown	8	*1,422	5.62	2,000	4	.....	....	.....	.....	....	.....	....	...
Butler	8	2,521	3.17	2,200	3.63	.....	....	.....	.....	....	.....	....	...
Columbus	140	6,719	20.83	10,000	14	23	....	8	.....	....	4	8	...
Covington	10	1,891	5.28	3,600	3.33	.....	....	.....	.....	....	.....	....	...
Crawfordsville	77	6,089	12.64	8,000	9.62	10	....	.....	.....	....	.....	....	...
Danville	38	1,569	24.21	3,000	12.66	2	....	.....	.....	....	.....	....	...
Delphi	92	1,923	47.84	22,000	4.18	16	....	5	.....	1	2	1	...
Edinburg	20	2,031	9.84	2,000	10	.....	....	.....	.....	....	.....	....	...
Fairmount	34	1,462	23.25	3,000	11.33	2	....	1	.....	1	2	....	...
Fowler	9	1,285	7	1,800	5	4	....	1	.....	....	.....	....	...
Frankfort	114	5,919	19.26	9,000	12.64	13	....	6	1	....	1	6	...
Franklin	64	3,781	16.92	4,000	16	8	....	3	4	....	.....	....	...
Green Castle	36	4,390	12.99	4,350	8.27	4	....	1	.....	....	.....	....	...
Hammond	82	5,428	15.1	12,000	6.85	5	....	2	2	4	25	4	4
Harmony	17	1,020	16.66	1,100	15.45	2	....	1	.....	2	.....	....	...
Haughville	66	2,144	30.78	4,000	16.5	9	....	3	.....	1	8	....	...
Huntingburg	33	3,167	10.42	3,300	10	4	....	2	.....	....	1	1	1
Huntington	85	7,328	11.59	10,500	8.09	10	....	3	.....	....	5	....	...
Indianapolis	2,237	105,436	21.12	155,632	14.37	294	1	122	8	9	114	20	18
Jasper	14	1,281	10.93	1,800	7.22	2	....	1	.....	....	.....	....	...
Jeffersonville	107	10,666	10.03	15,000	7.13	12	....	5	3	3	2	3	...
Knightstown	23	1,867	12.31	2,000	11.5	4	....	3	.....	....	1	....	...
Laporte	107	7,126	15.02	8,000	13.33	10	....	.....	.....	1	3	....	...
Lebanon	31	3,682	8.42	5,000	6.2	3	....	1	2	1	.....	2	1
Liberty	40	1,314	30.44	6,979	5.86	14	....	7	.....	6	.....	1	...
Ligonier	16	2,195	7.29	2,200	7.27	1	....	.....	.....	....	.....	....	...
Marion	280	8,769	23.72	20,000	14	60	....	40	5	10	25	10	20
Michigan City	192	10,776	17.91	12,000	16	.....	1	.....	.....	....	1	....	...
Mount Vernon	74	4,705	15.73	6,000	12.33	13	....	3	.....	....	10	4	...
Muncie	207	11,345	18.24	23,000	9	10	....	13	.....	2	3	5	2
New Castle	41	2,697	15.2	4,000	10.25	9	....	5	.....	....	.....	....	...
New Haven	16	1,079	14.82	1,370	11.68	3	....	.....	.....	....	.....	....	...
Noblesville	49	3,054	16.02	5,000	9.8	6	....	5	.....	....	.....	....	...
Plymouth	18	2,733	6.58	4,000	4.5	3	....	.....	.....	....	.....	3	...
Princeton	46	3,076	14.95	5,000	9.2	4	....	5	.....	....	1	1	...
Richmond	246	16,608	14.81	20,000	12.3	32	....	6	.....	....	13	....	...
Rising Sun	10	1,689	5.92	1,800	5.55	3	....	2	1	2	1	1	...
Salem	35	1,975	17.72	2,000	17.5	2	....	.....	.....	....	.....	2	...
Tell City	50	2,094	16	3,500	14.29	9	....	.....	.....	....	1	2	...
Vevay	32	1,663	19.24	2,000	16	3	....	1	.....	....	12	....	...
Warren	11	1,120	9.82	1,800	6.11	2	....	.....	.....	....	.....	....	...
Washington	80	6,064	13.14	9,000	8.88	6	....	9	.....	....	13	....	...
Winamac	7	1,215	5.76	2,000	3.5	.....	....	1	.....	....	.....	....	...
Winchester	20	3,014	6.63	3,100	6.45	2	....	2	.....	....	.....	....	...
Iowa	2,344	171,810	13.06	228,042	10.27	251	....	59	5	17	64	71	21
Ackley	6	1,286	4.06	1,800	3.33	.....	....	.....	.....	....	.....	....	...
Afton	14	1,045	13.39	1,500	9.33	1	....	.....	.....	....	.....	....	...
Bellevue	16	1,394	11.47	1,600	10	.....	....	.....	.....	....	.....	....	...
Bloomfield	89	1,913	46.52	3,000	29.66	11	....	2	2	....	2	2	...
Burlington	265	22,565	11.74	28,000	9.46	34	....	5	.....	3	3	3	...
Cedar Falls	65	3,459	18.79	5,000	13	4	....	.....	.....	....	2	....	...
Charles City	11	2,802	3.93	4,800	2.29	.....	....	1	.....	....	.....	....	...
Clinton	169	13,619	12.41	23,690	7.14	31	....	5	.....	....	4	17	1
Corning	14	1,682	8.26	2,300	6.09	3	....	1	.....	....	.....	....	...
Council Bluffs	267	21,474	12.43	28,000	9.53	24	....	5	.....	6	3	18	9
Creston	80	7,200	11.11	8,000	10	8	....	2	.....	2	5	....	1

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Iowa—Continued.													
Dubuque	481	30,311	15.86	40,000	12.03	63	....	11	.....	1	11	16	5
Fairfield	39	3,391	11.50	4,200	9.28	7	....	2	1	....	.....	....	...
Fort Dodge	85	4,871	17.45	9,000	9.44	5	....	1	.....	....	2	3	...
Grinnell	45	3,332	13.51	3,000	15	1	....	1	.....	....	19	2	...
Guthrie Center	6	1,037	5.78	1,300	4.61	.....	....	.....	.....	....	.....	....	...
Humboldt	14	1,075	10.77	1,300	13	.....	....	.....	.....	....	3	4	...
Indianola	8	2,254	3.55	3,200	2.5	.....	....	.....	.....	....	.....	....	...
Iowa City	117	7,016	16.66	8,000	14.62	9	....	3	.....	....	.....	1	...
Jefferson	30	1,875	10.66	2,500	12	1	....	.....	.....	....	.....	....	...
Lake	10	1,160	8.62	2,030	4.92	.....	....	.....	.....	....	.....	....	...
Lansing	22	1,668	13.18	1,600	13.75	3	....	.....	.....	....	.....	....	...
Lisbon	13	1,079	12.05	1,100	11.81	.....	....	.....	.....	....	.....	....	...
Lucas	6	1,320	4.55	800	7.5	1	....	.....	.....	....	.....	....	...
McGregor	16	1,160	13.79	1,600	10	.....	....	1	.....	....	.....	....	...
Mason	76	4,007	16.46	6,400	11.87	5	....	6	.....	....	.....	1	...
Monticello	24	1,938	12.38	2,087	11.49	3	....	.....	.....	....	.....	....	...
Mount Ayr	4	1,265	31.61	1,500	2.66	.....	....	2	.....	1	.....	....	...
Mount Pleasant	54	3,652	14.78	4,000	13.5	12	....	3	.....	1	1	....	...
Nashua	19	1,240	15.32	1,400	13.57	.....	....	1	.....	....	.....	....	...
Nevada	20	1,662	12.03	2,050	9.75	1	....	.....	.....	....	.....	1	5
Odebolt	16	1,122	14.26	1,425	11.22	7	....	.....	.....	....	6	1	...
Pella	35	2,408	14.53	3,000	11.66	3	....	1	.....	....	.....	....	...
Sac City	7	1,249	5.6	1,500	4.66	1	....	.....	.....	....	1	....	...
Seymour	28	1,058	26.46	1,800	15.55	.....	....	.....	.....	....	.....	....	...
Sibley	10	1,090	9.17	1,500	6.66	1	....	.....	.....	....	.....	....	...
Storm Lake	23	1,682	13.67	2,000	11.5	1	....	4	1	3	.....	....	...
Traer	9	1,014	8.87	1,300	6.92	.....	....	.....	.....	....	.....	....	...
Villisca	27	1,744	15.48	2,500	10.8	1	....	.....	1	....	2	2	...
Washington	34	3,235	10.51	4,000	8.5	4	....	.....	.....	....	1	....	...
Waverly	55	2,346	23.44	3,000	18.33	5	....	1	.....	....	.....	....	...
Wilton	15	1,212	12.37	1,260	11.9	1	....	1	.....	....	.....	....	...
Kansas	1,988	114,088	17.42	173,177	11.48	184	....	97	.....	16	108	47	6
Abilene	47	3,547	14.71	3,300	13.25	1	....	1	.....	1	7	1	1
Burlington	39	2,239	17.41	2,322	16.79	4	....	1	.....	....	.....	2	1
Chetopa	109	2,265	48.12	3,000	36.33	.....	....	.....	.....	....	.....	....	...
Coffeyville	49	2,282	21.47	4,000	12.25	10	....	2	.....	....	1	....	...
Concordia	24	3,184	7.53	3,000	8	3	....	3	.....	....	1	1	...
Dodge City	20	1,763	11.34	2,000	10	1	....	.....	.....	1	.....	....	...
Emporia	127	7,551	16.83	12,000	10.59	10	....	20	.....	....	11	11	...
Garden City	39	1,490	26.17	4,000	9.75	2	....	2	.....	....	1	....	...
Goodland	7	1,027	6.82	1,000	7	1	....	.....	.....	....	.....	....	...
Halstead	13	1,071	12.14	900	14.44	3	....	1	.....	....	.....	1	...
Herington	15	1,353	11.09	1,500	10	1	....	1	.....	....	.....	2	...
Hutchinson	80	8,682	9.21	8,600	9.3	6	....	2	.....	....	3	....	...
Kingman	43	2,390	17.96	10,000	4.3	3	....	3	.....	....	.....	....	...
Lawrence	174	9,997	17.4	11,000	15.81	17	....	7	.....	2	22	10	...
Leavenworth	314	19,768	15.88	22,000	14.27	29	....	13	.....	....	7	....	...
Lyons	59	1,754	33.63	14,500	4.07	8	....	8	.....	....	1	....	...
Minneapolis	80	1,756	45.55	10,422	7.67	8	....	.....	.....	....	3	....	...
Olathe	23	3,294	7.07	4,000	5.75	2	....	4	.....	3	5	4	...
Osborne	5	1,174	4.25	1,000	5	2	....	2	.....	....	.....	....	...
Pleasanton	9	1,139	7.9	1,650	5.45	3	....	1	.....	....	.....	....	...
Pratt	64	1,418	45.13	6,583	9.72	2	....	10	.....	....	4	....	...
Seneca	52	2,032	25.59	1,900	26.42	5	....	4	.....	5	8	5	2
Topeka	496	31,007	15.99	35,000	14.17	57	....	8	.....	4	32	7	...
Yates Center	100	1,305	76.62	9,500	10.52	6	....	4	.....	....	2	3	2
Kentucky	4,425	218,429	20.25	298,500	14.82	505	1	149	15	8	113	25	16
Bardstown	15	1,524	9.91	1,500	10	6	....	.....	.....	....	.....	1	...
Carlisle	20	1,081	18.50	2,500	8	11	....	3	2	....	.....	....	...
Carrollton	21	1,720	12.20	2,500	8.4	4	....	.....	.....	....	.....	....	...
Central City	7	1,144	6.12	2,200	3.18	.....	....	.....	.....	....	1	2	1
Covington	737	37,371	19.72	50,000	14.54	28	....	2	6	1	22	19	2
Cynthiana	43	3,016	14.25	4,000	10.75	8	....	6	.....	....	.....	....	1

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Kentucky—Cont'd.													
Flemingsburg	27	1,172	23.04	2,000	13.50	3	....	1	.....	1	.....	....	...
Franklin	23	2,324	9.85	11,000	2.09	6	....	4	.....	...	.....	....	1
Louisville	3,369	161,129	20.9	211,000	15.96	420	1	126	7	6	84	....	11
Ludlow	50	2,469	20.25	3,500	16	8	....	1	.....	....	4	2	...
Madisonville	79	2,212	35.71	3,500	22.57	9	....	4	.....	....	2	....	...
Nicholasville	25	2,157	11.59	3,300	7.57	4	....	2	.....	....	.....	1	...
Vanceburg	9	1,110	8.11	1,500	6	1	....	.....	.....	....	.....	....	...
Louisiana	8,331	256,640	32.46	291,550	28.57	896	56	119	64	5	81	21	23
Amite	20	1,510	13.24	1,800	11.11	.....	....	.....	.....	....	.....	....	...
Mandeville	10	1,012	9.87	750	13.33	1	....	.....	.....	....	.....	....	...
New Orleans	8,045	242,039	33.24	275,000	29.25	871	56	113	57	5	80	19	22
Shreveport	a 78 / b 178	11,979	21.37	6,500 / 7,500	12 / 23.73	24	....	6	7	....	1	2	1
Maine	4,359	249,999	17.43	267,670	16.28	320	1	69	1	8	57	12	22
Addison	17	1,022	16.63	1,100	.4	.....	1	.....	.....	....	.....	....	...
Albion	23	1,042	22.07	1,042	22.07	2	....	.....	.....	1	.....	....	...
Appleton	27	1,080	25	1,100	24.54	4	....	.....	.....	....	.....	....	...
Auburn	187	11,250	16.62	12,000	15.58	5	....	1	.....	....	.....	....	...
Bangor	380	19,103	19.88	25,000	15.20	.....	....	13	.....	....	4	....	...
Belfast	76	5,294	14.35	5,294	14.35	.....	....	.....	.....	....	.....	....	...
Belgrade	20	1,090	18.34	1,090	18.34	.....	....	.....	.....	....	.....	....	...
Berwick	26	2,294	11.33	2,400	10.83	2	....	1	.....	....	1	....	...
Boothbay	18	1,718	10.47	1,750	10.28	.....	....	.....	.....	....	.....	....	...
Boothbay Harbor	24	1,699	14.12	2,000	12	6	....	.....	.....	....	.....	....	...
Bowdoinham	26	1,508	17.24	1,500	17.33	1	....	.....	.....	....	.....	1	...
Bradford	18	1,215	14.81	1,200	15	2	....	.....	.....	....	.....	....	...
Bristol	33	2,821	11.69	2,821	11.69	.....	....	2	.....	....	1	....	...
Brooklin	18	1,046	16.43	1,100	16.36	1	....	.....	.....	....	.....	....	...
Brooksville	17	1,310	12.97	1,300	13.07	.....	....	.....	.....	....	.....	....	...
Brownfield	24	1,134	21.16	1,150	20.87	.....	....	1	.....	....	.....	....	...
Brownville	12	1,074	11.17	1,200	10	3	....	2	.....	....	.....	....	...
Buxton	36	2,036	17.68	2,000	18	.....	....	.....	.....	....	.....	....	...
Canaan	19	1,130	16.81	1,130	16.81	3	....	.....	.....	....	.....	....	...
Canton	18	1,303	13.81	1,500	12	2	....	.....	.....	....	.....	1	...
Carmel	4	1,066	3.75	1,066	3.75	.....	....	.....	.....	....	.....	....	...
Chelsea	13	2,356	5.52	950	13.68	.....	....	.....	.....	....	.....	....	...
Cherryfield	17	1,787	9.51	1,760	9.65	6	....	.....	.....	....	.....	....	...
Damariscotta	14	1,012	13.83	1,012	13.83	.....	....	.....	.....	....	.....	....	...
Deering	114	5,353	21.29	6,400	17.81	9	....	2	.....	1	3	....	4
Deer Isle	34	3,422	9.93	3,500	9.71	1	....	1	.....	....	3	....	...
Dexter	51	2,732	18.88	3,200	15.94	7	....	2	.....	....	.....	....	...
Dover	28	1,942	14.41	2,200	14.53	5	....	.....	.....	....	.....	....	...
East Livermore	21	1,506	13.94	1,600	13.13	6	....	.....	.....	....	.....	....	...
Eastport	76	4,908	15.46	5,000	15.2	.....	....	.....	.....	....	.....	....	...
Eliot	17	1,463	11.62	1,500	11.33	.....	....	.....	.....	....	.....	....	...
Farmington	41	3,207	12.78	3,207	12.78	2	....	2	.....	....	1	....	...
Fort Kent	51	1,826	27.93	2,200	23.18	3	....	.....	.....	....	.....	....	5
Franklin	24	1,264	18.98	1,250	19.26	5	....	.....	.....	....	.....	....	...
Freeport	47	2,482	18.93	2,500	18.8	3	....	.....	.....	....	.....	....	1
Frenchville	13	2,560	5.08	3,500	3.8	5	....	.....	.....	....	.....	....	...
Fryeburg	33	1,418	23.27	1,400	23.33	4	....	.....	.....	....	.....	....	...
Gouldsboro	23	1,709	13.45	1,400	16.43	3	....	.....	.....	....	1	....	...
Gorham	44	2,888	15.23	4,000	11	6	....	.....	.....	....	2	....	...
Gray	27	1,517	17.79	1,500	18	.....	....	.....	.....	....	1	....	1
Harpswell	22	1,766	12.45	1,800	12.22	5	....	.....	.....	....	.....	3	...
Harrington	11	1,150	9.56	1,100	10	2	....	.....	.....	....	.....	....	...
Harrison	21	1,071	19.61	1,000	21	2	....	.....	.....	....	.....	....	...
Hermon	25	2,582	19.5	1,292	19.35	3	....	1	.....	....	.....	....	...
Hollis	20	1,278	15.65	1,500	13.13	1	....	.....	.....	....	.....	....	...
Jefferson	19	1,391	13.66	1,350	14.07	1	....	.....	.....	....	.....	....	...
Jonesport	18	1,917	9.39	1,917	9.39	.....	....	.....	.....	....	.....	....	...

a White. *b* Colored.

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Maine—Continued.													
Lebanon	16	1,263	12.67	1,300	12.3	2	....	.....	.....	....	.....	....	...
Limington	16	1,092	14.65	1,000	16	2	....	.....	.....	....	.....	....	...
Lisbon	58	3,120	18.59	3,500	16.57	8	....	.....	1	2	1	....	...
Litchfield	22	1,126	19.45	1,126	19.45	.....	....	.....	.....	....	.....	....	...
Machiasport	28	1,437	19.48	1,427	19.62	1	....	1	.....	....	.....	....	...
Madison	42	1,815	23.14	2,000	21	6	....	.....	.....	....	1	....	...
Milo	15	1,029	14.57	1,500	10	2	....	.....	.....	....	.....	....	...
Monmouth	25	1,362	18.35	1,500	16.66	2	....	.....	.....	....	.....	....	...
Monson	17	1,237	13.74	1,200	14.16	4	....	1	.....	....	.....	....	...
Monticello	20	1,132	17.66	1,260	16.66	1	....	2	.....	2	.....	....	...
Montville	32	1,049	30.5	1,000	32	4	....	.....	.....	....	.....	....	...
Mount Desert	17	1,355	12.26	1,300	13.07	3	....	.....	.....	....	.....	....	1
Newcastle	17	1,282	13.26	1,200	14.16	.....	....	.....	.....	....	.....	....	...
New Gloucester	22	1,234	17.82	1,280	17.19	.....	....	.....	.....	....	.....	....	...
Newport	24	1,188	20.2	1,400	17.14	1	....	.....	.....	....	.....	....	...
Norridgewock	29	1,656	17.51	1,656	17.51	.....	....	.....	.....	....	.....	....	...
North Berwick	36	1,803	19.96	1,800	20	.....	....	.....	.....	....	.....	....	...
Norway	37	2,665	13.88	3,000	12.33	7	....	.....	.....	....	.....	....	...
Oakland	29	2,044	14.18	2,100	13.81	3	....	.....	.....	....	3	....	...
Oldtown	72	5,312	13.55	6,000	12	4	....	4	.....	....	2	1	1
Orland	22	1,390	15.82	1,400	15.71	.....	....	.....	.....	....	.....	....	...
Orono	56	2,790	20.07	3,000	18.66	1	....	1	.....	....	3	....	...
Palmyra	14	1,004	13.94	1,004	13.94	.....	....	.....	.....	....	.....	....	...
Paris	65	3,156	20.59	3,280	19.81	4	....	.....	.....	....	1	....	...
Parsonsfield	20	1,398	14.3	1,300	15.38	1	....	.....	.....	....	.....	....	...
Pembroke	15	1,514	9.91	1,514	9.91	3	....	.....	.....	....	.....	....	...
Penobscot	23	1,313	17.49	1,315	17.49	.....	....	.....	.....	....	.....	....	...
Phippsburg	17	1,396	12.18	1,400	12.14	2	....	1	.....	....	.....	....	...
Pittston	17	1,281	13.27	1,281	13.27	2	....	.....	.....	....	.....	1	...
Portland	789	36,425	21.66	40,000	19.72	89	....	19	.....	....	21	....	6
Readfield	19	1,176	16.15	1,200	15.83	.....	....	.....	.....	....	.....	....	...
St. Albans	22	1,206	18.22	1,200	18.33	1	....	.....	.....	....	.....	....	...
St. George	53	2,491	21.27	2,600	20.38	11	....	.....	.....	....	3	....	...
Sanford	100	4,201	23.8	5,000	20.00	3	....	1	.....	....	3	....	...
Scarboro	30	1,794	16.72	1,800	16.66	2	....	1	.....	....	.....	....	...
Searsport	33	1,693	19.43	1,693	19.43	1	....	.....	.....	....	.....	....	...
Sedgwick	20	1,012	19.76	1,000	20	.....	....	.....	.....	....	.....	....	...
Skowhegan	106	5,068	20.91	5,200	20.38	3	....	2	.....	....	.....	....	...
South Berwick	46	3,434	13.39	3,434	13.39	1	....	3	.....	....	.....	....	...
Stockton Springs	18	1,149	15.66	1,150	15.65	2	....	.....	.....	....	.....	....	...
Topsham	34	1,394	24.39	1,800	19.44	7	....	.....	.....	....	.....	....	...
Turner	26	2,016	12.88	2,000	13	1	....	.....	.....	....	.....	....	...
Vinal Haven	48	2,617	18.34	2,800	17.14	10	....	.....	.....	1	.....	1	...
Washburn	16	1,097	14.58	1,100	14.54	2	....	1	.....	1	.....	2	...
Washington	24	1,230	19.51	1,230	19.51	.....	....	.....	.....	....	.....	....	...
Waterford	15	1,001	14.98	1,000	15	.....	....	.....	.....	....	.....	....	...
Westbrook	157	6,632	23.67	7,000	22.42	3	....	4	.....	....	.....	....	2
Whitefield	27	1,215	22.22	1,325	20.37	4	....	.....	.....	....	1	....	1
Winslow	33	1,814	18.19	1,814	18.19	3	....	.....	.....	....	1	2	...
Winthrop	35	2,111	16.58	2,100	16.66	1	....	.....	.....	....	.....	....	...
Yarmouth	35	2,098	17.32	2,200	15.9	3	....	.....	.....	....	.....	....	...
Maryland	10,392	442,076	23.50	504,815	20.58	1,158	....	181	68	66	277	54	68
Baltimore	10,301	434,439	23.71	496,315	20.75	1,141	....	a173	68	59	265	45	68
Elkton	56	2,318	24.15	2,800	20	10	....	4	.....	6	12	8	...
St. Michael	13	1,329	9.85	2,000	6.5	5	....	1	.....	....	.....	....	...
Snow Hill	10	1,483	6.06	1,700	5.88	1	....	3	.....	1	.....	....	...
Sparrow Point	12	2,507	4.78	2,000	6	1	....	.....	.....	....	.....	1	...
Massachusetts	38,460	1,753,494	21.94	1,909,901	20.13	4,941	....	503	57	426	1,335	165	191
Abington	85	4,260	19.95	4,300	19.76	9	....	1	.....	1	5	....	...
Agawam	53	2,352	22.53	2,408	22.01	6	....	1	2	....	1	....	...
Amesbury	171	9,798	17.45	10,000	17.10	22	....	1	3	2	7	1	2
Amherst	79	4,512	17.51	4,512	17.51	14	....	.....	1	....	.....	....	11

a For six months only.

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Massachusetts—Continued.													
Andover	104	6,142	16.93	6,145	16.92	11	....	1	.....	....	.....	....	...
Arlington	97	5,629	17.23	6,515	14.88	7	....	4	.....	....	4	....	...
Ashland	36	2,532	13.89	2,090	17.22	.....	....	.....	3	....	.....	....	...
Auburn	30	1,532	19.58	1,599	18.76	4	....	.....	.....	....	.....	....	...
Avon	21	1,384	15.17	1,640	12.80	4	....	.....	.....	....	.....	....	...
Ayer	35	2,148	16.29	2,101	16.65	1	....	.....	.....	....	.....	....	...
Barnstable	97	4,023	24.11	4,055	23.92	10	....	1	.....	....	.....	....	...
Barre	44	2,239	19.65	2,300	19.13	9	....	.....	.....	....	.....	....	...
Bedford	26	1,092	23.81	1,169	22.24	2	....	.....	.....	....	.....	....	...
Belchertown	45	2,120	21.61	2,161	20.82	.....	....	1	.....	3	.....	....	...
Belmont	32	2,098	15.25	2,800	11.42	1	....	.....	.....	....	1	....	...
Beverly	192	10,821	17.74	11,806	16.26	9	....	2	.....	....	17	....	...
Billerica	32	2,380	13.44	2,600	12.30	3	....	2	.....	....	.....	....	...
Boston	11,329	448,477	25.26	501,083	22.60	1,349	....	163	19	114	588	66	47
Bradford	73	3,720	19.62	5,500	13.27	2	....	.....	.....	1	1	....	...
Brewster	24	1,003	23.92	900	26.66	1	....	.....	.....	....	.....	....	1
Bridgewater	54	4,249	12.70	4,686	11.52	4	....	.....	.....	1	.....	1	...
Brimfield	25	1,096	22.81	1,200	20.83	2	....	.....	.....	....	.....	....	...
Brockton	486	27,294	17.80	33,165	14.65	72	....	8	1	4	13	....	3
Brookfield	59	3,352	17.59	3,400	17.35	10	....	.....	.....	....	.....	....	...
Brookline	245	12,103	20.24	16,164	15.15	23	....	3	.....	1	15	....	...
Cambridge	1,500	70,028	21.42	81,643	18.37	181	....	12	3	17	94	12	11
Chatham	38	1,954	19.44	1,809	21	4	....	.....	.....	....	.....	....	...
Chelmsford	53	2,695	19.66	3,162	16.76	.....	....	.....	.....	....	.....	....	...
Chelsea	656	27,909	23.50	31,295	20.96	99	....	2	.....	10	31	15	3
Cheshire	30	1,308	22.93	1,300	23.07	4	....	.....	.....	....	.....	....	...
Chicopee	369	14,050	26.26	17,000	21.71	30	....	4	1	5	5	2	3
Clinton	176	10,424	16.88	11,697	15.04	27	....	6	4	....	2	1	4
Cohasset	45	2,448	18.38	2,500	18	1	....	1	.....	....	1	....	...
Colerain	17	1,671	10.17	1,600	10.62	1	....	.....	.....	....	.....	....	...
Concord	62	4,427	14	5,175	11.98	2	....	.....	.....	1	.....	....	...
Cottage City	17	1,080	15.74	1,037	16.39	2	....	.....	.....	....	.....	....	...
Danvers	229	7,454	30.94	7,454	30.94	18	....	1	.....	1	.....	....	...
Dartmouth	62	3,122	19.85	3,107	20	3	....	.....	.....	....	2	....	...
Dedham	145	7,123	20.38	7,218	20.08	12	....	.....	.....	....	7	....	...
Deerfield	59	2,910	20.26	3,007	19.62	5	....	1	.....	....	1	....	...
Dennis	56	2,899	19.31	2,545	22	4	....	1	.....	....	3	....	...
Dighton	31	1,889	16.41	1,797	17.25	5	....	.....	.....	....	.....	....	...
Douglass	56	1,908	29.35	2,035	27.47	4	....	2	.....	....	.....	....	...
Dudley	40	2,944	13.58	3,201	12.48	4	....	.....	.....	....	.....	....	...
Duxbury	40	1,908	20.96	1,950	20.51	2	....	.....	.....	....	.....	....	...
East Bridgewater	60	2,911	20.61	3,000	20	5	....	2	.....	1	.....	....	...
Edgartown	23	1,156	19.89	1,125	20.44	.....	....	.....	.....	....	.....	....	...
Essex	35	1,713	20.43	1,600	21.87	3	....	1	.....	....	2	....	...
Everett	276	11,068	24.93	18,756	14.71	28	....	5	.....	8	13	....	...
Fairhaven	49	2,919	16.78	3,338	14.67	3	....	.....	.....	....	.....	....	...
Fall River	1,902	74,398	25.56	89,303	21.29	154	....	30	1	29	27	12	6
Fitchburg	403	22,037	17.98	26,409	15.26	42	....	8	.....	1	4	4	2
Gardner	191	8,424	22.67	10,000	19.1	24	....	3	.....	2	.....	....	2
Gloucester	423	24,651	17.16	28,500	14.84	54	....	4	.....	6	22	3	1
Granville	16	1,061	15.08	1,000	16	.....	....	.....	.....	....	.....	....	...
Groton	40	2,057	19.44	2,192	18.24	6	....	.....	.....	....	1	....	...
Hadley	33	1,669	19.77	1,669	19.77	2	....	.....	.....	....	.....	....	...
Hanson	23	1,267	18.15	1,325	17.35	.....	....	2	.....	....	.....	....	...
Hardwick	58	2,922	19.84	2,700	21.48	.....	....	1	.....	....	10	....	2
Harvard	19	1,095	17.35	1,160	16.38	.....	....	.....	.....	....	.....	....	...
Harwick	48	2,734	17.55	2,600	18.46	3	....	.....	.....	....	.....	....	1
Hatfield	17	1,246	13.64	1,300	13.07	.....	....	.....	.....	....	.....	....	...
Hingham	82	4,564	17.96	4,564	17.96	10	....	.....	.....	....	.....	....	1
Hinsdale	26	1,739	14.95	1,739	14.95	.....	....	1	.....	....	.....	....	...
Holliston	60	2,619	22.53	3,300	18.18	3	....	.....	.....	5	1	1	...
Hopedale	15	1,176	12.75	1,200	12.5	1	....	.....	.....	....	.....	....	...
Hubbardston	25	1,346	18.57	1,284	19.47	.....	....	.....	.....	....	.....	....	...
Hyde Park	203	10,193	19.91	11,828	17.16	17	....	1	.....	2	6	1	2
Ipswich	82	4,439	18.43	4,720	17.37	.....	....	1	.....	....	4	....	...

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Massachusetts—Continued.													
Kingston	30	1,659	18.08	1,746	17.18	3	....	.....	.....	....	.....	....	...
Lanesboro	23	1,018	22.59	850	27.05	1	....	.....	.....	.....	.....	.....	...
Lawrence	1,044	44,654	23.38	52,000	20.08	28	....	16	4	12	8	3	3
Lee	82	3,785	21.66	4,068	20.11	6	....	.....	.....	....	2	....	2
Leicester	54	3,120	17.31	3,200	16.87	7	....	2	.....	1	.....	....	...
Lenox	43	2,889	15.02	2,889	15.02	3	....	.....	.....	1	9	....	...
Lexington	42	3,197	13.13	3,500	12	5	....	2	.....	....	.....	....	...
Littleton	18	1,025	17.56	1,136	15.85	3	....	.....	.....	....	.....	....	...
Lowell	1,857	77,696	23.9	84,359	22.01	185	....	33	1	4	53	....	...
Lynn	1,086	55,727	19.48	63,000	17.24	122	....	13	.....	26	42	....	8
Malden	507	23,031	22.01	33,000	15.36	70	....	7	.....	11	17	3	2
Manchester	31	1,789	17.32	1,900	16.32	4	....	.....	.....	....	.....	....	...
Marblehead	152	8,202	19.48	7,800	19.62	9	....	4	.....	1	13	....	2
Marlboro	263	13,805	19.05	14,980	17.55	17	....	2	1	1	1	1	4
Mattapoisett	28	1,148	24.39	1,100	25.44	.....	....	2	.....	....	.....	....	..
Medford	206	11,079	18.59	15,500	13.29	16	....	3	.....	1	7	2	...
Medway	45	2,985	15.07	3,000	15	1	....	1	.....	....	3	1	...
Melrose	152	8,519	17.72	12,000	12.66	13	....	4	.....	2	6	....	...
Merrimac	38	2,633	14.43	2,300	16.5	1	....	.....	.....	....	.....	....	...
Methuen	101	4,814	20.98	6,000	16.83	22	....	1	1	1	2	....	...
Middleboro	110	6,065	18.13	6,637	16.57	8	....	3	.....	....	2	.....	...
Milbury	89	4,428	20.1	5,500	16.18	14	....	.....	.....	....	2	.....	...
Milton	67	4,278	16.66	5,518	12.14	5	....	2	.....	1	2	1	...
Nantucket	86	3,268	26.31	3,016	28.51	2	....	.....	.....	....	1	....	...
Natick	134	9,118	14.69	9,150	14.64	11	....	2	1	2	2	.....	...
New Bedford	1,055	40,733	25.2	55,254	19.09	97	....	9	1	5	26	2	4
Newburyport	286	13,947	20.5	14,552	19.65	37	....	9	.....	1	1	....	...
Newton	448	24,379	18.37	27,590	16.23	44	....	3	1	1	15	6	...
Northampton	253	14,990	16.87	16,738	15.12	36	....	3	.....	....	1	2	5
Northboro	32	1,952	16.39	1,941	16.42	3	....	.....	.....	2	1	1	...
Northbridge	80	4,603	17.38	5,286	15.13	4	....	2	.....	3	1	....	...
Norton	32	1,785	17.92	1,614	19.82	3	....	2	1	....	.....	....	...
Orange	71	4,568	15.54	5,381	13.19	10	....	.....	.....	....	.....	1	3
Orleans	28	1,219	22.96	1,265	22.13	4	....	2	.....	....	.....	....	...
Oxford	44	2,616	16.82	2,391	18.32	6	....	.....	.....	....	.....	1	2
Palmer	156	6,520	22.87	6,820	22	4	....	1	.....	24	8	9	...
Pembroke	25	1,320	18.94	1,350	18.51	.....	....	.....	.....	....	.....	....	...
Petersham	18	1,050	17.14	952	18.09	1	....	.....	.....	....	1	.....	...
Pittsfield	319	17,281	18.46	20,500	15.56	46	....	3	.....	1	8	....	...
Plymouth	177	7,314	24.06	8,000	22.12	13	....	.....	.....	2	.....	....	...
Quincy	311	16,723	17.99	20,712	14.53	53	....	7	.....	4	16	1	2
Randolph	90	3,946	22.80	3,694	24.36	4	....	.....	.....	1	1	....	...
Reading	81	4,088	19.81	4,900	16.53	5	....	4	.....	1	.....	....	...
Rochester	16	1,012	15.81	1,000	16	.....	....	.....	.....	....	.....	....	...
Rockland	84	5,213	16.11	5,500	15.27	13	....	2	.....	5	.....	....	1
Rowley	13	1,248	14.16	1,280	10.93	.....	....	1	.....	1	.....	....	...
Royalton	21	1,030	20.38	900	33.33	4	....	.....	.....	....	.....	....	...
Salem	648	30,801	21.03	34,473	18.79	51	....	3	1	9	4	....	2
Salisbury	30	1,316	22.76	1,300	23.07	.....	....	.....	.....	....	2	....	...
Sandwich	38	1,819	20.88	1,800	21.11	.....	....	.....	.....	....	.....	....	...
Saugus	82	3,673	22.32	4,497	18.23	6	....	2	.....	9	2	....	...
Scituate	35	2,318	15.09	2,300	15.21	3	....	.....	.....	....	.....	1	...
Seekonk	36	1,317	27.25	1,500	24	2	....	.....	.....	....	.....	....	...
Sharon	36	1,634	22.03	1,500	24	2	....	1	.....	....	2	....	...
Sheffield	21	1,954	10.74	1,887	11.12	.....	....	.....	.....	....	.....	....	...
Shelburne	22	1,553	14.16	1,600	13.75	2	....	.....	.....	....	.....	....	...
Sherborn	23	1,381	16.64	1,446	15.97	1	....	.....	1	....	.....	....	...
Shrewsbury	29	1,449	20.01	1,530	18.95	.....	....	.....	.....	....	.....	....	...
Somerset	28	2,106	13.29	1,900	14.73	1	....	.....	.....	....	.....	....	...
Somerville	838	40,152	20.87	52,600	15.93	91	....	10	1	17	43	....	2
Southampton	11	1,017	10.81	1,054	10.43	.....	....	.....	.....	....	.....	....	...
Southboro	39	2,114	18.44	2,222	17.55	.....	....	.....	.....	....	.....	....	...
Southbridge	168	7,655	21.94	8,220	20.43	23	....	.....	1	....	.....	....	...
South Hadley	87	4,261	20.41	4,400	19.5	4	....	1	1	....	.....	2	...
Spencer	108	8,747	12.34	7,400	14.59	18	....	3	1	....	2	....	...
Sterling	20	1,244	16.07	1,396	13.06	3	....	.....	.....	....	.....	....	1

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Massachusetts—Continued.													
Sturbridge	39	2,074	18.8	2,000	19.5	5	....	.....	1	....	2	....	...
Sutton	61	3,180	19.18	3,420	17.83	5	....	.....	.....	....	.....	1	1
Swampscott	63	3,198	19.7	3,500	18	.....	....	.....	.....	...	1	1	3
Swansea	32	1,456	21.97	1,629	19.64	2	....	.....	.....	2	.....	....	...
Taunton	514	25,448	20.19	27,093	18.97	.....	....	.....	.....	....	26	1	...
Tewksbury	44	2,515	17.49	3,379	13.02	.....	....	.....	.....	1	.....	....	1
Tisbury	24	1,506	15.96	1,002	23.95	.....	....	.....	.....	....	.....	....	...
Topsfield	20	1,022	19.57	1,040	19.22	3	....	.....	.....	....	.....	....	...
Townsend	24	1,750	13.71	1,800	13.33	.....	....	1	.....	....	.....	....	...
Upton	41	1,878	21.83	2,000	20.5	2	....	.....	.....	....	.....	....	1
Uxbridge	62	3,408	18.19	3,500	17.71	.....	....	.....	.....	....	.....	....	...
Wakefield	153	6,982	21.91	8,304	18.43	11	....	2	.....	....	2	....	...
Waltham	323	18,707	17.26	20,877	15.47	32	....	6	.....	3	3	....	...
Wareham	70	3,451	20.28	2,367	29.57	5	....	.....	.....	1	2	....	...
Warren	101	4,681	21.57	4,430	22.79	7	....	3	.....	12	.....	....	...
Watertown	108	7,073	15.26	7,778	13.88	11	....	.....	.....	1	3	....	...
Wayland	30	2,060	14.56	2,000	15	2	....	.....	.....	....	.....	....	...
Webster	112	7,031	15.92	7,000	16	15	....	2	.....	....	3	....	...
Wellesley	48	3,600	13.33	4,229	11.34	4	....	.....	.....	....	3	....	...
Wellfleet	23	1,291	17.83	960	23.96	1	....	.....	.....	....	1	....	...
West Bridgewater	26	1,917	13.56	1,747	14.88	3	....	1	.....	1	.....	....	...
West Boylston	48	3,019	15.89	3,000	16	.....	....	.....	.....	5	.....	....	1
Westfield	182	9,805	18.54	10,624	17.13	16	....	6	.....	4	12	....	2
Westford	34	2,250	15.01	2,418	14.06	.....	....	.....	.....	....	.....	1	...
Westminster	26	1,688	15 4	1,300	20	1	....	.....	.....	....	.....	....	...
Weston	23	1,664	13.82	1,710	13.45	.....	....	.....	.....	....	.....	....	...
Westport	58	2,599	22.31	2,678	21.65	1	....	.....	.....	....	.....	....	...
Weymouth	205	10,866	18.86	11,300	18.14	35	....	4	.....	3	4	2	5
Whitman	86	4,441	19.34	5,670	15.17	12	....	.....	.....	1	1	1	1
Wilbraham	33	1,814	18.19	1,800	18.33	5	....	1	.....	3	1	....	...
Williamsburg	25	2,057	12.15	2,000	12.5	7	....	.....	.....	1	.....	1	1
Williamstown	56	4,221	13.26	1,421	13.26	8	....	3	.....	1	1	....	..
Winchendon	83	4,390	18.67	4,500	18.44	5	....	.....	.....	....	2	....	...
Woburn	300	13,499	22.22	14,178	21.16	15	....	5	.....	17	14	1	1
Worcester	1,827	84,655	21.58	102,000	17.91	228	....	25	1	5	70	....	28
Wrentham	55	2,566	21.43	3,000	18.33	2	....	2	.....	....	.....	....	...
Michigan	4,532	313,907	14.43	402,616	11.25	413	....	104	1	11	96	27	20
Alma	8	1,655	4.83	2,000	4	1	....	1	.....	....	.....	....	...
Bay City	300	27,839	10.77	33,000	9.09	35	....	3	.....	....	13	....	4
Bessemer	44	2,566	17.15	3,500	12.57	2	....	2	.....	....	.....	....	...
Big Rapids	53	5,303	9.99	5,500	9.63	.....	....	.....	.....	....	.....	....	...
Buchanan	20	1,994	10.03	2,000	10	1	....	2	.....	....	.....	....	...
Cassopolis	20	1,369	14.60	1,500	13.33	3	....	.....	.....	....	.....	1	...
Cheboygan	200	6,235	32.07	8,000	25	6	....	.....	.....	....	15	....	...
Chesaning	17	1,056	16.09	2,600	6.54	2	....	.....	.....	....	1	....	...
Decatur	10	1,109	9.11	1,300	7.69	2	....	1	.....	....	.....	....	...
East Tawas	30	2,000	13.63	2,200	13.63	4	....	2	.....	....	.....	....	1
Essexville	15	1,545	9.73	1,900	7.89	2	....	2	.....	....	1	....	3
Flint	133	9,803	13.56	10,045	13.24	18	....	3	.....	....	.....	....	...
Frankfort	10	1,175	8.51	1,500	6.66	2	....	3	.....	....	.....	....	1
Fremont	4	1,097	3.64	1,400	2.85	.....	....	.....	.....	....	.....	....	...
Grand Ledge	31	1,606	19.3	2,300	13.48	5	....	.....	.....	....	.....	....	...
Grand Rapids	1,106	60,278	18.34	90,000	12.29	130	....	25	.....	6	29	11	1
Greenville	44	3,056	14.39	3,000	14.66	3	....	2	.....	....	.....	....	...
Harbor Springs	14	1,052	13.3	1,200	11.66	.....	....	.....	.....	....	.....	....	...
Hartford	16	1,044	15.32	1,100	14.55	1	....	1	.....	....	.....	....	...
Hastings	20	2,972	10.09	3,500	8.57	2	....	.....	.....	....	1	....	...
Hillsdale	52	3,915	13.27	4,200	12.38	7	....	.....	.....	....	.....	....	...
Holland	60	3,945	15.18	7,000	8.55	6	....	3	.....	....	3	....	...
Howard	18	1,137	15.83	1,500	12	1	....	2	.....	....	.....	....	...
Howell	20	2,387	8.38	2,800	7.14	5	....	2	.....	....	2	....	...
Ionia	50	4,482	11.13	5,000	10	7	....	1	.....	....	.....	....	...
Ishpeming	135	11,197	12.05	12,000	11.25	13	....	1	.....	....	.....	....	2

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Michigan—Cont'd.													
Ithaca	15	1,627	9.21	2,500	6	3							
Jackson	330	20,798	15.86	30,000	11	30		2			9	5	3
Jonesville	13	1,288	10.09	1,300	10	2							
Kalamazoo	284	17,853	15.9	23,000	12.35	21		6		2	7	2	1
Kalkaska	16	1,161	13.77	1,300	12.3	2							
Lake Linden	19	1,862	10.2	3,000	6.33								
Lakeview	15	1,024	14.65	1,200	12.5	2		4					
Lansing	163	13,102	12.51	15,847	10.28	22		6			1		
Lapeer	27	2,753	9.81	3,500	7.71	3		3			3		
Mancelona	39	1,205	32.36	2,500	15.6	1		1				2	
Manchester	10	1,191	8.39	1,250	8	1						1	
Manistee	110	12,812	8.66	13,449	8.25	13		4			1	1	
Marquette	195	9,093	21.44	10,000	19.5	3		3			2	1	
Milford	14	1,138	12.32	1,400	10	2							
Mount Clemens	50	4,748	10.53	6,000	8.33	7			1				
Nashville	23	1,029	22.35	1,300	17.69	5					1		
Northville	36	1,573	22.88	2,000	18						1	1	
Owosso	113	6,564	17.19	10,000	11.3			6				1	
Oxford	15	1,128	13.29	1,200	12.5	2		1					
Palmer	4	1,011	3.95	500	8								
Pawpaw	25	1,391	17.97	1,350	18.51	2		1					
Plainwell	12	1,414	8.48	1,500	8								
Pontiac	106	6,200	15.48	7,600	13.94	2		3					
Port Huron	236	13,543	17.42	20,000	11.08			6			4		1
Romeo	40	1,687	23.71	1,800	22.22								
St. John	14	3,127	4.79	3,300	4.24	3		1		1	1		
St. Joseph	46	3,733	12.32	5,000	9.02	3							
St. Louis	34	2,246	15.13	2,300	14	6							
Sandbeach	12	1,046	11.47	2,500	4.08	1							
South Haven	15	1,924	7.78	3,000	5	1				1	1		
Springlake	10	1,168	8.56	900	11.11								
Stanton	10	1,352	7.39	1,500	6.66	4				1			
Sturgis	45	2,489	18.08	2,800	16.07	8		1					2
Tecumseh	35	2,310	15.15	2,500	14	6						1	
Three Rivers	42	3,131	13.41	3,500	12								
Union	3	1,156	2.59	175	17.14								
Whitehall	16	1,903	8.41	1,800	8.88								
Minnesota	4,567	417,588	10.93	534,924	8.53	611		324	36	29	244	33	71
Albert Lea	42	3,305	12.70	4,200	10	7		1			2		
Alexandria	14	2,118	6.61	2,650	5.28	1							
Barnesville	14	1,069	13.09	1,200	11.66	2				1		1	
Brainerd	110	5,703	19.28	7,560	14.55	1		13			1		2
Cannon Falls	15	1,078	13.91	1,300	11.53	3							
Chaska	24	2,210	10.86	2,500	9.6	3							
Chatfield	23	1,335	17.22	1,500	15.33	3		1		1	1		
Cloquet	16	2,530	6.33	3,200	5	1							
Crystal	8	1,074	74.49	800	10			1					
Detroit	12	1,510	7.94	3,000	4								
Duluth	634	32,115	19.14	60,000	10.56	45		153	2	6	7	1	5
Fairmont	17	1,205	14.11	2,200	7.73			1					
Hastings	65	3,705	17	3,800	17.11			2		3	4	1	
Jordan	20	1,233	16.22	1,500	13.33	2						1	
Lake	32	2,128	15.03	2,650	12.07	6							
Luverne	26	1,466	17.72	1,900	13.68	2		6			2		
Minneapolis	2,186	164,738	13.27	225,602	9.68	234		88	30	13	97	17	59
Montgomery	12	1,086	11.05	1,050	11.42	1		2					
New Ulm	73	3,741	19.51	5,000	14.6	10					6		
North St. Paul	14	1,099	12.74	1,020	13.72								
Owatonna	61	3,849	15.85	5,500	11.09	5		3			5	2	
St. Charles	12	1,178	10.18	1,400	8.57			1					
St. Cloud	52	7,686	6.76	9,600	5.42	3		3		2	3	3	2
St. Paul	1,629	133,156	12.23	140,292	11.61	242		38	3	3	107		
Sauk Rapids	13	1,185	10.97	1,400	9.28								1
Sauk Center	17	1,695	10.03	2,100	8.09			4					
Shakopee	33	1,757	18.78	2,200	15						2	1	

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Minnesota—Cont'd.													
Sleepy Eye	17	1,513	11.23	2,000	8.5	1	....	.....	.....	....	.....	....	1
South St. Paul	3	2,242	1.33	3,000	1	2	....	1	.....	....	.....	....	...
South Stillwater	16	1,304	12.20	1,200	13.33	.....	....	.....	.....	....	.....	1	...
Waseca	24	2,482	8.57	2,800	11.66	2	....	2	1	....	1	1	...
West St. Paul	13	1,596	7.14	1,700	7.64	.....	....	.....	.....	....	.....	3	...
White Bear Lake	13	1,356	9.57	1,300	10	5	....	.....	.....	....	.....	....	...
Wilmar	29	1,825	15.88	2,500	11.6	5	....	.....	.....	....	2	1	1
Winnebago	15	1,108	13.53	1,700	8.82	.....	....	2	.....	....	.....	....	...
Winona	263	18,208	14.41	22,700	11.95	25	....	2	.....	....	4	....	...
Mississippi	288	7,683	37.48	27,000	10.66	25	....	3	21	....	1	4	10
Biloxi	94	3,234	29.06	5,000	18.80	13	....	.....	1	....	.....	4	...
Iuka	8	1,019	7.85	1,000	8	2	....	2	.....	....	.....	....	...
Pass Christian	34	1,705	19.94	2,000	17	.....	....	.....	.....	....	1	....	...
Starkville	152	1,725	88.11	19,000	8	10	....	1	20	....	.....	....	10
Missouri	10,207	500,251	20.40	622,240	16.40	1,066	73	147	49	26	544	192	34
Booneville	60	4,141	14.49	4,200	14.28	5	....	.....	.....	....	.....	....	...
Bowling Green	8	1,564	5.11	2,000	4	2	....	1	.....	....	.....	....	...
Cameron	80	2,917	27.42	3,100	25.08	8	....	4	.....	....	4	3	...
Carthage	199	7,981	24.93	11,000	18.09	.....	....	.....	.....	....	.....	....	...
Chillicothe	70	5,717	12.24	7,000	10	2	....	10	.....	....	2	2	...
Clinton	54	4,737	11.4	7,200	7.5	7	....	3	3	....	5	....	...
Corder	9	1,145	7.86	700	12.85	1	....	.....	.....	....	.....	2	...
Crystal City	23	1,104	12.77	1,800	12.8	4	....	.....	.....	....	.....	....	4
Deepwater	12	1,102	10.89	1,800	6.66	1	....	4	.....	....	.....	4	3
Grant	15	1,186	12.64	1,100	13.64	2	....	.....	1	....	2	2	...
Harrisonville	3	1,645	1.82	2,500	1.2	1	....	.....	.....	....	1	....	...
Higbee	15	1,093	13.72	1,500	10	5	....	.....	2	....	.....	3	...
Kirkwood	12	1,777	6.75	2,000	6	.....	....	.....	.....	....	.....	....	...
Laplata	50	1,160	42.77	1,800	27.22	5	....	10	5	4	7	2	4
Lexington	51	4,537	11.24	6,000	8.5	7	....	2	.....	....	1	....	...
Mound City	62	1,193	51.97	1,740	35.63	2	....	2	.....	2	.....	....	...
St. Louis	9,425	451,770	20.86	560,000	16.83	1,000	73	107	38	20	522	171	23
Webster Grove	26	1,783	14.58	2,000	13	4	....	.....	.....	....	.....	2	...
Wellsville	16	1,138	14.06	1,600	10	3	....	2	.....	....	.....	1	...
Weston	.....	1,134	.....	1,200	.....	3	....	1	.....	....	.....	....	...
Windsor	17	1,427	11.91	2,000	8.5	4	....	1	.....	....	.....	....	...
Montana	46	3,201	14.36	5,000	9.20	4	....	1	.....	1	.....	....	2
Bozeman	31	2,143	14.46	3,500	8.85	3	....	1	.....	1	.....	....	2
Phillipsburg	15	1,058	14.18	1,500	10	1	....	.....	.....	....	.....	....	...
Nebraska	1,897	241,342	7.86	241,154	7.87	185	....	67	2	48	75	16	30
Aurora	19	1,862	10.20	2,000	9.50	1	....	1	.....	1	1	1	...
Blair	35	2,069	16.91	3,000	11.66	3	....	.....	.....	....	11	6	...
Chadron	6	1,867	3.21	3,000	2	1	....	1	.....	....	1	1	...
Edgar	12	1,105	10.86	1,500	8	2	....	.....	.....	....	1	....	...
Fairbury	17	2,630	6.46	4,000	4.25	1	....	.....	.....	....	.....	....	...
Fairmont	9	1,029	8.74	1,200	7.5	.....	....	1	.....	....	.....	....	...
Fremont	65	6,747	9.63	8,500	7.65	10	....	2	.....	1	.....	....	...
Hebron	11	1,502	7.32	2,000	5.5	2	....	2	.....	....	.....	....	...
Kearney	54	8,074	6.67	6,000	9	10	....	1	1	....	3	2	...
Lincoln	336	55,154	6.09	50,000	6.72	5	....	24	.....	3	12	4	3
McCook	14	2,346	5.96	2,500	5.6	.....	....	.....	.....	....	5	2	...
Neligh	8	1,209	6.61	1,000	8	1	....	3	.....	....	.....	....	...
Omaha	1,172	140,452	8.34	140,000	8.37	122	....	29	1	43	41	....	26
O'Neil	6	1,226	4.89	1,800	3.33	.....	....	1	.....	....	.....	....	...
Superior	14	1,614	8.66	2,100	6.66	2	....	.....	.....	....	.....	....	...
Sutton	11	1,541	7.13	1,754	6.27	1	....	1	.....	....	.....	....	1
Virginia City	88	8,511	10.33	6,000	14.66	21	....	4	.....	....	.....	....	...
Wayne	14	1,178	15.22	3,000	4.66	1	....	.....	.....	....	.....	....	...
Wilbur	6	1,226	4.81	1,800	3.33	2	....	.....	.....	....	.....	....	...

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
New Hampshire...	3,782	193,891	19.50	219,446	17.23	278	....	61	5	46	37	29	10
Allenstown	35	1,475	23.72	1,500	23.33	.....	....	.....	.....	....	.....	....	...
Alton	25	1,372	18.22	1,350	18.51	1	....	2	.....	....	.....	....	1
Andover	22	1,090	20.18	1,200	18.33	2	....	.....	.....	....	.....	....	...
Antrim.....	25	1,248	20.03	1,300	19.23	1	....	.....	.....	....	1	1	...
Bedford	24	1,102	21.77	1,000	24	5	....	.....	1	....	.....	....	...
Belmont.....	21	1,142	18.39	1,142	18.39	.....	....	.....	.....	....	.....	....	...
Bethlehem	23	1,267	18.15	1,400	16.42	1	....	.....	.....	1	.....	1	...
Canaan.....	21	1,417	14.85	1,417	14.85	1	....	.....	.....	....	.....	....	...
Candia.....	30	1,108	27.07	1,100	27.27	.....	....	.....	.....	....	.....	....	...
Chesterfield.....	19	1,046	18.16	1,200	15.83	.....	....	.....	.....	....	.....	....	...
Charleston	26	1,466	17.73	1,500	17.33	1	....	.....	.....	....	.....	1	...
Concord.....	351	17,004	20.64	19,000	18.47	31	....	3	.....	8	8	....	1
Dover.....	213	12,790	17.04	13,000	16.39	22	....	5	.....	....	1	1	1
Enfield.....	27	1,469	18.38	1,600	16.87	1	....	.....	.....	....	.....	....	...
Epping.....	42	1,721	24.40	1,500	28	.....	....	.....	.....	1	.....	....	...
Exeter	122	4,284	28.47	4,800	25.41	7	....	.....	.....	....	.....	2	1
Farmington.....	57	3,064	18.60	3,000	19	1	....	.....	.....	....	.....	....	...
Fitzwilliam	19	1,122	16.93	1,150	16.52	.....	....	.....	.....	....	.....	....	...
Franklin	84	4,085	20.56	5,135	16.35	7	....	1	.....	2	.....	....	...
Gilford	18	3,585	5.02	800	22.5	.....	....	.....	.....	....	.....	....	...
Gilmanton	21	1,211	18.16	1,211	18.16	1	....	.....	.....	....	.....	....	...
Gorham	18	1,710	10.53	1,800	10	1	....	.....	.....	....	.....	....	...
Hanover	31	1,817	17.06	1,800	17.22	2	....	.....	.....	....	2	....	1
Henniker	13	1,385	9.35	1,350	9.63	1	....	.....	.....	....	.....	....	...
Hinsdale.....	40	2,258	18.18	2,200	19	4	....	1	.....	....	.....	....	...
Hollis.....	14	1,000	14	1,200	11.66	1	....	.....	.....	....	.....	....	...
Hopkinton	25	1,817	13.75	1,817	13.75	.....	....	1	.....	....	.....	....	...
Jaffrey	31	1,469	21.1	1,500	20.66	4	....	1	.....	....	.....	1	1
Jefferson.....	17	1,062	16.01	1,200	14.16	4	....	1	.....	....	.....	....	...
Keene.....	126	7,446	13.44	8,000	15.75	15	....	2	.....	....	1	....	...
Kingston.....	26	1,120	23.26	1,200	21.66	1	....	.....	.....	1	.....	....	...
Laconia.....	143	6,143	23.27	12,000	11.91	6	....	3	.....	....	3	1	...
Lancaster.....	33	3,373	9.75	3,600	9.17	4	....	.....	.....	....	2	....	...
Littleton.....	54	3,366	16.04	4,000	13.5	4	....	1	.....	....	.....	1	1
Londonderry....	22	1,220	18.03	531	41.43	3	....	1	.....	....	.....	....	...
Loudon.....	22	1,000	22	1,000	22	.....	....	.....	.....	....	.....	....	...
Manchester	1,020	44,126	23.12	55,000	18.54	80	....	21	1	4	11	11	...
Marlboro.....	33	1,695	19.46	1,700	19.41	2	....	.....	.....	2	1	....	...
Milan	11	1,029	10.69	1,100	10	.....	....	.....	.....	....	.....	....	...
Moultonboro	13	1,034	12.57	1,250	10.4	1	....	.....	.....	....	.....	....	...
Nashua	420	19,311	21.74	25,000	16.8	33	....	9	2	25	6	....	2
New Boston.....	19	1,067	17.81	1,067	17.81	.....	....	.....	.....	....	.....	....	...
Newmarket.....	61	2,742	22.25	3,000	20.33	5	....	3	.....	....	.....	6	...
Newton	13	1,064	12.21	1,100	11.8	2	....	.....	.....	....	.....	....	...
Ossipee.....	36	1,630	22.81	1,800	20	.....	....	.....	.....	....	.....	....	...
Peterboro	40	2,507	19.95	2,500	16	1	....	1	.....	....	.....	1	...
Plainfield	16	1,173	13.64	1,000	16	2	....	.....	.....	....	.....	....	...
Plaistow	19	1,085	17.51	1,000	19	2	....	1	1	2	.....	....	...
Rollinsford.....	20	2,003	9.82	2,003	9.82	4	....	1	.....	....	.....	....	...
Salem	27	1,805	14.95	1,800	15	.....	....	.....	.....	....	.....	....	...
Sanborntown ...	14	1,027	13.63	1,000	14	.....	....	.....	.....	....	.....	....	...
Sandwich	34	1,303	26.09	1,300	26.15	3	....	.....	.....	....	1	....	...
Seabrook.....	25	1,672	14.95	1,683	14.85	.....	....	.....	.....	....	.....	....	...
Swanzey	28	1,600	17.5	1,600	17.5	2	....	1	.....	....	.....	....	...
Tilton.....	29	1,521	19.06	1,500	19.33	2	....	2	.....	....	.....	1	1
Warner	28	1,383	20.24	1,500	18.66	5	....	.....	.....	....	.....	1	...
Wolfboro	36	3,020	11.92	3,030	11.88	2	....	.....	.....	....	.....	....	...
New Jersey.....	11,016	462,713	23.81	549,290	20.05	1,085	2	241	11	114	323	96	61
Bayonne	409	19,033	21.48	19,856	20.60	33	....	3	.....	5	10	2	3
Belvidere	24	1,768	13.57	2,000	12	.....	....	1	.....	....	.....	....	...
Beverly	43	1,957	21.97	2,000	21.50	.....	....	.....	.....	....	.....	....	...
Bordentown	73	4,232	17.25	5,500	13.27	8	....	3	1	....	1	....	...
Boundbrook.....	36	1,462	24.62	2,000	18	.....	....	.....	.....	....	.....	....	...
Camden.....	1,346	58,313	23.08	65,000	20.7	89	....	45	2	2	29	21	3

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

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New Jersey—Continued.													
Carlstadt	33	1,549	21.30	2,000	16.5	.....	....	.....	.....	....	.....	....	...
Clayton	32	1,807	17.7	2,000	16	5	....	.....	.....	....	.....	....	...
Egg Harbor	23	1,439	15.98	1,557	14.77	1	....	.....	.....	....	.....	....	...
Florence	29	1,340	21.64	1,762	16.45	6	....	.....	.....	....	7	....	1
Fort Lee	31	1,253	24.74	1,670	18.56	2	....	.....	.....	....	.....	....	1
Freehold	53	2,932	18.07	3,800	13.94	10	....	1	.....	....	4	....	...
Haddonfield	17	2,502	6.79	2,800	6.07	3	....	1	.....	1	1	1	...
Hammonton	65	3,833	16.95	4,000	16.25	11	....	.....	1	....	1	1	1
Hoboken	1,240	43,648	22.54	55,000	22.55	127	....	13	.....	38	52	39	6
Jersey City	4,325	163,003	26.53	183,713	23.67	495	....	134	2	54	108	....	40
Long Branch	110	7,231	15.35	10,000	11	.....	....	.....	.....	....	.....	....	...
Matawan	62	1,491	41.58	3,400	18.53	.....	....	.....	.....	....	.....	1	1
Morristown	222	8,156	27.22	10,000	22.2	.....	....	1	.....	2	1	....	...
Oxford	50	2,383	20.98	2,500	20	2	....	.....	.....	....	3	....	...
Palmyra	21	1,903	11.03	2,310	9.09	1	....	1	1	....	.....	....	1
Paterson	1,707	78,347	21.78	100,000	17.07	207	2	21	.....	8	67	27	...
Perth Amboy	314	9,512	33.01	13,000	24.15	17	....	2	.....	2	6	....	...
Plainfield	239	11,267	21.21	12,000	19.91	21	....	4	.....	....	6	1	2
Rahway	160	7,105	22.65	8,000	20	16	....	3	.....	1	6	....	2
Redbank	61	4,145	14.71	5,200	11.73	5	....	3	.....	....	.....	....	..
Ridgewood	29	1,047	27.69	2,500	11.6	2	....	2	.....	....	3	....	...
Riverside	11	1,340	8.21	1,800	6.11	1	....	1	.....	....	3	....	...
Salem	118	5,516	21.34	6,342	18.6	.....	....	.....	.....	1	8	2	...
South Amboy	104	4,330	24.01	5,500	19.27	8	....	.....	4	....	6	....	...
South Orange	24	3,106	7.72	4,000	6	.....	....	1	.....	....	.....	....	...
Springville	28	1,883	14.87	2,280	12.28	5	....	.....	.....	....	1	1	...
Tenafly	18	1,046	17.21	1,800	10	2	....	.....	.....	....	.....	....	...
Washington	59	2,834	20.81	4,000	14.75	8	....	1	.....	....	.....	....	...
New Mexico	48	3,448	13.92	4,500	10.67	24	....	.....	2	....	2	1	...
Deming	13	1,136	9.28	1,400	9.28	3	....	.....	2	....	2	1	...
East Las Vegas	35	2,312	15.13	3,100	11.29	21	....	.....	.....	....	.....	....	...
New York	88,026	3,440,863	25.58	4,392,042	20.04	9,545	11	1,113	1,188	694	3,368	782	899
Adams	29	1,360	21.37	1,500	19.33	2	....	.....	.....	....	.....	....	...
Akron	90	1,492	60.32	1,800	50	.....	....	.....	.....	....	.....	....	...
Albany	2,342	94,923	24.67	98,000	23.89	.....	....	162	66	14	51	....	6
Albion	78	4,586	17	5,500	15.6	.....	....	.....	.....	....	.....	....	...
Alexandria Bay	14	1,123	12.29	1,300	10.76	.....	....	.....	.....	....	.....	....	...
Amityville	35	2,293	15.26	2,300	15.21	2	....	.....	.....	....	11	1	...
Athens	35	2,024	17.29	2,800	12.5	3	....	.....	.....	....	.....	....	...
Auburn	474	25,858	18.33	30,000	15.80	53	....	14	.....	3	5	....	4
Avon	20	1,653	12.09	1,700	11.76	3	....	.....	1	....	.....	....	...
Ballston Spa	53	3,527	15.02	4,000	13.25	.....	....	.....	.....	....	.....	....	...
Bath on Hudson	11	2,399	4.58	3,000	3.66	3	....	1	.....	....	.....	....	...
Binghamton	588	35,005	16.79	42,000	14	63	....	15	.....	....	26	....	...
Boonville	53	1,613	32.85	3,500	15.14	4	....	1	.....	....	.....	1	...
Brockport	57	3,742	15.23	3,742	15.23	9	....	1	.....	....	1	...	...
Brooklyn	22,568	806,343	27.97	1,080,000	20.89	2,299	1	173	192	124	1,139	315	263
Buffalo	4,074	255,664	15.93	335,709	12.13	452	....	98	99	22	150	63	38
Cambridge	37	1,598	23.15	1,500	24.66	5	....	.....	1	....	.....	....	...
Canandaigua	106	5,868	18.08	5,868	18.08	12	....	1	.....	....	.....	....	...
Canajoharie	30	2,089	14.13	4,500	6.66	4	....	1	.....	....	.....	....	...
Canton	87	2,580	33.72	6,000	14.5	3	....	.....	.....	1	.....	....	...
Cape Vincent	36	1,324	27.19	3,000	12	1	....	.....	.....	....	.....	....	...
Carthage	39	2,378	17.12	3,000	13	3	....	10	.....	....	1	....	2
Castile	29	1,146	25.30	2,450	11.8	1	....	1	.....	....	1	1	...
Catskills	82	4,920	16.67	5,000	16.4	4	....	1	.....	....	1	....	...
Cazenovia	65	1,987	32.71	2,000	32.5	3	....	1	.....	....	.....	....	...
Chateaugay	31	1,172	26.45	3,100	10	4	....	.....	.....	2	.....	1	...
Cobleskill	56	1,822	30.73	3,443	16.26	2	....	2	.....	1	.....	....	...
Cohoes	493	22,509	21.89	24,000	20.54	59	....	23	2	2	4	2	5
College Point	99	6,127	16.15	6,700	14.77	8	....	.....	.....	....	6	....	...
Corinth	54	1,222	44.29	2,000	27	2	....	3	.....	....	.....	....	...

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
New York—Cont'd.													
Cortland	147	8,590	17.11	10,500	13.33	22	....	4	.....	....	2	....	...
Coxsackie	88	1,611	54.62	3,824	23.01	11	....	5	.....	....	.....	....	1
Cuyahoga	39	2,614	15	3,500	11.14	4	....	1	.....	....	1	....	...
Delhi	50	1,564	31.96	3,000	16.66	2	....	1	1	....	.....	....	...
Deposit	28	1,530	18.30	2,500	11.2	5	....	.....	.....	....	.....	1	...
Dobbs Ferry	50	2,083	24	2,500	20	1	....	.....	.....	....	2	2	...
Dundee	24	1,200	20.09	1,200	20	.....	....	.....	.....	....	.....	....	...
Dunkirk	149	9,416	15.82	10,040	14.84	5	....	.....	.....	....	13	....	...
East Aurora	72	1,582	45.51	4,000	18	.....	....	4	.....	....	.....	....	...
East Syracuse	31	2,231	13.89	3,000	10.33	6	....	.....	.....	....	.....	....	...
Ellenville	52	2,881	14.58	4,000	13	7	....	4	.....	....	5	....	...
Far Rockaway	39	2,288	17.04	3,000	13	4	....	.....	.....	....	1	....	...
Fayetteville	32	1,410	22.69	1,400	22.85	2	....	1	.....	....	.....	....	...
Flushing	192	8,436	22.76	11,000	17.45	28	....	6	.....	1	10	3	...
Fort Plain	44	2,864	15.36	3,000	14.66	4	....	2	.....	....	.....	....	...
Frankfort	77	2,291	33.61	3,000	25.66	1	....	.....	.....	....	1	....	1
Franklinville	22	1,021	21.55	2,000	11	.....	....	.....	.....	....	.....	....	...
Fredonia	57	3,399	16.77	3,500	16.29	1	....	2	.....	....	.....	....	1
Gloversville	203	13,864	14.64	18,000	11.28	32	....	6	.....	1	.....	1	1
Greene	63	1,067	59.04	5,000	12.6	.....	....	1	.....	....	1	....	...
Greenwich	34	1,663	20.44	2,500	13.6	8	....	.....	.....	....	1	....	...
Hancock	12	1,279	9.39	1,400	8.57	2	....	.....	.....	....	.....	....	...
Hastings	29	1,466	19.78	1,600	18.12	4	....	.....	.....	....	1	1	...
Havana	13	1,751	7.42	1,300	10	3	....	.....	.....	....	.....	....	...
Haverstraw	72	5,070	14.2	5,100	14.12	1	....	2	.....	2	1	....	2
Highland Falls	35	2,237	15.65	2,400	14.5	1	....	2	.....	....	1	....	...
Hornellsville	144	10,996	13.09	12,000	12	10	....	4	.....	....	2	1	...
Hudson	175	9,970	17.55	10,000	17.5	22	....	3	.....	....	2	1	...
Huntington	108	3,028	35.66	8,400	12.85	8	....	1	.....	....	.....	....	2
Jordan	20	1,271	15.73	1,500	13.33	3	....	.....	.....	....	.....	....	...
Leroy	79	2,743	28.8	5,000	15.8	4	....	6	1	....	1	....	...
Lima	12	1,003	11.96	1,000	12	.....	....	.....	.....	....	.....	....	...
Lockport	231	16,038	14.43	18,000	12.83	20	....	7	4	1	3	1	1
Long Island City	917	30,506	30.05	50,000	18.34	80	....	14	12	3	47	....	11
Marathon	23	1,198	19.19	18,006	12.73	.....	....	1	.....	....	.....	....	...
Massena	16	1,049	15.25	1,200	13.33	1	....	2	.....	....	.....	....	...
Mayville	20	1,164	17.18	1,200	17.66	4	....	1	.....	....	.....	....	1
Medina	62	4,492	13.8	5,000	12.4	5	....	.....	.....	....	1	1	...
Mexico	24	1,315	18.25	1,325	18.11	3	....	1	.....	....	.....	....	...
Middleport	15	1,217	12.33	1,500	10	.....	....	.....	.....	....	.....	....	...
Mohawk	30	1,806	16.61	2,000	15	1	....	.....	.....	....	.....	....	...
Montgomery	29	1,024	28.32	1,037	27.96	5	....	.....	.....	....	.....	1	...
Mount Kisco	30	1,095	27.39	1,200	25	5	....	1	.....	....	.....	....	..
Mount Vernon	301	10,830	27.79	18,000	16.72	33	....	4	.....	2	10	2	9
New Brighton	413	16,423	25.14	18,000	22.94	29	....	10	.....	6	6	1	6
Newburg	426	23,087	18.45	26,000	16.38	47	....	6	.....	1	5	3	3
New York	43,420	1,515,301	28.65	1,879,195	23.11	5,205	a10	322	793	468	1,634	342	496
Niagara Falls	239	5,502	43.43	16,853	14,18	22	....	18	2	2	11	....	1
North Tarrytown	54	3,179	16.98	4,500	12	6	....	.....	.....	1	2	....	...
Norwood	26	1,463	17.77	1,600	16.25	6	....	.....	.....	....	.....	....	...
Nyack	79	4,111	19.21	5,603	14.1	5	....	.....	.....	3	4	2	4
Olean	102	7,358	13.86	9,100	11.21	12	....	3	2	....	1	....	...
Oneida	100	6,083	16.42	6,000	16.66	13	....	2	.....	....	.....	....	...
Oneonta	139	6,272	22.16	8,000	17.37	14	....	7	.....	1	3	1	...
Oswego	334	21,842	15.27	25,000	13.36	59	....	1	.....	1	17	....	1
Oswego Falls	42	1,821	23.06	2,500	16.8	6	....	.....	.....	....	.....	2	...
Oxford	41	1,477	27.76	3,500	11.71	4	....	.....	.....	....	.....	....	...
Penn Yan	64	4,254	15.04	4,254	15.04	.....	....	.....	.....	....	.....	....	...
Port Byron	31	1,105	28.05	2,500	12.4	2	....	1	.....	....	.....	....	1
Port Ewen	35	1,211	28.89	1,500	23.33	1	....	1	.....	....	.....	....	1
Port Jervis	161	9,327	17.26	10,000	16.1	14	....	6	2	....	4	6	...
Potsdam	65	3,961	16.41	5,000	13	2	....	.....	.....	....	1	....	...
Poughkeepsie	481	22,206	21.66	25,000	19.24	47	....	10	.....	4	8	....	1
Rhinebeck	55	1,649	15.71	3,500	15.43	3	....	.....	.....	....	.....	....	...
Richfield Springs	49	1,623	30.19	1,650	29.69	2	....	2	.....	....	.....	....	...

a Smallpox and varioloid.

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
New York—Cont'd.													
Rochester	2,356	133,896	17.59	160,000	14.72	312	....	38	.....	4	61	....	14
Rosendale	106	1,706	62.13	6,125	17.31	1	....	10	.....	2	1	1	3
St. Johnsville	25	1,263	16.79	1,900	13.16	3	....	1	.....	....	.....	....	...
St. Regis Falls	27	1,210	22.31	2,000	13.5	2	....	1	.....	....	.....	2	...
Sandyhill	56	2,895	19.34	3,500	16	4	....	.....	.....	....	.....	2	4
Schenectady	436	19,902	21.9	25,000	17.44	48	....	17	.....	2	2	1	2
Schoharie	36	1,028	25.01	3,250	11.07	6	....	1	.....	....	.....	....	...
Schuylerville	20	1,387	14.42	1,800	11.11	1	....	.....	3	1	.....	....	...
Sidney	83	1,358	61.11	5,000	16.6	8	....	2	.....	....	.....	....	...
Silvercreek	36	1,678	21.45	2,000	18	1	....	1	.....	....	.....	....	...
South Glen Falls	42	1,606	26.09	2,000	21	5	....	1	.....	....	3	1	...
Spring Valley	30	1,028	29.18	1,300	23.07	6	....	2	.....	1	4	2	...
Tonawanda	111	7,145	15.52	9,000	12.33	15	....	2	4	3	4	3	...
Unadilla	57	1,157	4.92	1,200	4.75	3	....	.....	.....	....	.....	....	...
Union Springs	15	1,066	14.07	900	16.66	.....	...	.....	.....	....	.....	....	...
Utica	898	44,007	19.76	50,000	17.96	114	....	8	.....	1	5	2	...
Walden	32	2,132	15.01	2,200	14.54	1	....	.....	.....	....	1	....	...
Walton	57	2,299	24.79	9,000	6.33	2	....	5	.....	....	4	2	...
Wappinger Falls	74	3,718	19.9	3,718	19.9	12	....	2	.....	1	4	2	...
Warwick	95	1,537	61.8	6,000	15.83	13	....	.....	.....	....	1	....	...
Watertown	326	14,725	22.13	22,000	14.81	36	....	26	.....	8	3	....	...
Waterville	20	2,024	9.88	1,800	11.11	3	....	.....	.....	1	.....	....	...
Waverly	54	4,123	13.09	5,000	10.8	7	....	1	.....	....	2	....	...
Wellsville	34	3,435	9.86	5,050	6.75	4	....	5	.....	....	.....	....	...
Whiteplains	162	4,042	40.07	6,000	27	7	....	1	.....	1	1	....	...
Whitestone	52	2,808	18.51	3,500	14.85	4	....	.....	1	....	1	....	...
Yonkers	785	32,033	24.55	36,000	21.8	66	...	6	2	3	73	8	14
North Carolina	1,144	59,610	19.19	77,450	14.77	209	....	42	25	3	1	4	10
Asheville	143	10,235	13.97	15,000	9.53	49	....	4	.....	....	.....	....	...
Durham	50	5,485	9.11	6,000	8.33	8	....	2	.....	....	1	....	...
Goldsboro	79	4,017	19.66	5,400	14.63	1	....	2	1	1	.....	....	2
Henderson	47	4,191	11.21	4,250	11.06	10	....	3	.....	....	.....	....	4
Monroe	20	1,866	10.71	3,000	6.66	1	....	1	6	1	.....	1	...
Newton	8	1,038	7.71	1,800	4.44	1	....	.....	2	....	.....	....	...
Oxford	42	2,907	14.44	2,500	16.8	8	....	1	.....	....	.....	....	...
Plymouth *a*	26	1,212	21.45	2,500	10.4	1	....	1	.....	....	.....	1	...
Raleigh	308	12,678	24.29	16,000	19.25	40	....	13	2	1	.....	2	...
Salisbury	30	4,418	6.79	5,000	6	5	....	2	5	....	.....	....	3
Washington	118	3,545	33.28	6,000	19.66	10	....	6	.....	....	.....	....	1
Winston	273	8,018	34.04	10,000	27.3	73	....	7	9	....	.....	....	...
North Dakota	31	4,432	6.99	5,700	5.44	2	....	3	2	....	3	....	...
Grafton	11	1,594	6.9	2,200	5	.....	....	.....	.....	....	3	....	...
Mandan	8	1,328	6.02	1,600	5	.....	....	.....	.....	....	.....	....	...
Wahpeton	12	1,510	7.84	1,900	6.31	2	....	3	2	....	.....	....	...
Ohio	15,496	932,442	16.62	1,192,287	12.99	1,524	14	554	42	271	423	176	57
Ada	22	2,079	10.58	2,300	9.56	.....	....	.....	.....	....	.....	....	1
Antwerp	22	1,331	16.52	1,600	13.75	6	....	.....	.....	....	1	....	...
Arcanum	20	1,134	17.63	1,500	13.33	.....	....	.....	.....	....	.....	....	...
Ashtabula	159	8,338	19.06	12,000	13.25	17	....	3	6	6	14	2	1
Bellaire	142	9,934	14.29	10,000	14.20	15	....	7	.....	3	5	....	...
Bellefontaine	84	4,245	19.78	7,000	12	.....	....	.....	.....	....	.....	....	...
Blanchester	23	1,196	19.23	1,496	15.37	3	....	2	.....	....	.....	....	...
Bryan	39	3,068	12.71	4,000	9.75	4	....	2	.....	....	.....	1	...
Bucyrus	84	5,974	14.06	7,000	12	15	....	7	.....	....	3	1	1
Carthage	33	2,257	14.62	2,500	13.2	5	....	.....	.....	....	.....	....	...
Carey	25	1,605	15.57	2,000	12.5	.....	....	.....	.....	....	1	....	...
Celina	31	2,702	11.47	3,500	8.85	7	....	3	2	3	11	4	1
Chagrin Falls	14	1,243	11.26	1,800	7.77	4	....	2	.....	....	.....	....	...
Chicago Junction	20	1,299	15.39	2,800	7.14	3	....	.....	.....	....	.....	1	...
Circleville	166	6,556	24.36	7,000	23.71	17	....	6	.....	3	1	1	3

a For year ended February 29, 1896.

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Ohio—Continued.													
Cleveland	5,167	261,353	19.77	325,000	15.89	454	1	117	5	117	124	74	8
Clyde	42	2,327	18.04	3,000	14	4	....	1	.....	....	.....	1	...
Columbus	1,504	88,150	17.06	130,000	11.56	230	....	56	.....	18	76	....	5
Columbus Grove	9	1,677	5.37	2,000	4.5	2	....	2	.....	....	.....	....	...
Conneaut	58	3,241	17.89	5,000	11.06	5	....	3	4	....	.....	....	...
Coshocton	74	3,672	20.48	5,000	14.08	12	....	2	3	....	3	3	...
Defiance	101	7,694	13.12	12,000	8.42	.....	....	.....	.....	....	.....	....	...
Degraff	17	1,076	15.80	1,300	13.07	2	....	.....	.....	....	.....	....	1
Delaware	131	8,224	15.93	10,000	13.1	29	....	8	.....	1	3	2	1
Delphos	60	4,516	13.28	4,500	13.33	10	....	8	.....	....	1	....	1
Doylestown	8	1,131	7.07	1,306	6.12	2	....	1	.....	....	.....	....	...
East Liverpool	148	10,956	13.50	15,000	9.86	12	....	9	.....	1	2	2	...
East Palestine	12	1,816	6.61	2,000	6	2	....	.....	.....	....	.....	....	...
Findlay	165	18,553	8.89	20,000	8.25	33	....	6	.....	1	1	2	...
Fostoria	61	7,070	8.62	9,000	6.66	7	....	4	.....	1	1	6	...
Franklin	33	2,729	12.09	3,200	10.31	8	....	1	.....	....	2	....	...
Galion	80	6,326	12.64	7,000	11.43	7	....	2	.....	....	2	5	...
Gallipolis	62	4,498	13.78	5,000	12.4	14	....	1	.....	1	3	....	...
Geneva	38	2,194	17.32	2,800	13.57	3	....	.....	.....	....	.....	....	...
Germantown	14	1,437	9.74	2,000	7	.....	....	.....	.....	....	.....	....	...
Glendale	13	1,444	9	1,447	8.98	.....	....	.....	.....	....	1	....	...
Greenville	55	5,473	10.04	5,500	10	7	....	3	.....	....	.....	....	...
Hamilton	359	17,565	20.43	22,000	16.32	22	....	13	.....	....	7	1	1
Hartwell	18	1,507	11.94	1,800	10	5	....	.....	.....	....	2	....	...
Holgate	10	1,134	8.82	1,600	6.25	8	....	2	.....	....	.....	....	...
Ironton	203	10,939	18.55	10,939	18.55	.....	....	.....	.....	8	23	8	...
Jackson	74	4,320	17.13	6,000	12.33	.....	....	4	.....	2	.....	....	...
Kent	55	3,501	12.85	4,000	13.75	3	....	2	.....	1	1	1	...
Lebanon	33	3,050	10.82	3,500	9.43	8	....	.....	.....	....	2	....	...
Leetonia	56	2,826	19.81	3,500	16	5	....	3	.....	....	.....	....	2
Lima *a*	193	15,981	12.07	20,000	9.65	18	....	6	.....	2	1	2	7
Lockland	48	2,474	19.04	3,000	16	4	....	1	.....	....	3	....	...
Logan	34	3,119	10.09	3,450	9.85	5	....	1	.....	....	.....	....	...
Loudonville	24	1,444	16.62	1,500	16	6	....	.....	.....	....	.....	....	...
Lorain	194	4,863	39.89	11,000	17.63	17	....	17	.....	7	.....	....	...
McConnelsville	15	1,771	8.41	2,000	7.5	4	....	.....	.....	....	.....	....	...
Madisonville	23	2,214	10.39	3,000	7.66	5	....	.....	.....	....	.....	....	...
Mansfield	259	13,473	19.22	18,000	14.39	10	....	11	2	....	1	....	...
Marietta	90	8,273	10.81	10,000	9	10	....	7	.....	1	2	....	...
Marion	126	8,327	15.13	11,000	11.45	.....	....	.....	.....	....	18	....	...
Martins Ferry	156	6,250	24.95	6,500	24	.....	7	4	.....	....	.....	....	...
Marysville	31	2,810	11.03	3,000	10.33	3	....	12	.....	....	.....	....	...
Massillon	118	10,092	11.69	12,500	9.44	10	....	3	.....	2	5	....	...
Mechanicsburg	22	1,459	15.07	2,200	10	6	....	2	.....	....	.....	....	...
Miamisburg	40	2,952	13.55	4,000	10	4	....	3	.....	....	.....	1	...
Middletown	95	7,681	12.36	10,000	9.5	20	....	1	.....	....	1	....	...
Minerva	7	1,139	6.14	1,350	5.18	.....	....	2	.....	....	.....	....	...
Mingo Junction	22	1,856	11.85	2,000	11	2	....	.....	1	....	.....	11	...
Montpelier	33	1,293	25.52	2,400	13.75	7	....	3	.....	1	.....	....	...
Mount Vernon	77	6,027	12.77	6,016	12.79	7	....	4	.....	....	.....	....	...
Nelsonville	59	4,558	12.94	5,500	10.73	7	....	6	.....	....	.....	....	...
New Lisbon	41	2,278	17.99	3,000	13.66	9	....	4	.....	....	1	....	1
New London	20	1,096	18.25	1,200	16.66	1	...	.....	.....	....	.....	....	...
New Philadelphia	78	4,456	17.86	5,673	13.87	7	....	9	.....	....	4	3	...
New Straitsville	33	2,782	11.86	3,000	11	9	....	.....	.....	1	.....	2	...
North Baltimore	20	2,857	7	4,000	5	1	....	1	1	....	4	3	...
Oak Harbor	8	1,681	4.76	1,700	4.7	.....	....	1	.....	....	.....	....	...
Oberlin	55	4,376	12.56	4,600	11.95	7	....	2	.....	....	.....	....	...
Ottawa	26	1,717	15.14	2,500	10.4	3	....	4	.....	....	.....	....	1
Painesville	75	4,755	15.77	5,000	15	8	....	.....	2	2	.....	....	...
Perrysburg	26	1,747	14.88	2,000	13	2	....	1	.....	....	2	....	...
Piketon	9	1,022	8.81	900	10	1	....	.....	.....	....	.....	....	...
Plain	0	1,245	0.00	150	0.00	.....	....	.....	.....	....	.....	....	...
Pleasantridge	9	1,027	8.76	1,200	7.5	.....	....	.....	.....	....	.....	....	...

a Eight months ended January 1, 1896.

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Ohio—Continued.													
Pomeroy	20	4,726	4.25	5,000	4	4	....	4	.....	....	.....	....	2
Ravenna	78	3,417	22.82	4,500	17.33	6	....	3	.....	....	.....	....	...
Sabina *a*	11	1,080	10.19	1,500	7.33	4	....	2	.....	1	.....	....	...
St. Bernard	34	1,779	19.11	2,806	12.22	3	....	1	.....	....	1	....	...
St. Mary	137	3,000	45.66	6,000	22.95	7	....	4	.....	....	5	4	...
St. Paris	8	1,145	6.98	1,400	5.71	1	....	1	.....	1	.....	....	...
Salem	81	5,780	14.01	8,000	10.12	5	....	5	1	1	.....	....	...
Salineville	35	2,369	14.77	2,500	14	.....	....	1	.....	....	.....	....	...
Shelby	45	1,977	22.71	4,000	11.25	.....	....	8	1	....	4	....	...
Sidney	70	4,850	14.43	7,000	10	9	....	7	.....	....	.....	2	2
South Charleston	13	1,041	12.38	1,200	10.83	1	....	.....	.....	....	.....	....	...
Spencerville	10	1,266	7.89	1,800	5.55	1	....	2	.....	....	.....	....	...
Springfield	445	31,895	13.95	38,000	11.71	64	....	21	.....	....	.....	2	...
Steubenville	65	13,394	4.85	13,000	5	5	5	.....	6	4	.....	....	...
Tiffin	150	10,801	13.91	14,000	10.71	15	....	5	.....	....	16	3	...
Toledo	1,483	81,434	18.21	122,760	12.08	126	....	40	.....	7	18	23	5
Toronto	15	2,536	5.91	3,500	4.28	2	....	8	.....	....	.....	1	4
Uhrichsville	60	3,842	15.62	5,000	12	7	....	6	2	1	1	1	1
Upper Sandusky	40	3,572	11.19	3,800	10.52	3	....	2	2	....	1	1	...
Urbana	93	6,510	17.37	8,000	11.62	16	....	10	.....	....	1	....	3
Versailles	21	1,385	15.16	1,500	14	2	....	1	.....	....	.....	....	...
Wapakoneta	58	3,616	16.03	4,500	12.88	2	....	5	.....	....	8	....	...
Warren	80	5,973	13.38	8,000	10	5	....	5	.....	....	3	1	...
Washington	8	5,742	1.39	500	16	3	....	.....	.....	....	.....	....	...
Waverly	59	1,567	37.65	1,600	36.87	.....	....	3	.....	....	.....	....	...
Wellington	39	2,069	18.85	3,000	13	4	1	13	.....	....	.....	....	...
Wellsville	95	5,247	18.1	6,000	15.83	11	....	2	.....	....	.....	1	...
Westwood	19	1,050	18.09	1,200	15.83	2	....	.....	.....	....	4	....	...
Willoughby	37	1,219	30.35	3,500	10.57	.....	....	.....	.....	....	3	....	...
Woodsfield	9	1,031	8.73	1,500	6	4	....	.....	.....	....	.....	....	...
Wyoming	25	1,454	17.19	2,000	12.5	1	....	.....	.....	....	2	....	...
Youngstown	543	33,220	16.34	40,000	13.57	28	....	11	4	74	24	....	5
Oregon	793	54,982	14.42	91,500	8.66	139	....	27	1	5	17	5	1
Dallas	38	3,029	12.66	4,000	9.5	6	....	.....	.....	....	.....	....	...
Oregon City	25	3,062	8.16	3,500	7.14	10	....	5	1	1	1	1	...
Pendleton	31	2,506	12.36	3,000	10.33	6	....	5	.....	....	.....	....	...
Portland	699	46,385	15.07	81,000	8.63	117	....	17	.....	4	16	4	1
Pennsylvania	39,697	1,905,300	20.83	2,209,287	17.96	3,276	45	1,168	112	264	1,652	572	257
Allegheny	2,288	105,287	21.73	120,000	19.06	145	....	222	2	34	63	36	24
Allentown	489	25,228	19.38	35,000	13.97	40	....	40	1	2	60	....	...
Ambler	28	1,073	26.09	2,000	14	6	....	1	.....	....	.....	....	1
Athens	33	3,274	10.07	3,500	9.42	3	....	.....	.....	....	.....	....	...
Austin	40	1,679	23.82	2,500	16	.....	....	4	.....	....	.....	....	...
Avenue	23	1,453	15.82	1,500	15.33	.....	....	10	.....	5	.....	3	3
Bangor	64	2,509	25.50	4,800	13.33	6	....	2	.....	....	3	....	...
Beaver Falls	135	9,735	13.86	10,000	13.50	.....	....	.....	.....	....	.....	....	...
Bedford	30	2,242	12.63	3,000	10	.....	....	.....	.....	1	2	1	...
Bethlehem	111	6,762	16.41	8,500	13.05	1	....	6	.....	....	3	5	...
Birdsboro	26	2,261	11.49	2,300	11.30	.....	....	.....	.....	....	.....	1	...
Blairsville	41	3,126	13.11	5,000	8.20	.....	....	8	.....	....	.....	....	...
Blossburg	60	2,568	23.36	3,500	17.14	.....	....	.....	.....	....	3	....	...
Bradford	196	10,514	18.64	18,000	10.88	.....	....	.....	1	3	1	1	...
Bristol	138	6,553	21.05	7,000	19.71	18	....	2	.....	....	1	3	...
Brookville	37	2,478	14.93	2,700	13.7	5	....	1	.....	1	.....	....	...
Carbondale	286	10,833	26.40	17,000	16.82	12	....	11	.....	3	23	4	1
Carlisle	145	7,620	19.02	9,290	15.6	19	....	.....	.....	....	.....	1	...
Catasauqua	60	3,704	16.19	3,704	16.19	5	....	1	1	1	2	2	...
Catawissa	28	1,809	15.47	2,500	11.2	.....	....	1	.....	....	.....	....	...
Clarendon	10	1,297	7.71	1,500	6.66	2	....	1	.....	....	.....	2	...
Clarion	27	2,164	12.47	2,500	10.8	2	....	.....	.....	....	1	1	...
Clayville	21	1,402	14.97	1,200	17.5	1	....	1	.....	....	.....	....	...

a March 1, to December 13, 1896.

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Pennsylvania—Continued.													
Connellsville	139	5,629	23.09	6,500	21.38	.....	....	5	.....	....	6	2	...
Conshohocken	73	5,470	13.34	6,500	11.23	1	....	.....	.....	....	16	3	...
Corry	58	5,679	9.86	7,000	8.29	6	....	1	.....	....	3	2	...
Cressona	23	1,481	15.59	1,500	15.33	.....	....	.....	.....	....	.....	....	...
Derry	17	1,968	8.64	3,000	5.66	.....	....	.....	.....	....	.....	....	...
Dickson	37	3,110	11.89	3,500	10.57	.....	....	.....	.....	....	.....	....	...
Downingtown	49	1,920	25.52	2,000	24.5	4	....	2	.....	....	7	3	...
Doylestown	59	2,519	23.45	3,000	19.66	5	....	4	.....	....	2	....	...
Dunmore	165	8,315	19.84	10,000	16.5	3	....	5	.....	....	2	4	...
East Brady	19	1,228	15.47	1,500	12.11	.....	....	2	.....	....	.....	....	...
East Stroudsburg	24	1,819	13.19	2,000	12	.....	....	.....	.....	....	.....	....	...
Ebensburg	9	1,202	7.48	1,500	6	2	....	2	.....	....	.....	....	...
Elizabethtown	40	1,218	32.84	2,000	20	2	....	.....	.....	3	1	....	...
Emporium	31	2,147	14.39	2,500	12.40	2	....	.....	.....	....	.....	....	1
Fairchance	12	1,092	10.98	1,200	10	2	....	1	.....	....	5	....	...
Frackville	43	2,520	17.06	2,800	15.34	1	....	.....	.....	....	.....	6	...
Gallitzin	21	2,392	8.77	2,000	10.5	2	....	1	.....	....	.....	....	...
Gilberton	46	3,687	12.47	4,500	10.22	.....	....	1	.....	....	1	2	4
Gordon	15	1,194	12.56	1,500	10	.....	....	.....	.....	....	2	1	...
Hanover	72	3,746	19.22	4,000	18	8	....	3	.....	....	1	....	1
Hazleton	205	11,872	17.35	15,000	13.66	15	....	7	.....	1	6	5	2
Jeannette	78	3,296	23.65	7,000	11.14	.....	....	1	.....	2	5	....	...
Jenkintown	21	1,609	12.43	2,000	10.5	.....	....	.....	.....	....	.....	....	...
Jermyn	47	2,650	17.73	3,000	15.66	4	....	1	1	2	.....	2	...
Johnsonburg	37	1,280	21.09	2,500	14.8	3	....	4	.....	2	5	....	11
Johnstown	348	21,805	15.96	26,000	13.38	27	....	16	2	11	3	....	...
Kendall Creek	25	1,937	12.9	2,300	10.42	.....	....	.....	.....	....	.....	....	...
Kennett Square	30	1,326	22.62	1,500	20	.....	....	2	.....	4	.....	....	...
Kingston	66	2,381	27.46	3,000	22	.....	....	.....	.....	1	15	....	...
Knoxville	10	1,723	5.8	1,000	10	.....	....	.....	.....	....	.....	....	...
Kutztown	19	1,595	11.91	1,500	12.66	2	....	.....	.....	....	.....	....	...
Lancaster	693	32,011	21.64	38,104	18.18	43	....	42	.....	2	54	14	...
Latrobe	53	3,589	14.76	4,000	13.25	4	....	1	.....	....	5	....	...
Lebanon	286	14,664	19.5	16,000	1.78	17	....	2	.....	8	.....	2	...
Leechburg	31	1,921	16.13	3,000	10.33	.....	....	9	.....	....	.....	1	...
Lehighton	63	2,959	21.29	4,000	15.75	1	....	5	.....	....	1	....	...
Lewisburg	48	3,248	14.77	3,200	15	3	....	1	.....	....	.....	....	...
McKeesport	403	20,741	19.43	28,000	14.39	7	....	29	1	2	4	4	1
Meadville	128	9,520	12.28	10,000	12.8	9	....	4	.....	1	1	....	1
Mechanicsburg	67	3,691	18.15	5,000	13.4	3	....	.....	.....	....	1	1	...
Meyersdale	24	1,847	12.96	2,400	10	2	....	.....	.....	3	4	....	...
Millersburg	16	1,527	10.47	1,600	10	.....	....	.....	.....	....	.....	....	...
Minersville	70	3,504	19.97	5,000	14	.....	....	1	.....	....	3	3	...
Morrellville	26	2,827	9.19	4,500	5.77	1	....	.....	.....	....	2	1	...
Morrisville	22	1,203	18.29	1,300	16.92	2	....	1	.....	....	2	6	1
Mount Carmel	308	8,254	37.31	13,000	23.68	6	....	2	.....	....	7	8	15
Mount Holly Springs	21	1,190	17.56	1,250	16.8	2	....	.....	.....	....	.....	....	...
Mount Joy	29	1,848	15.69	1,850	15.67	3	....	.....	.....	....	.....	....	...
Nazareth	18	1,318	13.65	1,600	11.25	.....	....	1	.....	....	1	....	...
Nesquehoning	12	1,655	7.25	2,200	5.45	2	....	.....	.....	....	.....	....	2
Newcastle	126	11,600	10.86	20,000	6.3	.....	....	16	1	9	2	2	...
New Haven	29	1,221	23.75	2,500	11.6	.....	....	1	.....	....	2	....	...
Newhope	14	1,142	12.26	1,200	11.66	1	....	.....	.....	....	.....	1	...
Newport	35	1,417	24.7	1,500	23.33	.....	....	.....	.....	....	.....	....	...
Newtown	24	1,213	17.14	1,400	18	1	....	.....	.....	....	.....	....	...
Norristown	314	19,791	15.86	23,000	13.65	34	....	6	.....	2	26	9	1
Northeast	36	1,538	23.4	2,500	14.4	.....	....	.....	.....	....	.....	....	...
Northumberland	27	2,744	9.83	2,700	10	.....	....	.....	.....	3	.....	....	...
North Wales	19	1,060	17.92	1,200	15.83	2	....	1	.....	....	.....	....	...
Oil City	180	10,932	16.46	14,000	12.86	.....	....	37	.....	....	23	....	...
Orwigsburg	26	1,290	20.15	1,500	17.33	.....	....	.....	.....	....	2	....	...
Osceola Mills	19	1,730	10.98	2,500	7.6	1	....	.....	1	1	2	1	2
Parkersburg	12	1,514	7.92	1,800	6.66	.....	....	.....	.....	....	3	....	...
Phœnixville	132	8,514	15.50	8,500	15.53	11	....	2	.....	....	1	1	1
Pinegrove	22	1,103	19.94	1,200	18.33	8	....	2	.....	....	.....	....	...

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Pennsylvania—Continued.													
Philadelphia	23,796	1,046,964	22.72	1,163,864	20.44	2,449	45	469	84	79	1,020	329	151
Plymouth	83	9,344	8.88	10,000	8.3	.....	....	8	.....	6	5	....	...
Pottstown	210	13,285	15.81	16,000	13.12	18	....	8	2	4	4	....	...
Quakertown	42	2,169	19.36	3,000	14	.....	....	.....	.....	....	2	....	...
Reading	1,378	58,661	23.49	71,000	19.4	104	....	36	.....	2	46	44	5
Reynoldton	28	1,379	20.3	2,000	14	.....	....	.....	2	2	.....	1	2
Ridgway	38	1,903	19.96	4,000	9.5	1	....	2	2	1	1	1	...
Scottdale	33	2,693	12.25	3,000	11	4	....	.....	.....	1	1	1	...
Scranton	1,545	75,215	20.54	103,000	15	52	....	33	3	47	47	20	15
Sharpsville	26	2,330	11.15	3,000	8.66	3	....	1	.....	3	1	4	5
Sheffield	21	1,295	16.21	1,950	10.77	.....	....	1	1	....	2	....	...
Shenandoah	391	15,944	24.52	18,000	21.72	7	....	.....	.....	....	.....	1	...
Slatington	42	2,716	15.46	4,000	10.5	.....	....	.....	.....	....	2	....	...
South Bethlehem	204	10,302	19.8	14,000	14.57	18	....	3	.....	....	1	....	...
Southfork	27	1,295	20.84	2,000	13.5	.....	....	.....	.....	....	.....	....	1
Steelton	107	9,250	14.86	10,000	10.7	16	....	3	.....	1	2	....	...
Sunbury	86	5,930	14.5	7,000	12.28	6	....	.....	.....	1	.....	2	...
Susquehanna Depot	51	3,872	13.17	5,000	10.2	.....	....	1	.....	....	1	....	...
Tamaqua	72	6,054	11.89	6,500	11.07	.....	....	2	.....	....	2	....	1
Taretum	70	4,627	15.12	5,000	14	.....	....	7	4	....	6	2	2
Tidioute	13	1,328	9.78	1,600	8.12	3	....	.....	.....	....	.....	....	...
Tower City	39	2,053	10.4	2,000	19.5	.....	....	2	1	....	1	2	...
Tremont	23	2,064	11.14	2,300	10	1	....	.....	.....	....	.....	....	...
Upland	37	2,275	16.26	2,275	16.26	5	....	.....	.....	....	.....	....	...
Washington	99	7,063	14.01	8,500	11.63	.....	....	4	.....	1	3	....	...
Wellsboro	22	2,961	7.43	2,800	7.85	2	....	1	.....	....	1	2	...
West Bethlehem	25	2,759	9.06	3,200	8.75	.....	....	.....	.....	....	2	2	...
Westchester	163	8,028	20.3	9,500	17.15	4	....	2	.....	....	1	1	...
West Newton	37	2,285	16.22	3,000	12.33	1	....	4	.....	1	1	1	...
West Pittston	68	3,906	17.66	6,000	11.33	3	....	.....	.....	2	2	....	...
Williamsport	289	27,132	10.06	25,000	11.56	20	....	7	1	....	9	4	1
York	345	20,793	16.59	25,000	13.8	36	....	21	1	1	11	....	1
Wilkesbarre	800	37,718	21.21	50,000	16	6	....	21	.....	5	90	11	1
Rhode Island	4,671	207,094	22.55	231,266	20.19	486	....	80	42	75	173	34	30
Barrington	33	1,461	22.58	1,668	19.78	.....	....	.....	.....	....	1	....	...
Bristol	136	5,478	24.82	6,700	20.29	16	....	1	.....	1	1	....	...
Johnston	214	9,778	21.88	12,000	17.83	10	....	.....	2	6	29	5	...
Middletown	15	1,154	12.99	1,413	10.61	1	....	.....	.....	....	.....	....	...
Newport	350	19,457	17.98	20,000	17.5	44	....	8	.....	1	5	1	1
Pawtucket	653	27,633	23.63	32,577	20.04	50	....	25	.....	2	55	....	1
Providence	3,087	132,146	23.35	145,472	21.22	355	....	46	40	64	79	25	27
Scituate	74	3,174	23.31	3,800	19.47	.....	....	.....	.....	....	.....	....	...
Westerly	109	6,813	15.99	7,636	14.27	10	....	.....	.....	1	3	3	1
South Carolina	1,976	71,662	27.57	89,165	22.16	245	....	38	17	2	5	6	1
Camden	11	3,533	3.13	3,000	3.66	1	....	1	.....	....	.....	....	...
Charleston	(a 540) (b 1279)	54,955	33.10	(28,870 (36,295	18.70 35.23	39 194	....	18 15	....	2	3 1	3 2	... 1
Florence	34	3,395	10.01	5,500	6.19	.....	....	.....	.....	....	.....	....	...
Graniteville	22	1,791	12.28	2,000	11	3	....	.....	1	....	.....	....	...
Laurens	10	2,245	4.45	3,500	2.85	2	....	.....	.....	....	.....	....	...
Pelzer	37	1,878	19.7	5,000	7.4	6	....	1	8	....	.....	....	...
Sumter	43	3,865	11.12	5,000	8.6	.....	....	3	8	....	1	1	...
South Dakota	196	20,119	9.74	21,200	9.24	13	....	9	.....	....	.....	1	6
Hot Springs	15	1,423	10.54	1,600	9.37	4	....	1	.....	....	.....	....	...
Lead City	32	2,581	12.36	4,500	7.11	.....	....	1	.....	....	.....	....	1
Millbank	6	1,207	4.97	1,000	6	.....	....	.....	.....	....	.....	....	...

a White. *b* Colored.

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
South Dakota—Continued.													
Pierre	18	3,235	5.56	2,000	9	.....	....	4	.....	....	.....	....	3
Sioux Falls	90	10,177	8.84	10,000	9	6	....	3	.....	....	.....	1	1
Vermilion	35	1,496	23.39	2,100	16.66	3	....	.....	.....	....	.....	....	1
Tennessee	2,853	142,273	20.05	171,625	16.62	438	2	81	23	12	30	16	31
Athens	50	2,224	22.48	2,700	18.51	8	....	2	12	3	6	1	12
Chattanooga	435	29,100	14.94	40,000	10.87	82	....	19	.....	2	2	10	6
Clarksville	85	7,924	10.72	8,000	10.62	15	....	1	.....	....	1	....	...
Clinton	23	1,198	19.19	1,198	19.19	5	....	1	.....	....	.....	....	...
Covington	33	1,067	30.92	2,100	15.71	4	2	4	.....	....	.....	....	...
Fayetteville	94	2,410	39.04	3,500	26.85	2	....	4	.....	....	.....	....	...
Greeneville	20	1,779	11.24	3,000	6.66	5	....	.....	.....	2	.....	....	4
Knoxville	489	22,535	21.7	42,704	11.44	77	....	10	7	....	1	....	6
McMinnville	24	1,677	14.31	2,000	12	4	....	.....	2	....	.....	....	...
Maryville	7	1,686	4.15	2,500	2.8	4	....	.....	.....	....	.....	1	...
Memphis	1,489	64,495	22.93	55,923	26.27	209	....	32	2	2	20	....	2
Murfreesboro	87	3,739	23.26	5,000	17.4	16	....	5	.....	....	.....	....	...
Tullahoma	37	2,439	15.17	3,000	12.33	7	....	3	.....	3	.....	4	1
Texas	2,199	109,791	20.03	186,600	11.77	203	1	53	67	12	18	20	17
Athens	16	1,035	15.45	2,000	8	4	....	2	.....	....	.....	3	1
Benavides	4	1,424	2.81	300	13.33	.....	....	.....	2	....	.....	....	...
Brackettville	8	1,649	4.84	1,800	4.44	.....	....	.....	.....	....	.....	....	...
Brownwood	60	2,176	27.57	3,500	17.14	2	....	.....	.....	....	.....	....	...
Cisco	7	1,063	6.58	1,200	5.83	.....	....	.....	.....	1	.....	....	...
Cleburne	84	3,278	25.62	7,000	12	11	....	4	2	....	.....	....	7
Decatur	6	1,746	3.53	2,000	3	.....	....	.....	.....	....	.....	....	...
El Paso	230	10,338	22.24	10,000	23	54	....	1	3	9	5	....	1
Fort Worth	395	23,076	17.11	35,000	11.28	29	1	6	2	1	4	4	...
Georgetown	10	2,447	4.86	3,500	2.85	1	....	3	.....	....	.....	1	1
Hempstead	25	1,671	14.95	2,500	10	.....	....	.....	.....	....	.....	....	...
Henrietta	16	2,100	7.62	2,500	6.04	3	....	2	.....	....	.....	....	...
Honeygrove	78	1,828	42.67	4,000	19.5	8	....	.....	35	....	5	2	4
Houston	793	27,557	28.77	70,000	11.33	61	....	11	18	....	1	5	...
McKinney	41	2,489	16.47	5,000	8.2	8	....	6	.....	....	1	2	...
Nacogdoches	18	1,138	15.82	2,000	9	1	....	.....	.....	....	.....	....	1
New Braunfels	15	1,608	9.33	2,200	6.82	1	....	2	.....	1	.....	1	...
Orange	36	3,173	11.34	5,000	7.2	2	....	.....	.....	....	.....	....	...
Rio Grande	180	1,968	9.15	1,800	10	.....	....	.....	.....	....	.....	....	...
Rockport	14	1,069	7.77	1,800	12.11	3	....	.....	.....	....	.....	....	2
San Marcos	10	2,335	4.28	3,000	3.33	.....	....	.....	.....	....	.....	1	...
Sherman	115	7,335	15.67	12,000	9.58	13	....	15	5	....	2	1	...
Terrell	29	2,988	6.69	5,000	4	.....	....	.....	.....	....	.....	....	...
Vernon	8	2,857	2.8	2,090	4	2	....	.....	.....	....	.....	....	...
Weimar	10	1,443	6.93	1,500	6.66	.....	....	1	.....	....	.....	....	...
Utah	881	71,471	12.32	106,748	8.25	54	....	34	12	13	13	4	3
Coalville	20	1,166	17.14	1,600	12.5	.....	....	.....	.....	....	.....	....	...
Heber	21	1,538	13.65	1,672	12.56	.....	....	.....	.....	....	.....	....	...
Ogden	159	14,889	10.68	20,000	7.95	13	....	7	.....	4	2	....	...
Park City	38	2,850	14.7	5,000	7.6	4	....	1	.....	1	.....	1	...
Payson	30	2,135	14.05	2,500	12	5	....	2	.....	....	.....	1	1
Pleasantgrove	20	1,926	10.38	3,000	6.66	.....	....	.....	.....	....	.....	....	...
Salt Lake City	554	44,843	12.35	70,000	7.91	32	....	23	12	8	11	2	2
Smithfield	17	1,080	15.74	1,750	9.71	.....	....	.....	.....	....	.....	....	...
Spring City	22	1,044	21.07	1,226	17.94	.....	....	1	.....	....	.....	....	...
Vermont	2,042	129,891	15.72	138,950	14.69	205	2	38	.....	77	14	14	9
Arlington	20	1,352	14.79	1,360	14.70	7	....	.....	.....	....	.....	....	...
Bakersfield	17	1,162	14.63	1,800	9.44	1	....	.....	.....	....	.....	....	...
Barnet	23	1,897	12.12	1,900	12.10	2	....	1	.....	....	.....	....	...

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Vermont—Cont'd.													
Barre	69	6,812	10.12	6,000	11.50	3	....	1	.....	....	.....	....	3
Bennington	102	6,391	15.95	7,000	14.57	10	....	3	.....	....	3	....	...
Berkshire	16	1,421	11.25	1,421	11.25	.....	....	.....	.....	....	.....	....	...
Bethel	46	1,448	31.76	1,700	27.05	8	....	1	.....	....	.....	....	...
Bradford	25	1,429	17.49	2,000	12.50	1	....	1	.....	....	.....	....	...
Brandon	47	3,310	14.19	3,300	14.24	11	....	2	.....	1	.....	....	...
Bridgewater	21	1,124	18.68	1,184	17.73	1	....	1	.....	....	.....	....	...
Bridport	14	1,018	13.75	1,100	12.72	2	....	.....	.....	....	.....	....	...
Brighton	19	2,020	9.40	2,000	9.5	1	....	.....	.....	....	.....	....	...
Bristol	21	1,828	11.48	1,900	11.05	.....	....	.....	.....	....	.....	1	...
Burke	16	1,198	13.35	1,200	13.33	1	....	.....	.....	....	.....	....	...
Burlington	291	14,590	19.24	18,000	16.16	27	....	1	.....	48	2	3	1
Cabot	14	1,074	13.03	1,100	12.72	1	....	.....	.....	....	.....	....	...
Charlotte	13	1,240	10.48	1,250	10.4	1	2	.....	.....	....	.....	....	...
Chelsea	41	1,230	33.33	1,240	33.07	5	....	1	.....	....	.....	....	...
Colchester	97	5,143	18.86	5,500	17.63	9	....	3	.....	7	.....	....	...
Concord	20	1,425	14.13	1,800	11.11	2	....	4	.....	....	.....	....	...
Corinth	14	1,027	13.67	1,000	14	.....	....	.....	.....	....	.....	....	...
Danville	16	1,784	8.97	1,850	8.64	3	....	.....	.....	....	.....	....	...
Derby	45	2,900	15.52	3,000	15	4	....	.....	.....	5	.....	....	...
Dorset	16	1,696	9.43	1,700	9.41	2	....	1	.....	2	.....	....	1
Fairfax	20	1,523	13.13	1,800	11.11	3	....	.....	.....	1	.....	....	...
Fairfield	2	1,825	1.09	1,850	1.08	.....	....	.....	.....	....	.....	....	...
Ferrisburg	25	1,501	16.65	2,000	12.50	4	....	2	.....	2	.....	....	...
Georgia	16	1,282	12.48	1,292	12.48	1	....	.....	.....	....	.....	....	...
Groton	11	1,040	10.57	1,040	10.57	1	....	.....	.....	....	.....	....	1
Hardwick	16	1,547	10.34	1,700	8.45	2	....	.....	.....	....	.....	....	...
Hartland	26	1,393	18.66	1,400	18.56	3	....	.....	.....	....	.....	....	...
Hinesburg	20	1,205	16.59	1,200	16.66	4	....	1	.....	....	.....	....	...
Hyde Park	25	1,633	15.31	1,600	15.62	5	....	1	.....	....	.....	....	...
Jericho	23	1,461	15.74	1,700	13.53	3	....	.....	.....	1	2	....	...
Londonderry	18	1,010	18.02	1,154	15.58	1	....	.....	.....	1	.....	....	...
Ludlow	29	1,768	16.4	2,000	14.5	7	....	.....	.....	....	.....	....	...
Lunenberg	17	1,019	16.68	1,018	16.69	2	....	1	.....	....	.....	1	...
Manchester	36	1,907	19.4	2,000	18	1	....	.....	.....	....	.....	....	...
Marshfield	25	1,121	22.3	1,121	22.3	2	....	.....	.....	....	.....	....	...
Middlebury	50	2,793	17.9	3,000	16.66	4	....	3	.....	....	1	....	1
Morristown	39	2,411	16.17	2,500	15.6	4	....	.....	.....	....	.....	1	...
New Haven	22	1,224	17.97	1,200	18.33	2	....	.....	.....	....	2	....	...
Norwich	19	1,304	14.57	1,304	14.57	1	....	.....	.....	1	.....	....	...
Orwell	15	1,265	11.85	1,265	11.85	1	....	1	.....	....	1	....	...
Pawlet	22	1,745	12.6	1,745	12.6	2	....	.....	.....	....	.....	....	...
Putney	28	1,075	26.04	1,100	25.45	3	....	.....	.....	....	1	....	...
Rochester	22	1,257	17.5	1,350	16.21	3	....	.....	.....	....	.....	....	...
St. Albans	129	7,771	16.6	7,771	16.6	14	....	2	.....	7	.....	7	...
Shaftsbury	6	1,652	3.64	1,652	3.64	.....	....	.....	.....	....	.....	....	...
Shelburne	23	1,300	17.69	1,200	19.16	3	....	.....	.....	....	.....	....	...
Sheldon	22	1,365	16.11	1,400	15.71	1	....	.....	.....	....	.....	....	...
Swanton	43	3,231	13.31	3,230	13.31	4	....	.....	.....	1	1	1	...
Topsham	15	1,187	12.63	1,500	10	3	....	.....	.....	....	.....	....	...
Underhill	11	1,301	8.45	1,400	7.85	.....	....	.....	.....	....	.....	....	...
Wallingford	35	1,733	20.59	1,700	20.05	1	....	1	.....	....	.....	....	...
West Rutland	60	3,680	16.3	4,000	15	10	....	.....	.....	....	.....	....	2
Williamstown	13	1,188	10.94	1,288	10.09	.....	....	.....	.....	....	.....	....	...
Wilmington	21	1,106	18.98	1,120	18.75	2	....	1	.....	....	.....	....	...
Windsor	53	1,846	28.71	2,000	26.5	1	....	.....	.....	....	1	....	...
Wolcott	22	1,158	18.99	1,500	14.66	1	....	4	.....	....	.....	....	...
Woodstock	40	2,545	15.71	2,545	15.71	4	....	1	.....	....	.....	....	...
Virginia	3,045	148,170	20.55	180,360	16.88	331	....	92	2	4	13	5	9
Abingdon	60	1,674	31.21	2,200	27.27	15	....	12	.....	....	.....	....	...
Alexandria	339	14,339	23.64	15,500	21.87	27	....	16	.....	....	1	....	1
Harrisonburg	51	2,792	18.26	3,200	15.93	.....	....	.....	.....	....	.....	....	...
Lynchburg	399	19,709	20.23	30,000	13.3	66	....	19	2	....	2	....	2
Neapolis	a 43 b 35	3,709	20.53	3,400 1,600	12.64 21.87	10	....	7	.....	....	.....	....	2

a White. *b* Colored.

TABLE OF MORTALITY IN CITIES AND TOWNS OF THE UNITED STATES, CALENDAR YEAR 1895—Continued.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Virginia—Cont'd.													
Petersburg	557	22,680	24.55	25,000	22.28	40	....	12	.....	1	1	3	...
Richmond	1,556	81,388	19.11	96,660	16.1	173	....	26	.....	3	9	2	4
South Boston	5	1,789	2.79	2,800	1.43	.....	....	.....	.....	....	.....	....	...
Washington	1,269	122,242	10.38	163,700	7.75	94	....	53	.....	9	9	1	2
Chehalis	16	1,309	12.22	2,000	8	3	....	1	.....	1	.....	....	...
Dayton	15	1,880	7.97	1,800	8.33	.....	....	.....	.....	....	.....	....	...
Fairhaven	7	4,706	1.71	2,200	3.18	.....	....	.....	.....	....	.....	....	...
Hoquaim	9	1,302	6.14	1,800	5	1	....	.....	.....	....	1	....	...
Montesano	4	1,632	2.45	1,200	3.33	.....	....	.....	.....	....	.....	....	...
Port Townsend	15	4,558	3.28	2,000	7.5	1	....	3	.....	....	.....	....	...
Puyallup	12	1,732	6.92	2,500	4.8	4	....	1	.....	....	.....	....	...
Seattle	425	42,837	9.92	60,000	7.08	33	....	24	.....	7	5	....	...
Spokane	260	19,922	13.5	30,000	8.66	31	....	11	.....	....	2	....	...
Tacoma	385	36,006	16.92	50,000	7.7	3	....	4	.....	1	1	....	...
Walla Walla	100	4,709	21.23	8,000	12.5	13	....	5	.....	....	.....	1	1
Colfax	21	1,649	12.73	2,200	9.55	5	....	4	.....	....	.....	....	1
West Virginia	684	46,893	14.58	58,529	11.69	87	16	18	.....	25	28	7	2
Benwood	30	2,934	10.22	4,500	6.66	.....	....	2	.....	....	1	....	...
Mason	10	1,029	9.71	1,029	9.71	.....	....	.....	.....	....	.....	2	...
Parkersburg	91	8,408	11.17	15,000	6.06	17	....	6	.....	....	.....	....	1
Wheeling	553	34,522	16.01	38,000	14.55	70	16	10	.....	25	27	5	1
Wisconsin	6,309	348,206	18.11	416,485	15.14	503	31	149	15	47	209	82	94
Ahnapee	6	1,015	5.91	1,700	3.52	2	....	.....	.....	....	.....	....	...
Alma	14	1,428	9.80	1,529	9.15	1	....	.....	.....	1	1	....	...
Ashland	231	9,956	23.20	12,311	18.76	14	....	10	.....	....	15	2	3
Bayfield	10	1,373	7.28	1,800	5.55	4	....	.....	.....	....	.....	....	2
Berlin	95	4,149	22.89	4,275	22.22	8	....	.....	.....	....	.....	....	1
Black River Falls	9	2,261	3.98	2,000	4.50	.....	....	1	.....	....	.....	....	1
Brodhead	10	1,461	6.84	1,700	5.88	.....	....	.....	.....	....	.....	....	...
Centralia	25	1,435	17.42	2,000	12.5	2	....	5	.....	....	2	2	1
Chilton	4	1,424	2.81	1,600	2.5	2	....	.....	.....	1	1	....	...
Cumberland	16	1,219	13.12	1,400	11.43	1	....	.....	.....	....	.....	....	...
Delavan	16	2,038	7.85	2,232	7.17	3	....	.....	.....	....	.....	....	...
Depere	50	3,625	13.79	4,000	12.5	10	1	1	.....	1	1	2	...
Dodgeville	39	1,722	22.65	2,200	17.73	.....	....	.....	.....	....	.....	....	...
Evansville	37	1,523	24.29	2,000	18.5	5	....	.....	.....	....	.....	....	...
Grand Rapids	23	1,702	14.04	2,000	11.5	4	....	2	2	4	5	5	1
Green Bay	270	9,609	17.95	19,000	15	4	....	6	1	....	6	....	...
Kaukauna	70	4,667	14.99	6,500	10.76	18	....	4	5	8	25	....	...
Kenosha	71	6,532	10.87	10,000	7.1	.....	....	.....	.....	....	3	....	...
Lake Geneva	59	2,297	25.68	2,500	23.6	.....	....	.....	.....	....	15	....	...
Lancaster	10	1,543	6.48	2,500	4	2	....	.....	.....	....	.....	....	...
Madison	176	13,426	13.1	17,000	10.35	23	....	5	2	1	1	2	2
Manitowoc	138	7,710	14.68	9,400	15	10	....	1	.....	....	8	....	2
Marinette	242	11,523	21.01	15,500	15.61	23	....	14	.....	6	5	....	5
Medford	13	1,193	10.89	8,499	15.29	3	....	.....	1	....	.....	1	...
Milwaukee	3,885	204,468	19	250,000	15.54	288	30	63	1	5	112	59	60
Neillsville	20	1,936	10.33	2,500	8	4	....	1	.....	1	.....	....	1
New London	20	2,050	9.75	2,500	8	6	....	.....	.....	....	.....	....	...
Omro	15	1,232	12.17	1,400	10.71	1	....	.....	.....	1	.....	....	...
Platteville	31	2,740	11.31	3,328	9.31	4	....	.....	.....	1	.....	....	...
Racine	360	21,014	17.13	27,000	13.33	49	....	4	1	....	3	6	6
Rhinelander	39	2,658	14.67	5,000	7.8	3	....	5	.....	....	.....	....	...
Richland Center	15	1,819	8.24	2,300	6.52	.....	....	2	1	....	.....	1	...
Superior	264	11,983	22.03	26,176	10.08	6	....	22	1	17	6	....	8
Tomah	15	2,199	6.82	3,000	5	3	....	1	.....	....	.....	1	...
Tomahawk	11	1,816	6.05	2,382	4.61	.....	....	2	.....	....	.....	1	1
Wyoming	6	1,087	5.51	1,100	5.45	.....	....	.....	.....	....	.....	....	...
Buffalo	6	1,087	5.51	1,100	5.45	.....	....	.....	.....	....	.....	....	...

TABLE SHOWING STATE TOTALS FOR CITIES REPORTING.

Cities or towns.	Total deaths from all causes.	Population, United States Census of 1890.	Annual mortality per 1,000 of the population, United States Census of 1890.	Estimated population.	Annual mortality per 1,000 of the estimated population.	Phthisis pulmonalis.	Smallpox.	Enteric fever.	Measles.	Scarlet fever.	Diphtheria.	Membranous croup.	Whooping cough.
Total.....	341,823	16,335,323	20.9	20,386,608	16.7	36,486	435	7,360	2,046	2,684	11,860	2,867	2,266
Alabama.....	915	55,823	16.39	79,778	11.47	93	...	38	15	1	5	14	5
Arkansas.....	293	18,758	15.62	24,700	11.86	32	...	7	1	3	2	5	1
California.....	10,114	516,148	19.59	613,992	16.47	1,757	...	211	16	12	59	37	15
Colorado.....	2,632	157,987	16.66	222,700	11.82	547	...	78	1	138	56	4	16
Connecticut.....	7,337	376,867	19.47	431,569	17.01	609	1	121	8	17	127	67	64
Delaware.....	1,262	64,960	19.42	73,900	17.07	132	...	27	5	2	21	12	9
Dist. of Columbia.	5,582	230,392	24.22	275,000	20.29	671	9	211	11	28	59	12	41
Florida.....	510	23,737	21.48	31,100	16.39	50	...	23	1	.....	.....	2	3
Georgia.....	1,002	49,257	20.34	59,503	16.84	56	...	11	41	.....	1	5	17
Idaho.....	15	1,174	12.77	1,400	10.71	.....	...	.....	.....	.....	.....	.....	.....
Illinois.....	28,866	1,366,845	21.11	1,986,016	14.53	2,546	168	660	34	99	1,896	105	36
Indiana.....	5,295	305,287	17.34	473,131	11.19	695	2	286	28	50	301	82	46
Iowa.....	2,344	171,810	13.06	228,042	10.27	251	...	59	5	17	64	71	21
Kansas.....	1,988	114,088	17.42	173,177	11.48	184	...	97	.....	16	108	47	6
Kentucky.....	4,425	218,429	20.25	298,500	14.82	505	1	149	15	8	113	25	16
Louisiana.....	8,331	256,640	32.46	291,550	28.57	896	56	119	64	5	81	21	23
Maine.....	4,359	249,999	17.43	267,670	16.28	320	1	69	1	8	57	12	22
Maryland.....	10,392	442,076	23.50	504,815	20.58	1,158	...	181	68	66	277	54	68
Massachusetts...	38,460	1,753,494	21.94	1,909,901	20.13	4,941	...	503	57	426	1,335	165	191
Michigan.....	4,532	313,907	14.43	492,616	11.25	413	...	104	1	11	96	27	20
Minnesota.....	4,567	417,588	10.93	534,924	8.53	611	...	324	36	29	244	33	71
Mississippi.....	288	7,683	37.48	27,000	10.66	25	...	3	21	.....	1	4	10
Missouri.....	10,207	500,251	20.40	622,240	16.40	1,066	73	147	49	26	544	192	34
Montana.....	46	3,201	14.36	5,000	9.20	4	...	1	.....	1	.....	.....	2
Nebraska.....	1,897	241,342	7.86	241,154	7.87	185	...	67	2	48	75	16	30
New Hampshire.	3,782	193,891	19.50	219,446	17.23	278	...	61	5	46	37	29	10
New Jersey.....	11,016	462,713	23.81	549,290	20.05	1,085	2	241	11	114	323	96	61
New Mexico.....	48	3,448	13.92	4,500	10.67	24	...	.....	2	.....	2	1	.....
New York.....	88,026	3,440,863	25.58	4,392,042	20.04	9,545	11	1,113	1,188	694	3,368	782	899
North Carolina...	1,144	59,610	19.19	77,450	14.77	207	...	42	25	3	1	4	10
North Dakota....	31	4,432	6.99	5,700	5.44	2	...	3	2	.....	3	.....	.....
Ohio.....	15,496	932,442	16.62	1,192,287	12.99	1,524	14	554	42	271	423	176	57
Oregon.....	793	54,982	14.42	91,500	8.66	139	...	27	1	5	17	5	1
Pennsylvania....	39,697	1,905,300	20.83	2,209,287	17.96	3,276	45	1,168	112	264	1,652	572	257
Rhode Island.....	4,671	207,094	22.55	231,266	20.19	486	...	80	42	75	173	34	30
South Carolina...	1,976	71,662	27.57	89,165	22.16	245	...	38	17	2	5	6	1
South Dakota....	196	20,119	9.74	21,200	9.24	13	...	9	.....	.....	.....	1	6
Tennessee.....	2,853	142,273	20.05	171,625	16.62	438	2	81	23	12	30	16	31
Texas.....	2,199	109,791	20.03	186,600	11.77	203	1	53	67	12	18	20	17
Utah.....	881	71,471	12.32	106,748	8.25	54	...	34	12	13	13	4	3
Vermont.....	2,042	129,891	15.72	138,950	14.69	205	2	38	.....	77	14	14	9
Virginia.....	3,045	148,170	20.55	180,360	16.88	331	...	92	2	4	13	5	9
Washington.....	1,269	122,242	10.38	163,700	7.75	94	...	53	.....	9	9	1	2
West Virginia....	684	46,893	14.58	58,529	11.69	87	16	18	.....	25	28	7	2
Wisconsin.....	6,309	348,206	18.11	416,485	15.14	503	31	149	15	47	209	82	94
Wyoming.....	6	1,087	5.51	1,100	5.45	.....	...	.....	.....	.....	.....	.....	.....

The difficulty of obtaining trustworthy weekly mortality reports from United States cities and towns is a factor so important in the collection of statistics that the Bureau contemplates at an early date the collection of monthly statistics in their place, as it is believed that such statistics can be obtained from a greater number of localities.

The blank form to be used for this purpose should embrace all the principal causes of mortality instead of only those from the zymotic diseases, as is the case now with the weekly reports.

It is further the intention of the Bureau to communicate with the various State boards of health, either by means of a conference or

through the mails, with a view to adopting for this purpose a blank, uniform in arrangement and best adapted for the purposes for which it is to be employed.

INQUIRY RELATING TO STATE AND MUNICIPAL LAWS AND REGULATIONS CONCERNING TUBERCULOSIS.

At the date of writing this report an investigation has been undertaken by the Bureau for the purpose of ascertaining what regulations are in force or have been issued by the State boards of health with a view of controlling the dissemination of phthisis pulmonalis. The circular letter sent out to obtain this information is as follows:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C.

To the Secretary, State Board of Health.

SIR: I have the honor to request your assistance in obtaining some statistics relative to laws or regulations (either State or municipal) in regard to phthisis pulmonalis. I have, therefore, to request that you will give as full answers as possible to the following interrogatories:

1. Is phthisis pulmonalis regarded throughout the State, especially by those who are not physicians, as an infectious disease?

2. Are there any provisions of State or municipal law intended to prevent the spread of the disease?

3. If so, what are they?

4. Are there in the State of ——— any public or private hospitals or sanitariums devoted exclusively to the treatment of tuberculous disease; and if so, where are they and what are their names?

5. Are the consumptives in the general hospitals throughout the State isolated in distinct wards, or allowed to mingle with patients suffering from other diseases?

As early an answer as possible is requested.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

The information obtained from the replies to this letter will be commented on in my next annual report.

HYGIENIC LABORATORY.

REPORT OF MEDICAL OFFICERS IN CHARGE.

HYGIENIC LABORATORY,
UNITED STATES MARINE-HOSPITAL SERVICE,
Washington, D. C., November 1, 1896.

SUPERVISING SURGEON-GENERAL,
United States Marine-Hospital Service.

SIR: I have the honor to submit the following, showing the operations of the Hygienic Laboratory for the past year:

Since my last report the work of the Laboratory has, on the whole, made satisfactory progress. In some particulars it has not progressed as one could wish. In August, 1895, Passed Assistant Surgeon Rosenau was detached for special duty in connection with the smallpox epidemic at Eagle Pass, Tex. Subsequent events, however, made it necessary to assign him to other duties, and I was without an assistant until in the following March, when Passed Assistant Surgeon Geddings was ordered to report for laboratory duty.

DIPHTHERIA ANTITOXIN.

In my last report mention was made at length of progress in the subject of the treatment of diphtheria by its antitoxin, and the status of the subject up to that time. On account of there being doubts expressed as to its value as a remedy for diphtheria, the subject has been further investigated and pursued to a length in order to bring additional evidence to bear upon those who were prone to hold to their preferred beliefs. I am pleased to record the statement that the experience of the medical profession so far has been confirmatory of my original statements made regarding the value of the remedy in the treatment of diphtheria.

As a matter of record it may be proper to state our experiences in preparing the antitoxin, and of its use in cases of diphtheria now that two years have elapsed since its production was commenced.

Production of toxin.

At first it was not an easy matter to produce a toxin of constant strength, and the inoculations were beset with many difficulties. Formerly it was difficult to produce a toxin of sufficient strength under

four to six weeks. Fortunately, through the kindness of Drs. Park and Williams, we have been supplied with a culture of the bacillus diphtheriæ, which possesses the property of producing an extremely strong toxin in a very short time. A strong toxin can now be produced from this bacillus within a few days, where it formerly required several weeks.

It has been our experience that the nutrient medium which has given the best results in the production of a toxin of standard strength has been a 4 per cent peptone bouillon, which has been titrated to a standard degree of alkalinity. Less peptone produces a toxin of variable strength. The cultures appear to grow better where a large surface of the bouillon is exposed to the air. Fernbach flasks are perhaps the best form of a flask. The strength of the toxin has been found to be the greatest within a few days after planting the culture, reaching its maximum in from three to six days, when it gradually diminishes. Park has already called attention to this fact.

A toxin of 0.005 strength has been frequently produced within five days; on several occasions a 0.05 strength within three days. While it is desirable to have a very strong toxin for inoculating horses, it is not as convenient nor satisfactory for standardizing the strength of the antitoxin. It is best for this latter to dilute the toxin to a 0.1 c. c. strength.

The toxin diminishes in virulence the longer it is kept, even when maintained at a low temperature and kept from the light.

The amount of diminution is not constant in all cases; it is rather an uncertain quantity. It may be said, in a general way, that it will lose about 0.00025 of its strength for every ten days standing, even when kept under the best conditions. It should always be standardized immediately before its use.

Strength of toxin.

There has been no fixed or standard method employed in determining the strength of the toxin—that is to say, no uniform method of determining the minimum fatal dose to the guinea pig.

Nearly all who have written on this subject have each a method which differs from others in some particulars. Some take a guinea pig of given weight—this varies from 200 to 500 grams—while others estimate the amount of toxin per 100 grams weight of the guinea pig. This latter method is, I think, the best, and should be adopted in determining the strength of the toxin. The guinea pig should weigh from 250 to 300 grams, and the lethal dose should always refer to the amount per 100 grams body weight.

There is another point which should be mentioned in this connection, that is the age and race of the guinea pig, as it has considerable to do with the susceptibility of the pig to the poison.

Some animals, which have had but little care, been under fed, may be stunted in their growth, and while filling the requirement as to weight may be as resistant as one of 750 to 1,000 grams weight. This fact was

discovered when a number of pigs from two or three sources were used in an experiment. It goes without saying that it is always preferable to obtain the guinea pigs from the same source.

Strength of antitoxin.

At first the strength of antitoxin was estimated after the manner suggested by Roux, as this appeared to be the simplest way in determining its potency, but on account of the large quantity of antitoxin of German manufacture used by the physicians of Washington, I have for the past year made use of both the French and German systems for measuring the strength of the antitoxin prepared for the health department of the District of Columbia.

Preservation of the antitoxin.

Carbolic acid and trikresol are good preservatives, both for the maintenance of the strength of the antitoxin and to prevent decomposition. Both have the fault of precipitating some of the albuminous substances in the serum after it has stood for several months.

This is always to be observed as a fine amorphous sediment in the bottom of the container while the supernatant fluid is clear. This will serve to readily distinguish it from bacterial decomposition.

Chloroform and camphor are also very good preservatives of the antitoxin, but poor agents to prevent bacterial decomposition. Their use may be tolerated where the antitoxin is to be used immediately after preparation, but never to preserve antitoxin which it is intended to keep for any length of time.

A solution formaldehyd (1–5000) has recently been recommended for this purpose. Dr. Bolton has now been using it for preserving the antitoxin and finds it highly satisfactory. It has several advantages over the other preservatives on account of the small quantity required and in not causing precipitation. Its chief advantage is, however, its being nonpoisonous and nonirritating.

Production of antitoxin—Methods.

The subcutaneous method has been mainly followed in producing a good antitoxin. In some instances it has been necessary to resort to the intravenous injections of the toxin to produce an antitoxin of the required strength. This latter procedure has been practiced in but few instances, it being required in horses only which have been under treatment for a long time and have established a local tolerance to the poison. Even when the intravenous method is employed it requires a considerable time and great care to reestablish the strength. On the whole, it is better I think when an animal has reached this state to discard it and begin with a fresh one.

Nencki, of St. Petersburg, in 1893, was the first to call attention to the fact that curative or rather immunizing substances could be isolated

from cultures of diphtheria by electricity. He stated that he had succeeded in isolating proteid substances from cultures by means of the electric current and had immunized animals against a lethal dose of the diphtheria bacillus. D'Arsenval and Charrin have only recently reported the results of their observations on this same subject. They were able to produce a weak antitoxin from the toxins of diphtheria by means of an electric current of high potential and frequency passed through the liquid. These writers ascribe the effect to the physical change rather than a specific chemical effect upon the toxins.

Bolton, I learn, has also succeeded in producing the antitoxin by the same process.

At present this antitoxin is a laboratory curiosity, having no practical, or I might say no applied value. The substance is so weak as to preclude its use in curative doses for treatment, even had it been demonstrated to be entirely safe. It is nevertheless an important addition to our knowledge concerning immunity, and no doubt will lead to important discoveries in the future.

Antitoxin present in the normal blood of persons and of animals.

Wasserman has called attention to the fact that many persons (adults in particular) have the antitoxin normally present in their blood, even when there is no history of their ever having had an attack of diphtheria. I have not made any observations on persons, but can confirm it with regard to horses. Some horses have normally a considerable quantity of antitoxin in their blood and react but slightly to even large doses of the diphtheria toxins. It has been my experience that these are poor antitoxin producers.

A double antitoxin.

During 1895 and 1896 an attempt was made to immunize one of the antitoxin horses against both diphtheria and streptococcus infection. In order to produce serum which would be efficacious in those of mixed infections the horse was strongly immunized against diphtheria, and then given gradually increasing doses of the toxin of the streptococcus and subsequently increasing doses of a virulent culture; at the same time these injections were alternated with injections of the toxins of diphtheria. At occasional intervals during the ten months' treatment the blood was tested for its antistreptococcal effects. A serum was at last obtained that possessed a slight power against the streptococci and was efficient against diphtheria. It was not, however, sufficiently strong to warrant its use in cases of mixed infections.

An accident befell the experiment and it had to be abandoned. It was not renewed because it is believed that the serum obtained from horses immunized against streptococci, used in conjunction with the antitoxin, will produce the best results. I have observed in these experiments that a horse when immunized against diphtheria is also

strongly resistant to the streptococcal infection; also the converse of this is true. I have seen quite a number of children who were suffering from a streptococcal sore throat treated for diphtheria. A majority of these reacted with equal promptness as in cases of diphtheria. I believe this is explained by the fact that the diphtheria antitoxin has an effect upon the poison of the streptococci.

Antitoxin and alexins.

It has been recently shown that animals which have been immunized by the toxin have the antitoxin in the blood, and it has little if any bacteriocidal properties, whereas if the animal has been immunized by the living culture of the germ and not the toxin, the antitoxin is present in small quantity and the alexins are notably increased. A dimunition of the antitoxin in the blood of the animal may or may not be dependent upon the injection of living virulent cultures. In several of the horses which had been injected for over a year the strength of the antitoxin was quite weak, although the quantity of the toxin administered was quite large. Cobbett has partly explained this by stating that the horses have become locally immunized against the poison, and the tissues in and about the site of the injection immediately neutralize the toxin and prevent its effect upon the system. Thus the blood may contain but little neutralizing power as compared with the local tissues. Large areas of the surface may thus be brought to a state of high immunity if the injections are made in many places. While these statements are confirmed, they are not explanatory of all the phenomena. Even when there is a local immunity the same difficulty is encountered in bringing the blood of the animal back to its former strength by intravenous injections of large and frequent doses of the toxin. It is with some difficulty that you succeed. It demonstrates that there are other factors than the local immunity—a general immunity obtains as well.

Isolation of the antitoxin from the serum.

No important advances have been made in isolating the antitoxic substances from the serum, or in freeing the serum from deleterious substances. Effort has so far been futile.[1] In order to overcome these disadvantages as much as possible the best procedure is to use a serum of greater antitoxic potency and give a smaller dose.

The potency of antitoxin compared with nucleinic acid and proto-nuclein.

Soon after the admirable papers by Vaughn, Novy & McClintock on the properties of nucleinic acid, statements began to appear that this substance was a remedy for diphtheria. A considerable quantity of yeast nuclein (P. D. & Co.) was placed at my disposal, and it has been

[1]Since writing this report Brager has succeeded in isolating the antitoxin from the serum in comparatively pure state; he does this by precipitating it by the zinc salts.

subjected to test by comparative experiments with the antitoxic serum. It has some power in neutralizing the effects of a lethal dose of the toxin, but it was required to be given in proportionately large doses, even in ten times the quantity of one lethal dose, while the antitoxin in one ten-thousandth the quantity would neutralize ten lethal doses of the toxin.

The best effects were noted when the nuclein was given from twelve to twenty-four hours before the toxin. As a remedy for diphtheria it is practically useless. "Proto-nuclein" (Reed & Carmick) was also experimented with in the same manner as with nuclein. While it may be useful as a tonic, a tissue builder, it is less potent in its effects than nucleinic acid. It should never be relied on as a specific for diphtheria.

Cases treated with antitoxin prepared at laboratory.

On February 14, 1895, the first antitoxin was prepared and sent out to the several marine hospitals. Since that time it has been supplied to a limited number of physicians who would furnish a clinical record of the cases.

Reports from physicians received to date show 76 cases have been treated with the antitoxin, with a mortality record of 4, or 5.2 per cent. This record is much below the average in fatality. I attribute this to the early administration of the remedy and the large quantity given at the outset.

Prevalence of diphtheria and croup in the United States in 1895.

It will not be out of place to give a brief summary of the prevalence of this disease throughout the United States, as well as to touch upon other points which are connected with the disease.

It is now almost a universally accepted fact that the bacillus diphtheriæ is the sole cause of the disease. Formerly the bacillus diphtheriæ was supposed to cause only inflammations of the upper air passages, which are accompanied by a pseudo-membrane. This belief is slowly changing, and the term diphtheria has a broader application, for it has been satisfactorily demonstrated that many of the inflammatory affections of the nose and throat, not accompanied by a false membrane, were, nevertheless, caused by the diphtheria germ.

While this is not being accepted as rapidly by the medical profession and laity as the health officer could wish, the number of adherents to this belief is gradually increasing.

By reason of the microscopic and culture test, we have now two classes of diphtheritic infection to deal with, the one presenting the classical and typical symptoms—the clinical diphtheria—the other where the symptoms are slight or absent, with the bacillus present—the so-called laboratory diphtheria.

Viewed from a public-health standpoint, this last form is perhaps more dangerous than the former.

The so-called membranous croup is yet, I regret to state, a most serious disturbing factor in our fight against diphtheria. It is with surprise and regret that we see how firmly intrenched in the minds of the medical profession is the idea that croup is a noninfectious disease. It has been demonstrated over and over again, so plainly that he who runs may read, that nearly nine-tenths of these cases are laryngeal diphtheria. Yet, despite all this, death certificates are constantly sent in to the board of health as "croup." These are the landmarks, or, rather, tombstones, marking the foci of epidemics of diphtheria. It is noted with satisfaction, however, that many of our State, provincial, and municipal boards of health are beginning to be emancipated from such ideas, and now regard the terms "membranous croup" or "croup" and "diphtheria" as synonyms, and treat them accordingly.

The culture test and microscopic examination have been of great value in diminishing the number of reported cases of croup, and it is noted that they bear a direct ratio to the effectiveness of these examinations; that is to say, the more largely they are employed by the physicians the fewer are the cases, not only of diphtheria, but of croup as well.

The diagnosis of the disease in the United States is about evenly divided between clinical methods and the culture and microscopic examination.

A number of the larger cities have the system of microscopic examination in operation. In 101 cities having a population of 25,000 and over, 36 have established laboratories for this purpose, 10 have only partial arrangements—usually with some member of the profession whose services are demanded in cases of doubtful diagnosis—and in 55 no system of any kind is in vogue. Several of these latter (in 1896) have established laboratories. The microscopic examination in the above mentioned is not compulsory. In those places where it has been in operation for over two years the majority of the physicians utilize it in making the diagnosis, and nearly all do so in determining when the bacillus is absent from the throats of recovered cases. In fact, it is believed to be the rule for the health authorities to require that secondary cultures be taken in all cases before they can be released from quarantine, or the infected materials and apartments can be disinfected.

It is noted especially that the death rate from "croup" in the cities of the United States which have not adopted microscopic examinations is very high in proportion to the number of deaths from diphtheria and also in proportion to the population; while, on the other hand, the number of cases of death from croup in those places in which the diagnosis is made by the culture test has fallen, and the number of cases of diphtheria has increased somewhat.

Since the adoption of this method for diagnostic purposes there has been a marked increase in the number of cases of diphtheria, due in part to the croup cases already referred to being properly diagnosed

and the additional cases of laboratory diphtheria. It has been asserted that on account of including these latter cases the death rate from diphtheria has not been diminished, and that the statements made to the contrary are misleading. It must not be lost sight of that the microscopic examinations have been the cause of eliminating a considerable number of cases formerly classed as diphtheria.

All bacteriologists agree that about 30 per cent of the clinically diagnosed cases are not diphtheria. These are not now returned. In the same time the cases of laryngeal diphtheria have increased and membranous croup diminished. While the above obtains in the majority of places where the microscopic examinations are made, there are instances which may be cited to the contrary. In the Province of Ontario the cases of diphtheria, so far as positive evidence can be presented, have decreased where early diagnosis by the culture test has been made use of. In New York, Boston, and Washington the death rate has also been materially lowered.

One thousand two hundred and sixty-five cities and towns, having in aggregate an estimated population of 23,209,937, reported 50,986 cases of diphtheria with 11,861 deaths, and 4,209 cases of croup with 2,904 deaths—a mortality rate of 23.2 per cent for diphtheria, and 69 per cent for croup—a combined death rate of 26.7 per cent. Statistics for comparison for 1894 are not obtainable.

These reports show that the disease has prevailed to a greater extent in the cities of the East and middle West, to a lesser degree in the Pacific States, and least in those of the South.

Explanations of this distribution will not be attempted further than to note the influence of climatic conditions, and less disturbance to the population by new accessions from other parts of the country.

It is to be regretted that the statistics[1] from which these data are compiled are not more complete. Many States have a very imperfect system of vital statistics, and while it is possible to obtain data from the majority concerning the death rate from diphtheria and croup, it is difficult to obtain those dealing with their morbidity. This renders it extremely difficult to form a conclusion approaching accuracy.

The majority of cases of diphtheria are disseminated without doubt by direct contagion from child to child in the household and in the schools or other places where children are wont to congregate; indirectly, by infected apartments or articles contaminated with the germ.

Unsanitary house conditions, such as vitiated air, dampness, etc., undoubtedly affect both the number of cases and their virulence. Climatic changes may and often do determine an outbreak; the infection may be semilatent, only awaiting an opportunity to manifest itself.

How far the ordinary sore throat of the adult influences the spread of the disease is an unsettled question. A certain proportion of these are caused by the Klebs-Loeffler bacillus. From observations made in

[1] From reports received in the Marine-Hospital Bureau from local health officers.

a certain place on this affection, in a hospital dispensary service, and at a time when diphtheria was not so prevalent, 25 per cent of the cases of sore throat were found to be diphtheria.

It is suggested that such cases are just as dangerous as those cases of laboratory diphtheria in spreading the disease.

Kober has collected statistics of twenty-eight epidemics of diphtheria, which were traced to milk infection, the original source of infection coming from those persons ill with the disease handling the milk.

It is believed that the railway and steamboat passenger traffic plays no small part in the dissemination of the disease, and should demand careful attention from all health officers.

Unquestionably the early diagnosis in suspected cases is most important of preventive measures. A prompt detection can not be made of all cases by a clinical diagnosis, it matters not how skillful the diagnostician. To be absolutely certain, the culture test must be applied.

This is of equal importance in determining when the case has fully recovered and is no longer a menace to others.

I am of the belief that if the above diagnostic methods were generally applied and uniformly executed the ravages of this disease would be quickly stayed and the disease itself become one of the least disturbing factors to the public health.

Early notification of all cases of diphtheritic infection should be insisted upon. Prompt isolation of those sick—either domiciliary or hospital—private funerals, and the nontransportation of corpses by train should be enforced by law and practice. Isolation should also be made to include those who have been directly exposed to infection for a time—sufficient to demonstrate their freedom from the infective agent.

Those having the bacillus in their throats should be treated as cases of diphtheria.

Great care should be exercised in the schools; they should be under the direct supervision and control of the health authorities, so far as their hygiene and sanitation are concerned. A daily medical inspection should be made of all the schools in the larger cities. This may not be practicable or necessary in small towns and rural districts; but when a case has been detected the inspection should then be maintained for several days.

Prophylaxis and treatment.

Our laws and ordinances against infectious disease have for their object the prevention and suppression. We prevent infection because the infected die; if the contrary were true, that the diseases were not so fatal, we would not be so concerned about them. If the ultimate object of these restrictive measures is to prevent death, it behooves us to use every means in our power to combat the disease. It matters not in what way we direct our efforts, provided they are successful in suppressing or limiting the course of the disease. The culture method for

diagnosis for all cases of diphtheria has been advocated. If this position is a correct one, and necessary, then we should advocate other measures of equal efficiency.

Two years have now elapsed since the introduction of the new remedy for the treatment and prevention of diphtheria. It is believed that there has been sufficient evidence submitted to form an unbiased opinion of its true value.

The consensus of opinion in all countries has been very favorable to its use. Its adherents now number thousands, while the opponents can be numbered as few.

In those places where there has been the largest quantity of antitoxin used there has been a decrease in the number of deaths over 1894, although there has been an increase in the number of reported cases.

The published reports of 100 physicians and 20 health boards show, for the year 1895 and the first three months of 1896, that there were 7,021 cases of diphtheria treated by antitoxin, with 741 deaths, a death rate of 10.6 per cent, as compared with 2,936 cases of diphtheria, occurring synchronously, with 1,110 deaths, a death rate of 39 per cent.

In the above statistics no attempt has been made to separate the cases into classes or to exclude cases moribund when the treatment was given. They represent, it is thought, the average cases in age, duration, and severity. Care has been taken, however, to exclude from these cases of laboratory diphtheria, which are included in those who were given protective treatment.

These same reports show that during this time—1895 and 1896—2,867 cases which were exposed to infection, in many of whom the bacilli were found, were given protective doses, with the result of 40 mild cases occurring from twelve hours to thirty days after the infection.

The largest number of cases treated were in the cities of the East and Middle West. Of the reports of the physicians and health boards, 53 physicians and 9 health boards were in the East, 40 physicians and 9 health boards in the Middle West and Northwest, 2 physicians and 1 health board in the West, and 5 physicians and 1 health board in the South. In localities from which the largest number of reports come there have been more cases recognized as diphtheria and less as croup, while on the other hand where the fewest reports are made the cases of croup preponderate.

Antitoxin, while believed to be a remedy par excellence, is believed to have increased the number of cases in many instances; especially is this so in the smaller places and the rural districts. The reason assigned for this is that formerly when a child had diphtheria it usually died and parents kept their children away from the premises; now, as a rule, the rapid recovery of a child causes doubt as to the correctness of the diagnosis of the physician, and it is allowed to resume its associations with the bacilli in the throat, thereby disseminating the disease.

Recommendations.

The following recommendations are submitted:

I. That there should be uniform rules and regulations adopted by all the States and provinces for the prevention and control of diphtheria.

The several Governments should assume the responsibility and act in unison in preventing the spread of the disease from one country to another, and assume authority over interprovincial and interstate communication.

II. That it should be the duty of the health authorities to provide facilities for determining the diagnosis in all suspected cases by the establishment of inexpensive laboratories for each health jurisdiction and to agree upon a system and means of transmission of material for diagnosis through the mails.

III. Compulsory notification of all suspected cases and the abolition of the terms "croup" or "membranous croup," unless diphtheria has been excluded by culture and microscopic examination.

IV. Compulsory isolation of all cases, domiciliary or in hospital, until the recovered cases show the absence of the diphtheria bacillus.

V. That the medical inspection of schools should be inaugurated under the direction and supervision of the health authorities by making daily inspections in the larger cities of all school children for the detection of infectious disease. In the smaller places and rural districts the inspections, while necessary, need not be made daily, but at least once per week, and daily for several days after the appearance of a case of diphtheria.

VI. School buildings, books, etc., should be subjected to a reliable method of disinfection at least once per month, and oftener if suspected of being infected.

VII. The early treatment with antitoxin of those ill with diphtheria, the administration of preventive doses to those who have been exposed to infection and have the bacilli in their throats.

VIII. Prompt and effective methods of disinfection of infected articles and apartments, to be carried out under the supervision of the health authorities.

PNEUMONIA.

Mention was made in a former report of the investigations concerning the etiology, pathology, and prophylaxis of lobar pneumonia. This subject is still under investigation. On account of Passed Assistant Surgeon Rosenau's transfer it became necessary for me to assume and carry on this work as best I could in addition to my other duties. It is hoped that it may be finished within another year.

VACCINNIA AND SMALLPOX.

The subject of vaccinnia and smallpox is still under investigation. The serum therapy of smallpox and vaccinnia is making a slow but satisfactory progress. The methods of producing and preparing a

vaccine of high standard will be the subject of a report in the near future. The small appropriation made by Congress has borne this expense and will soon be exhausted. It is not sufficient to complete the investigation.

ENTERIC FEVER.

The subject of the methods of diagnosis and differentiation of enteric fever is now being worked up in an admirable manner by Dr. Andrade-Penny, one of the assistants in the laboratory.

The above work is partly the outcome of an investigation of an epidemic of typhoid fever in Washington during the latter part of 1895. A full report thereon was made by George M. Kober, special inspector. As the health department of the District was not provided with proper facilities for the bacteriological analyses, a request from the health office was made that the Hygienic Laboratory should undertake the work. The following correspondence and reports will show what was done:

REPORT ON THE WATER SUPPLY OF WASHINGTON, D. C.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., December 27, 1895.

SIR: Referring to your letter of September 19, 1895, relating to the increase of typhoid fever in the District of Columbia, and requesting the Bureau to engage in a bacteriological analysis of water, I transmit herewith a copy of the report of P. A. Surg. J. J. Kinyoun, in charge of the Hygienic Laboratory, giving results of analyses made by himself and his assistant.

I have the honor to remain, respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

HEALTH OFFICER, *Washington, D. C.*

OFFICE OF THE SUPERVISING SURGEON-GENERAL,
MARINE-HOSPITAL SERVICE, HYGIENIC LABORATORY,
Washington, D. C., December 24, 1895.

SIR: We have the honor to submit the following as a report of a series of bacteriologic examinations, undertaken by your direction, at the request of the health officer of the District of Columbia. The work was done in conjunction with Dr. G. M. Kober, medical sanitary inspector, who had been specially charged with the investigation of the prevalence of typhoid fever in the District of Columbia during the past summer and fall.

The examination of samples of water was commenced on or about September 24, and continued without interruption until December 13, 1895, during which time 135 examinations were made.

The samples of water intended for this study were collected under special precautions by Dr. Kober and immediately brought to the laboratory.

The time of collection was usually in the morning before the water had been disturbed. This was for the purpose of taking the sample under the worst conditions, because if there was sewage pollution it would be more in evidence at this time. This plan was followed in all save a few secondary samples.

All the bacteriological examinations were made with standardized culture media, in order to avoid the vexatious variations in results that would surely follow if this precaution was not taken.

The methods of isolating the bacteria from water are substantially the same as are recommended by others. At first attempts were made to examine each sample for the number and classification of the bacteria, especially with reference to the presence or absence of the typhoid and colon bacilli, but this was abandoned in part, and our whole attention directed to the intestinal (colon) group of bacteria.

Preliminary to the examination, each sample was tested for the presence of fermentative bacteria, after the following manner: Five cubic centimeters of the suspected water was transferred to fermentation tubes containing freshly prepared lactose and glucose bouillon, respectively, and maintained at a temperature of from 41½° to 42° C. for forty-eight hours. The tubes were then examined for gas production. If any was present, they were subjected to a further examination. If no gas had been formed, it was assumed that no fecal or sewage bacteria were present, and no further examination of the specimen was made.

In several instances the fermentation tubes were cloudy and contained motile bacilli. which produced no gas. These tubes were repeatedly examined by the usual methods for the typhoid bacillus, but in no instance was it found.

As soon as possible after the sample was received the water was examined for the number of bacteria contained in each cubic centimeter. Definite quantities were planted in plates of glycerinized agar and grown at 20° to 25° C. After from forty-eight to sixty hours the colonies were counted.

If the sample of water indicated the presence of fermentative bacteria, especially if both lactose and glucose were fermented, the culture was plated over into lactose litmus agar (Wurtz) and kept at 37° C. for twenty-four to forty-eight hours. If at the end of that time any of the colonies had acted upon the litmus, they were transferred to other media, viz, fermentation tubes, gelatin, gelatin plates, litmus milk, potato, and tested for the indol reaction.

It was the rule to find that the high temperature of 41° to 42° C. was sufficient to inhibit the growth of the other varieties of bacteria present, and in those fermentation tubes which contained gas it was unusual to find other than bacilli.

In the accompanying table reference is made only to bacilli and their reaction, except in the column in which the colonies are enumerated. This includes all forms.

Samples which indicated, by the preliminary fermentative test, sewage or intestinal bacteria were not usually examined a second time. If, on the other hand, a sample gave no such reaction, and there were facts pointing to its contamination, a second and other samples were required.

The secondary cultures demonstrated the fact that the bacterial contamination was one of a variable quantity. Especially was this true with regard to wells. At one time a well in question would show nothing indicative of being contaminated with ntestinal bacteria, and at another, one week later, they were present.

It is to be regretted that, owing to the large number of samples which it became necessary to examine, we were precluded from making secondary examinations from time to time in order to show the variation in the number of bacteria and the presence or absence of the fermentative forms.

The primary fermentative test, as suggested by Dr. Theobald Smith, has proven highly satisfactory. It can not be altogether relied upon as indicating the presence of fermentating bacteria, for in a few instances the primary cultures in both lactose and glucose gave gas formation. When they were subjected to plate cultures no colonies could be isolated which would ferment the same bouillon. Possibly this may be due to the hyperacidity, as suggested by Dr. Smith; but this does not seem applicable to all cases. We are inclined to believe that there may exist a symbiotic existence of bacteria, which, together, may possess this power, while independent they do not. This is a conjecture.

The majority of the specimens which showed the gas reaction, in both glucose and lactose bouillon, demonstrated on further culture the presence of the colon group of bacilli.

The characters of the colonies in gelatin are described as they appear under an objective of low power, and has been applied to all. This, however, was not necessary in many instances, but for the sake of uniformity was done as a matter of routine.

The reaction of the bacilli to litmus milk has been of great aid in classifying the several varieties, which give the same reaction in Wurtz agar and gelatin.

The indol reaction was best demonstrated after the culture had been tested and left standing for twenty-four hours.

Number of bacteria.—The number of bacteria to a cubic centimeter of water is not a criterion of its purity. Some of the wells and springs contained great numbers, sometimes countless, yet they did not show that they were contaminated with any of the colon group. On the other hand, the converse was true. Those samples containing as low as from 500 to 800 to the cubic centimeter contained a large number of fermentative (intestinal) bacteria. It must not be inferred, however, that waters containing large numbers of bacteria, even if they do show benign forms at the time of the examination, will continue to remain so. Sooner or later it is safe to assert that these will show the presence of sewage (intestinal) bacteria.

There were 70 examinations made of original samples of water and 58 secondary examinations. From this number 21 bacilli were isolated, which answered in their morphological and cultural characters to the colon group.

Twenty-six samples contained bacilli, which belong to the sewage group. In 6 other samples the microorganisms could not be isolated.

In the accompanying table the samples are classified either as contaminated with intestinal bacteria or as suspicious.

The Potomac water has also been examined, as will be seen, at intervals during this inquiry. The examinations, on the whole, make a better showing than the same number of wells. It was not found free from contamination. On two occasions intestinal bacilli were isolated, while more than one showed a contamination with sewage bacteria.

The number of bacteria in each cubic centimeter of Potomac water has not been above the average for this time of the year. In fact, they were less than were found in the water on a former examination. The source of the intestinal and sewage pollution can hardly be a question of doubt, since we know that it must originate from the fæces of animals or of man. We are strongly inclined to believe that the origin of the intestinal bacteria was from sewage, because of the smallness of the number to each cubic centimeter and the absence of other forms which occur when the water is contaminated by washings from the soil. During the time when the first four samples were taken dry weather prevailed, and the river was low and the water clear.

In conclusion, we would state that it is our opinion, based upon this and other examinations made during the past four years, that the Potomac water is not at all times free from sewage pollution. No river water receiving as large a quantity of sewage as the Potomac, and this constantly increasing, can ever be above suspicion.

There are two schemes for remedying this condition. One is to own control of the watershed and abate the nuisances. This is not practicable nor feasible. The other is the filtration of the water supply by the system now in successful use in several European cities, among which Hamburg and Zurich may be quoted as examples.

The condition of wells located on dairy farms needs no comment. The results speak for themselves. It is not improbable that if a comprehensive study be made of the water supply of the dairies supplying milk to Washington our knowledge of the relation which the milk supply bears to the prevalence of intestinal and other diseases would be proportionately increased.

The use of surface wells in a city should on general principles be condemned. They are as a rule constantly exposed to contamination, and it appears to be only a

question of time when they will be polluted with sewage. Where a better supply can be obtained other than these, it should at once be substituted, and this source of danger removed.

Respectfully submitted.

J. J. KINYOUN,
Passed Assistant Surgeon, M. H. S.
EDO. ANDRADE-PENNY, M. D.,
Assistant.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

Subsequently, in response to an invitation, the following remarks were offered by myself before the Board of Trade of Washington upon the water supply of cities and of Washington in particular.

REMARKS ON THE WATER SUPPLY OF CITIES AND OF WASHINGTON IN PARTICULAR.

There is no subject at the present time of greater importance to our health than the purity of drinking water. With the ever-increasing population, its gravity toward urban centers, the difficulty of procuring an adequate supply of potable water becomes more and more enhanced by the problems surrounding it. In all aggregations of people, unless duly guarded, there is an ever-increased tendency to contract disease, and especially those which have for their medium an impure drinking water.

Statistics gathered from health officers of several cities located on rivers and lakes of the United States, aggregating a population of 5,027,435 in 1895, there occurred 3,050 deaths from typhoid fever. If we accept the morbidity statistics of Murchison and others, we would have no fewer than 38,000 cases in this population. Taking these numbers as a basis, it is estimated that there occur in the United States annually no less than 500,000 cases with 50,000 deaths.

Washington has for the past fifteen years shown a memorable record with regard to the prevalence of typhoid fever, and does not appear to improve.

The majority of cases of typhoid fever are due to a polluted water, and it is fair to assume, if the hypothesis is correct, that this state of affairs will continue just as long as this cause is not corrected. At one time, and that not long ago, we depended entirely upon the dictum of the chemist as to whether a water was fit or unfit for drinking purposes. To-day our knowledge has somewhat increased with regard to the value of the chemic analysis—a new factor has been brought to bear which has done much in unraveling the mysteries of water contaminated with disease-causing material. This is the biological examination, or applied bacteriology. A chemic analysis of drinking water can determine what quantities of organic and inorganic matter may be present. If the water contains over a certain quantity of the above, we can, as a rule, say that the water is unfit for use. While on the other hand, a water may contain such minute quantities of the suspicious substances—so little in fact as to be pronounced pure—and yet contain the cause of disease.

We have through our investigations of the bacteria demonstrated that many of the communicable diseases are caused and transmitted by them. Foremost among these stand that class known as water-borne diseases, viz, cholera, typhoid fever, dysentery, diarrhœa. These are not only carried by the water, but also multiply therein. In establishing the purity of a water a chemic analysis is not sufficient, it must always be supplemented by a bacteriologic analysis as well. The converse does not hold true; a water may contain considerable quantities of organic and inorganic matter, even over the permissible (chemic) limit, not containing disease bacteria, and be potable.

All waters in their natural state contain bacteria; these may or may not be harmful, it depending entirely on their source. The manner in which they gain entrance thereto may be one or all the following: From the air, from the percolation, or washings of the upper surface of the soil, and from the excrementitious substances from man and animals.

TABLE SHOWING RESULTS OF BACTERIOLOGIC ANALYSES OF WELLS, SPRINGS, AND POTOMAC WATER IN THE DISTRICT OF COLUMBIA.

NOTE.—Wells marked with an Asterisk (*) are private wells.

No.	Source.	Date.	No. of bacteria.	Gas production (Fermentation test, 1 c.c. of suspected water): Lactose.	Glucose.	Wurtz's litmus lactose agar.	Gelatine colonies slightly magnified.	Gelatine.	Motility.	Fermentation tube: Lactose bouillon: Reaction.	Gas formula.	Glucose bouillon: Reaction.	Gas formula.	Litmus milk.	Potato.	Indol.	Remarks.
1	Well, 4th and E sts. NE	[illegible]	[illegible]	Ferments	Ferments				Active					Coagulated fourth day		Considerable	1 Suspicious.
2	Do	[illegible]	[illegible]	do	do	Red colonies	Round, brownish, granular, irregular edges, slightly spreading	Does not liquefy	Slight	Acid	[illegible]	Acid	[illegible]	Not coagulated, [illegible] fifth day	White, elevated, dry	Trace	2
3	Well, 1st and E sts. NE	[illegible]	[illegible]	do	do												3 Could not be isolated.
4	Do	[illegible]	[illegible]	0	0												4
5	Well, [illegible]	[illegible]	[illegible]	0	0												5
6	Well, [illegible]	[illegible]	[illegible]	0	Ferments												6
7	Do	[illegible]	[illegible]	0	0											Slight	7
8	Do	[illegible]	[illegible]	Ferments	Ferments	Red colonies	Hyaline and slightly granular	Does not liquefy	Active	Acid	[illegible]	Acid	[illegible]	Coagulated third day; pink	Slight and dry	Considerable	8 Intestinal bacillus.
*9	Mrs. Page's well, Takoma	[illegible]	[illegible]	0	0				Slight	do	[illegible]	do	[illegible]		No apparent growth	None	9
10	Do	[illegible]	[illegible]	Ferments	Ferments	Red colonies	Large, yellowish, granular, spreading	Does not liquefy	do	do	[illegible]	do	[illegible]	Coagulated third day; pink	Moist growth	Slight	10 Intestinal bacillus.
11	Do	[illegible]	[illegible]	0	0				Active	do	[illegible]	do	[illegible]	Coagulated third day; pink	Yellow, moist, spreading	do	11 Another sample taken later ferments glucose but not lactose.
12	Spring at Takoma, near B and D	[illegible]	[illegible]	Ferments	Ferments	Red and blue colonies	Brownish, dark centers, spreading	Does not liquefy	Slight	do	[illegible]	do	[illegible]	Coagulated third day; pink	Moist growth, slight	Considerable	12 Intestinal bacillus.
13	Do	[illegible]	[illegible]	do	do	Red colonies	Brown, round, flaky	do	Active	do	[illegible]	do	[illegible]	Coagulated fifth day	Yellowish, elevated, dry	Trace	13 Intestinal bacillus.
14	Well, 11th and F sts. NE	[illegible]	[illegible]	do	0	do	Round, yellowish, granular, spreading	do	Slight	do	[illegible]	do	[illegible]	Not coagulated sixth; [illegible]	do	Slight	14
15	Do		[illegible]	do	Ferments	do	Round, pale blue hyaline	do	Active	Alkaline	[illegible]	do	[illegible]	Not coagulated sixth day; pink	Slight moist growth	do	15 Suspicious.
16	Do	[illegible]	Innumerable	Ferments	0	do	Small, round, pale blue hyaline	do	Slight	Acid	[illegible]	do	[illegible]	Coagulated fourth day	Slight moist colorless growth	do	16
*17	Well, [illegible], Brookland	[illegible]	[illegible]	do	Ferments	do	Round, slightly granular, hyaline, spreading	do	do	do	[illegible]	do	[illegible]	Coagulated third day; pink	Yellowish, elevated, moist, spreading	Considerable	17 Intestinal bacillus.
18	The Takoma Spring	do	[illegible]	0	0												18
19	Do	[illegible]	[illegible]	0	0												19
20	Well, E, bet. 12th and 13th sts. NE	[illegible]	[illegible]	0	Ferments	Red colonies	Coarsely granular, flaky	Does not liquefy	Active		[illegible]		[illegible]	Not coagulated sixth day; [illegible]	Very slight growth	None	20 Suspicious.
21	Do	[illegible]	[illegible]	Ferments	do		Round, granular, flaky	do	Slight	Acid	[illegible]	Acid	[illegible]	Coagulated sixth day; [illegible]	do	Slight	21 Suspicious.
22	Well, 7th and B sts. SE	[illegible]	[illegible]	0	do		Round, brown, granular	do	Active	do	[illegible]	do	[illegible]	Not coagulated sixth day; [illegible]	White, elevated, moist, spreading	Trace	22
23	Spring, Franklin Square	do	[illegible]		do												23
24	Do	[illegible]	[illegible]	0	0												24
*25	Well, [illegible] st. NE	[illegible]	[illegible]	Ferments	Ferments	Red colonies	Yellowish, granular, spreading	Does not liquefy	Slight	Alkaline	[illegible]	Acid	[illegible]	Coagulated fourth day; [illegible]	Yellowish, elevated, moist	Slight	25 Suspicious.
26	Well, E, bet. 6th and 7th sts. SE	[illegible]	[illegible]	0	0												26
27	Do	[illegible]		0	Ferments												27
28	Well, [illegible]	[illegible]	[illegible]	Ferments	do	Red colonies	Hyaline, irregular edges, spreading	Does not liquefy	Slight	Alkaline	[illegible]	Acid	[illegible]	Coagulated fifth day	White, elevated, dry	None	28 Suspicious.
29	Do	[illegible]	[illegible]	0	do				Active	Acid	[illegible]	do	[illegible]	Coagulated third day	Yellowish, moist, elevated, spreading	Trace	29
30	Do	[illegible]	[illegible]	0	0	Blue colonies	Pale blue, granular, irregular edges, spreading	Does not liquefy	do	do	[illegible]	do	[illegible]	Coagulated fourth day	White, yellowish, elevated, moist	Slight	30
31	Well, near No. 4 Minnesota ave.	[illegible]	[illegible]	0	0												31
32	Well, No. 2 Minnesota ave., Anacostia	[illegible]	[illegible]	Ferments	0	Blue and red colonies	Pale, granular, irregular	Liquefies	Slight	Acid	[illegible]	Acid	[illegible]	Coagulated second day; [illegible]	White, [illegible], dry	Considerable	32 Suspicious. Proteus vulgaris.
33	Well, 20th and E sts. NW	[illegible]	[illegible]	do	Ferments												33 Repeated trials failed to isolate the fermenting bacteria.
34	Do	[illegible]	[illegible]	do	do												34 Suspicious. Same as above.
35	Well, N. J. ave. and Pierce st.	[illegible]	[illegible]	0	do												35
36	Do	[illegible]	[illegible]	0	0												36
37	Well, [illegible] Jefferson st.	[illegible]	[illegible]	Ferments	Ferments												37 Suspicious. Fermenting bacteria could not be isolated.
38	Do	[illegible]	[illegible]	0	0												38
39	Well, cor. [illegible] and M sts. NW	[illegible]	[illegible]	0	0												39
40	Well, M st., near [illegible] NW	[illegible]		0	0												40
41	Well, cor. [illegible] and M sts. NW	[illegible]	[illegible]	Ferments	Ferments												41 Suspicious. Fermenting bacteria could not be isolated.
42	Well, [illegible] and [illegible] sts. NW	[illegible]	[illegible]	do	do	Red colonies	Pale yellow, granular	Does not liquefy	Active	Acid	[illegible]	Acid	[illegible]	Coagulated third day	Yellowish, moist, spreading	Considerable	42 Intestinal bacillus.
43	Do	[illegible]	Innumerable	do	do												43 Intestinal bacillus.
44	Do	[illegible]	[illegible]	0	do												44
45	Well, cor. [illegible] and [illegible] sts. NW	[illegible]	[illegible]	0	do												45
46	Do	[illegible]	[illegible]	Ferments	do												46 Suspicious. Fermenting bacteria could not be isolated.
*47	Well, [illegible] F st. NW	[illegible]	Innumerable	0	do												47
48	Well, [illegible] M st. NW	do	[illegible]	0	do												48
*49	[illegible], Ivy City	do	[illegible]	Ferments	do												49
50	Do	[illegible]	[illegible]	do	do	Red colonies	Dark, coarsely granular	Liquefies	Active	Acid	[illegible]	Acid	[illegible]	Coagulated second day	Yellowish, moist	None	50 Suspicious. Proteus vulgaris.
*51	Well, B. G. Cleveland, Ivy City	[illegible]	[illegible]	do	do				do	do	[illegible]	do	[illegible]	Coagulated sixth day; pink	Yellowish, elevated, moist, spreading	Considerable	51
*52	Do	[illegible]	[illegible]	do	do	Red colonies	Pale blue, granular, spreading	Does not liquefy	do	do	[illegible]	do	[illegible]	Coagulated fourth day	Yellow, elevated, spreading	do	52 Intestinal bacillus.
*53	Well Georgetown University (small boys)	[illegible]	Innumerable	do	do	do	Brownish granular, slightly spreading	do	Slight	do	[illegible]	do	[illegible]	Not coagulated eighth day; pink	Brown, elevated, moist, spreading	Slight	53
*54	Do	[illegible]	[illegible]	do	do		do	do	do	do	[illegible]	do	[illegible]	Not coagulated eighth day; pink	do	do	54
*55	Well Georgetown University (large boys)	[illegible]	[illegible]	0	do												55
*56	Do	[illegible]		0	do												56
*57	Well, [illegible] Central ave., Ivy City	[illegible]	[illegible]	Ferments	do	Red colonies	Brown, granular, spreading	Rapidly liquefies	Active	Acid	[illegible]	Acid	[illegible]	Coagulated; [illegible] fifth day	Yellow, elevated, moist, spreading	Considerable	57 Suspicious. Proteus vulgaris.
*58	Do	[illegible]	[illegible]	0	0												58
*59	Well, [illegible], Takoma	[illegible]	[illegible]	0	Ferments	Red colonies	Hyaline granular, irregular contour, spreading	Does not liquefy	Slight		[illegible]		[illegible]	Coagulated sixth day	No apparent growth	Slight	59
*60	Do	[illegible]	[illegible]	0	do	do	Pale blue hyaline, spreading	do	do		[illegible]		[illegible]	Coagulated second day	do	Trace	60
61	Spring, Brightwood ave.	[illegible]	[illegible]	Ferments	do	do	Pale hyaline, slightly spreading	do	Active	Alkaline	[illegible]	Acid	[illegible]	Not coagulated eighth day; [illegible]	Yellowish, moist, spreading	Slight	61 Suspicious.
*62	Well, near Brightwood ave.	do	[illegible]	do	do	do	Pale hyaline, granular, spreading	do	do	do	[illegible]	do	[illegible]	Coagulated second day; pink	White, elevated, dry	None	62 Suspicious.
*63	Well, [illegible] st. NW	[illegible]		0	0												63
*64	Spring, Georgetown University	[illegible]	Innumerable	Ferments	Ferments	Red colonies	Small blue, surface colonies, spreading	Does not liquefy	Active	Acid	[illegible]	Acid	[illegible]	Coagulated second day; white	Slight, moist, growth	Considerable	64 Intestinal bacillus.
65	Do	[illegible]	[illegible]	do	do	do	Pale blue hyaline, surface colonies, spreading	do	do					Coagulated second day	Yellowish, moist, spreading	Slight	65
66	Well, [illegible] and M sts.	[illegible]		do	do	do	Brownish slightly granular, spreading	do	Slight	Alkaline	[illegible]	Acid	[illegible]	Coagulated fourth day; [illegible]	White, elevated, dry	Considerable	66
*67	Well of Judge [illegible], Takoma	do	Innumerable	do	do	do	Yellowish, granular, spreading	do	Active	Acid	[illegible]	do	[illegible]	Coagulated third day	White, elevated, moist, spreading	Slight	67 Intestinal bacillus.
*68	Do	[illegible]	[illegible]	do	do	do	do	do	do	do	[illegible]	do	[illegible]	do	do	Trace	68
69	Well, [illegible] Valley st.	[illegible]	[illegible]	0	0												69
70	Do	[illegible]	[illegible]	Ferments													70
*71	Well, Wesley Heights	[illegible]	[illegible]	do	Ferments	Blue colonies									White, elevated, moist, spreading	Considerable	71
*72	Do	[illegible]		do	do												72
*73	Well, H. W. [illegible]	[illegible]	[illegible]	do	do	Red colonies	Yellowish, granular, spreading	Does not liquefy	Slight	Acid	[illegible]	Acid	[illegible]	Coagulated second day	Yellowish, moist, spreading	Slight	73 Intestinal bacillus.
*74	Do	[illegible]	[illegible]	do	do	do											74
*75	Well, [illegible] K st. NW	[illegible]	[illegible]	do	0												75
*76	Do	[illegible]	[illegible]	do	Ferments	Red colonies	Brownish, granular, spreading	Rapidly liquefies	Slight	Acid	[illegible]	Acid	[illegible]	Coagulated third day	Yellowish, moist, gas producing	Considerable	76 Suspicious. Proteus vulgaris.
*77	Do	[illegible]	[illegible]	0	0												77
*78	Well, S. M. Lewis, Takoma	[illegible]	[illegible]	Ferments	Ferments				Active	Acid	[illegible]	Acid	[illegible]	Coagulated second day; pink	Yellowish, elevated, moist, spreading	Considerable	78 Intestinal bacillus.
*79	Do	[illegible]	[illegible]	do	do	Red colonies	Yellowish, granular, spreading	Does not liquefy	Slight	do	[illegible]	do	[illegible]			Trace	79
*80	Well, [illegible] st. NW	[illegible]	[illegible]	0	0												80
*81	Do	[illegible]	[illegible]	0	0											Considerable	81
*82	Well, Power House, Brightwood	[illegible]	[illegible]	Ferments	Ferments		Yellowish, slightly granular, spreading	Does not liquefy	Slight	Acid	[illegible]	Acid	[illegible]	Coagulated sixth day	Yellow, elevated, moist	Trace	82 Intestinal bacillus.
83	Spring, near Piney Branch	do	[illegible]	do	do	Red colonies	do	do	do	do	[illegible]	do	[illegible]	Coagulated third day; pink	Yellow, elevated, moist, spreading	Slight	83 Intestinal bacillus.
*84	Well, [illegible] Sheridan ave.	do		do	do	do	Yellowish, granular, spreading										84
*85	Well, Mr. [illegible], [illegible] Sheridan ave.	do	[illegible]	Ferments	do	Red colonies		Does not liquefy	Slight	Acid	[illegible]	Acid	[illegible]	Not coagulated sixth day; pink	Pale yellow, moist, spreading	Considerable	85 Suspicious.
86	Well, T st., bet. 12th and 13th sts. NW	[illegible]	[illegible]	0	do												86
87	Well, M st., bet. 4½ and 6th sts. SW	[illegible]	[illegible]	0	0												87
88	Well, [illegible] and [illegible] sts. NE	[illegible]	[illegible]	0	0												88
89	Do	[illegible]	[illegible]	0	0												89
*90	Artesian well, [illegible]	[illegible]	[illegible]	0	Ferments												90
*91	[illegible] water	do		0	do												91
*92	Do			Ferments	do	Red colonies		Liquefies	Active	Acid	[illegible]	Acid	[illegible]	Coagulated milk			92 Suspicious. Sewage bacteria.
93	Well, T st., bet. 13th and 14th sts. NW	[illegible]															93
94	Well, Mt. [illegible], Takoma	[illegible]		0	0												94
*95	Well, Number [illegible] and [illegible] st.			0	0			Liquefies	Slight	Acid	[illegible]	Acid	[illegible]	Coagulated fourth day	Yellow moist	Considerable	95 Intestinal bacillus.
96	Well, [illegible] st. NE		[illegible]	Ferments	Ferments	Red colonies	Yellowish, granular, spreading	Does not liquefy	do	do	[illegible]	do	[illegible]	Coagulated third day; pink	Yellowish, elevated, moist	do	96 Intestinal bacillus.
97	Potomac water	[illegible]	[illegible]	do	do	Red colonies	Yellowish iridescent, spreading	do	Active	do	[illegible]	do	[illegible]	Coagulated third day	Yellowish, elevated, moist, spreading	Slight	97 Intestinal bacillus.
98	Do	[illegible]	[illegible]	do	do	do	Yellowish, slightly granular	Liquefies	do	do	[illegible]		[illegible]	Coagulated fourth day	do		98
99	Do	[illegible]	[illegible]	do	do	do	Yellowish, coarsely granular	Does not liquefy	Slight	Acid	[illegible]	Acid	[illegible]	Coagulated second day	White, moist, spreading	Considerable	99 Intestinal bacillus and proteus vulgaris.
100	Do	[illegible]	[illegible]	0	do	Red colonies	Pale blue, slightly granular, spreading	do									100
101	Do	[illegible]	[illegible]	0	do				Active	Acid	[illegible]	Acid	[illegible]	Coagulated sixth day; yellow	Yellowish, elevated, moist, spreading	Trace	101 Proteus vulgaris.
102	Do	[illegible]	[illegible]	0	do			Does not liquefy	Slight	do	[illegible]	do	[illegible]			Slight	102 Suspicious.
103	Do	[illegible]	[illegible]	Ferments	do	Red colonies	Yellowish, granular, spreading		do	do	[illegible]	do	[illegible]	Coagulated second day	White, elevated, spreading, moist	Considerable	103 Suspicious.
104	Do	[illegible]	[illegible]			do	do	Rapidly liquefying	Active	do	[illegible]	do	[illegible]	Coagulated third day	White, slightly moist	do	104 Suspicious. Proteus vulgaris.
105	Do	[illegible]	[illegible]	Ferments	Ferments	do	Brownish, coarsely granular, spreading	do	do	do	[illegible]	do	[illegible]	Coagulated second day	No apparent growth	Slight	105
106	Do	[illegible]	[illegible]	do	0		Yellowish, granular, irregular	Does not liquefy	Non-motile	do	[illegible]	do	[illegible]	Coagulated third day	White, elevated, gas producing	do	106
107	Do	[illegible]		do	Ferments	Red colonies	Large, slightly granular, spreading	do	Slight	do	[illegible]	do	[illegible]	Coagulated fourth day	Brown, elevated, moist	Considerable	107
108	Do	[illegible]		do	do	do	do	do	do	do	[illegible]	do	[illegible]	Coagulated sixth day; pink	Yellowish, elevated, moist	do	108 Intestinal bacillus.
109	Well, Jas. G. [illegible] (dairy)	[illegible]	[illegible]	do	do	Red and blue colonies	Pale blue, slightly granular, spreading	do	do	do	[illegible]	do	[illegible]	Coagulated second day; pink	do	do	109 Intestinal bacillus.
110	Spring, Jas. A. [illegible] (dairy)	[illegible]	[illegible]	do	do	do	Yellowish, granular, spreading	do	do	do	[illegible]	do	[illegible]	Coagulated second day	Yellow, moist	Considerable	110 Intestinal bacillus.
111	Well, B. G. [illegible] (dairy)	do	[illegible]	do	do	Red colonies	Yellowish, granular, coalescing, spreading	do	do	do	[illegible]	do	[illegible]	Coagulated third day	Yellowish, moist, spreading	Trace	111 Intestinal bacillus.
112	Well, [illegible] (dairy)	[illegible]	[illegible]	do	do	do	Pale blue, slightly granular, spreading	do	Active	do	[illegible]	do	[illegible]	Coagulated second day	do	Considerable	112 Intestinal bacillus.
113	Well, [illegible] (dairy)	[illegible]	[illegible]	do	do	do	Brownish, granular, coalescing										113
114	Well, Geo. T. [illegible] (dairy)	do		do	do			Does not liquefy	Slight	Acid	[illegible]	Acid	[illegible]	Coagulated third day	Very slight moist growth	Slight	114 Fermenting bacilli could not be isolated.
115	Spring, Hygienic Ice Co.	[illegible]		do	0		Pale blue hyaline, spreading										115
116	Do	[illegible]	[illegible]	do	0												116
117	Ice, Transparent Ice Co.	[illegible]		0	0												117 Suspicious. Fermenting bacteria could not be isolated.
118	Do	[illegible]		Ferments	Ferments	Red colonies		[illegible]	Slight	Acid	[illegible]	Acid	[illegible]				118
119	Ice, National Capital Ice Co.	[illegible]		do	0												119
120	Do	[illegible]		0	0												120
121	Ice, Washington Ice Co.	[illegible]		Ferments	0	Blue and red colonies			Active	Acid	[illegible]	Acid	[illegible]				121
122	Do	[illegible]		0	0									Coagulated fourth day	Pale yellow, moist, spreading	Considerable	122
123	Ice, Great Falls Ice Co.	[illegible]		Ferments	0												123
124	Do	[illegible]		do	0	Red and blue colonies									White, elevated, dry	Slight	124 Suspicious.
125	Ice, [illegible] Ice Co.	[illegible]		0	0												125
126	Do	[illegible]		Ferments	Ferments												126
127	Ice, Independent Ice Co.	do		do	do	Red and blue colonies	Coarsely granular and spreading	Liquefies	Active	Alkaline	[illegible]	Acid	[illegible]	Coagulated milk third day	Yellow moist		127 Proteus (?).

There are certain conditions which favor the viability and multiplication of bacteria in water—a proper temperature, organic matter, either animal or vegetable, and more especially those excrementitious products from men and animals.

Water from natural sources, such as springs and wells not subjected to the last two causes, contain but few bacteria, much less than water from other sources. The number of bacteria estimated per each cubic centimeter varies usually from 25 to 150, while water from other sources may exceed these numbers and even go into the thousands, it depending upon the character of pollution as well as the time of the year, and other factors which influence the increase or diminution of their numbers.

Let us consider the Potomac River water as an example of river water used for drinking purposes. In 1886—in a table given by Dr. Theobald Smith—the number of bacteria present in each cubic centimeter was the highest in the winter (3,500, January–February) and the lowest in September–October (500). These observations have been confirmed by myself in 1891, 1892, 1893, and 1895. During the summer months the number of bacteria always diminished—unless just after a rain, when their number was temporarily increased. There was a progressive increase during the fall coincident with the rains and continued throughout the winter with little or no diminution.

During this time a greater variety of species also are present, many more than are found in the summer. In the early spring the number was usually higher, due in most part to the spring rains washing into the Potomac a great quantity of soil, etc. We find that on consulting the mortality records of Washington that there is an increase of diarrhœal diseases, which occurs in summer and is not synchronous with the great increase of the number of bacteria. It can not be asserted that bacteria lose their disease-producing properties during the cold weather, because some of the worst epidemics of typhoid fever have been those which have occurred during cold weather. The city of Hamburg shows identically the same morbidity and mortality curve of typhoid fever as we find in Washington—always occurring in the later summer months, when the number of bacteria in the water is at a minimum. The explanation is, that in winter and in spring there is always an increase in the volume of the water; with this increase of water there are greater numbers of bacteria washed from the soil; with this increase of bacteria (some of which may be pathogenic, but not as a rule in great numbers) is another factor which remains about the same—or is increasing gradually the pollution of the water by excrementitious materials. If this material contains disease germs—and in all probability it does—the number will be largely diluted by the increase of the volume of water, and the immunity enjoyed by persons during this time depends upon there being more chances in not imbibing the disease germ than would have occurred in summer when the water is less. The chances are thereby increased in a geometrical proportion—inversely to the concentration of the pathogenic germs.

It is a foregone conclusion that bacteria, unless those causative of specific disease, will be more than passing disturbers, say, the colon bacillus. The disease germ must always be present in the water before a disease can be produced in others, and this disease germ must be derived from a person or animal sick with the disease.

Koch has announced that a water which contains over 400 bacteria to the cubic centimeter should be looked upon with suspicion, and that if it contains less than 200 per cubic centimeter may be considered good. This statement, while in the main true, must be taken on condition. If bacteria are constantly present which belong to the intestinal (sewage) group, even as low as 25 to the cubic centimeter, it would not be safe to use it. While the bacteria may not in themselves be the cause of disease, they point out clearly that the water is contaminated with bacteria from the intestinal canal, which lacks only one factor to cause disease—the disease germ. This may at any time be conveyed to the water through this channel. The reports on the prevalence of typhoid fever in the District, made by the committee of the Medical Society, and the special report of Dr. G. M. Kober, clearly demonstrates

that there is a causal relation between water containing the colon group of bacteria and the prevalence of typhoid fever. The bacteriologic examination in 1894 shows that of the water of 13 wells 9, or 69 per cent, were contaminated, while 3 of the remaining 4 contained such a large number of bacteria to the cubic centimeter that they were regarded suspicious. During the past autumn 135 specimens of water from springs, wells, and Potomac water were examined by Dr. Andrade and myself, they having been submitted by Dr. Kober. About 60 of the wells and springs were found to be contaminated with the sewage or contained bacteria which were suspicious. The surface wells are, by reason of their shallow depth and their location near sewers or privy vaults, usually show sewage pollution. Wells so located should always be looked upon with suspicion. In fact, stronger terms should be applied to them; they are a danger. As long as you make provision by sewers or open drains for the disposal of sewage just so long will there be soil pollution and water contamination. No method has yet been devised to make and maintain an absolutely water-tight sewer or drain; they sooner or later leak. Until the millennium of the perfect sewer construction has arrived, we must abandon wells as a source of water for a city. The situation with regard to wells can be summed up in a few words. As long as you drink well water you will have typhoid fever, and more of it drank the larger the number of cases.

Well water, however, is not responsible for all the ills of humanity; there are other causes equally potent in producing disease. Milk and other articles of food may also be the cause of infection.

There is still another avenue of infection.

The Potomac water, while it does not show the same degree of pollution as the majority of the wells and springs, yet it is far from being free from suspicion. In 1891, 1893, and 1895 I have isolated the colon group of bacilli from the public water supply.

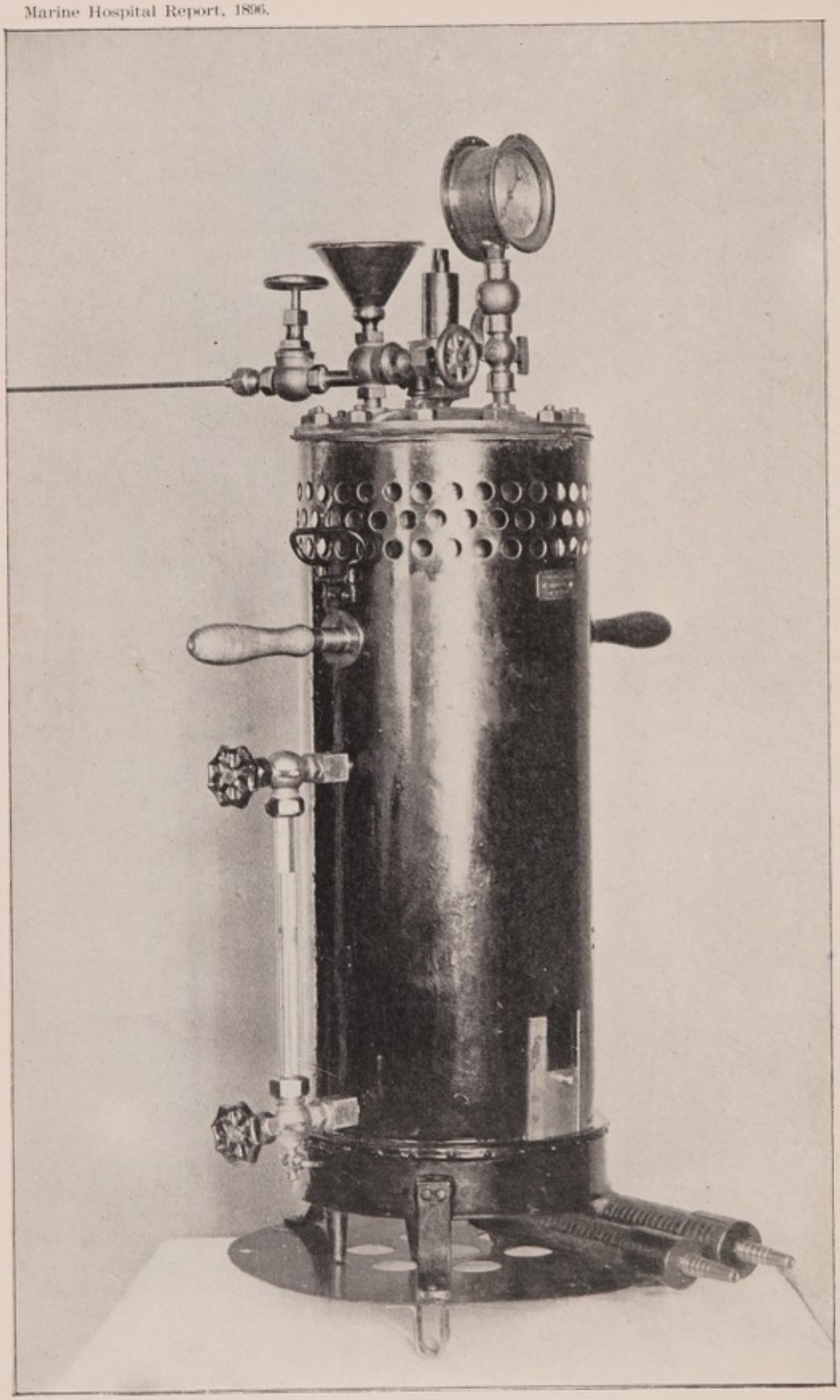
To exactly determine how the water became infected and the location of the point of infection can not be stated, but from a more extended examination of this water during the past fall I surmised it came from the sewage from the towns located on the river about the Great Falls. During the time—October to December—the Potomac water contained intestinal bacteria five times and was found to be suspicious four times. Had our examinations begun earlier in the season, it is not improbable that the water would have shown a still greater degree of contamination.

How far a stream will convey bacteria, especially the colon group of bacilli, has not been accurately determined—certainly over 20 or even 50 miles if our laboratory experiments are of any value. We know from them that the typhoid bacilli and its constant companion, the colon bacillus, will live in distilled water from eight to ten days, while in water containing organic matter a much longer time. If fifteen days be the limit of their viability, if they are present in a stream whose flow is as low as 1 mile per hour, all things being favorable, 300 miles can be covered by them before death. The claim which has been made that the Potomac water will purify itself in so short a distance as from the Great Falls down to our city can not be accepted in the light of what is known about this group of bacteria.

Sunlight and aeration have a bacteriocidal effect, but I think too much stress has been laid upon this fact. Dunbar, of Hamburg, who has investigated this subject very thoroughly, has stated that the water shows fewer numbers on the surface, due to the action of oxygen and sunlight, but at a short depth, even under the most favorable conditions, there appears to be little or no diminution.

In the light of these observations it would appear that the water does not purify itself to any great extent; the number of bacteria does not show the diminution that one is led to believe would occur from the oxidization of the nitrites into nitrates, etc.

Hamburg is a notable instance of the fallacy of this theory. There was an example of the implicit confidence in nature to perform miracles. The consequences of this belief were not made apparent to the authorities until cholera appeared in 1892, when within six weeks the number of deaths amounted to over 10,000. The majority



APPARATUS DESIGNED IN THE MARINE HOSPITAL BUREAU FOR GENERATION OF FORMALDEHYD GAS.

of cases were directly traceable to their public water supply, in which they had so much confidence of being purified by sedimentation, by aeration, and the action of sunlight. Zurich was another example of misplaced confidence. A few years ago this city also depended upon nature's agents to purify its water from sewage. Chicago, noted next to Washington for typhoid fever, believed also in this system of false security. Both these latter cities have found it necessary to change their systems, one by the erection of a filtration plant, the other by the disposal of the sewage by the great drainage canal. The Potomac River appears now to be the only source of an adequate water supply for the nation's capital. The several hundred miles of the river and its tributaries, the large area of its watershed, the constant and ever increasing population, will be more and more of a menace to our health. Harpers Ferry, Cumberland, and Frederick are now disposing of their sewage by emptying it into the Potomac. This condition of affairs will go on increasing, and with this typhoid fever and other diseases will prevail in a direct ratio to the pollution.

Under the present circumstances it would be next to impossible to control the watershed and abate the nuisances, and the only other remedy is filtration.

By properly constructed filtering beds, used in conjunction with the proposed sedimenting basins, at least 95 per cent of the present dangers can be removed. Washington has at present a large supply of water, larger in proportion than many other cities. While I do not think that a city can have too much water, it would be far better to have what is present supplied us purified than to accept the other alternative of increasing the supply under the present system. Too much importance is attached to the subject of sewers. While it is admitted they are necessary, they are only of secondary importance. Baltimore and New Orleans have had no sewers; Munich is only half sewered, yet these are the cities which are quoted as examples of having the fewest cases and deaths from typhoid fever. If a filtered water could be supplied to all parts of the city, even under the same conditions as now exist, I would be prepared to say that Washington would show such a remarkable decrease in the mortality from the water-borne diseases that its influence would be far greater in allaying the evil than any of the proposed plans for a greater Washington.

MALARIAL FEVERS.

As a preliminary to a work which it is earnestly hoped the laboratory will be permitted to undertake in the near future, an investigation of the different forms of malarial infection is now being conducted with the assistance of a representative from the local health office, with a view to their classification. In addition, the mixed infections are being studied—that is, other affections which are complicated with malaria. A preliminary report on the results of these researches is expected shortly.

FORMALDEHYDE GAS AS A DISINFECTANT.

About eighteen months ago a few experiments were begun upon the action of formaldehyde gas as a disinfectant, with a view of determining whether it could supplant other gaseous disinfectants. No great confidence was at first felt with regard to it, but subsequently the reports of the French and German scientists indicated a successful determination of its efficacy.

Some of their experiments have been duplicated with identical results, and they have been sufficiently extensive to determine the powerful disinfecting properties of this agent.

Since then, in conjunction with my colleague, Passed Assistant Surgeon Geddings, a series of experiments has been instituted to determine whether this agent could be used for the disinfection of infected apartments and their contents. This inquiry will doubtless require several months before a full report can be made thereon, but it has now progressed far enough to state that it will, doubtless, revolutionize the system of disinfection as now practiced.

DISINFECTION OF RAILWAY COACHES.

We have now under consideration the purification and disinfection of railway coaches with formaldehyde gas, the scope and character of this investigation being best demonstrated by the following letters sent to the several railway companies centering in Washington:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., July 18, 1896.

SIR: At present there is being conducted in the Hygienic Laboratory of this Service an inquiry into methods pertaining to car sanitation and those especially pertaining to the purification and disinfection of railway coaches.

It is the intention that this inquiry shall not only include those applicable to the cars which are infected with or have been exposed to infection from the recognized quarantinable diseases, viz, cholera, typhus fever, smallpox, yellow fever, and plague, but to other diseases as well.

The methods which are now recognized as efficient for disinfection are open to objection on account of the damaging effects upon the upholstery and decorations. It is believed that in the very near future a system can be formulated by which the major objectionable features can be done away with, and that purification and disinfection can be accomplished in a practical and feasible manner, with but little expense and loss of time.

In order to ascertain whether the methods now under investigation will in any way be injurious to the different fabrics used in the upholstering and equipment of railway coaches it will be necessary to test the various materials used in the upholstery, bedding, and carpentering.

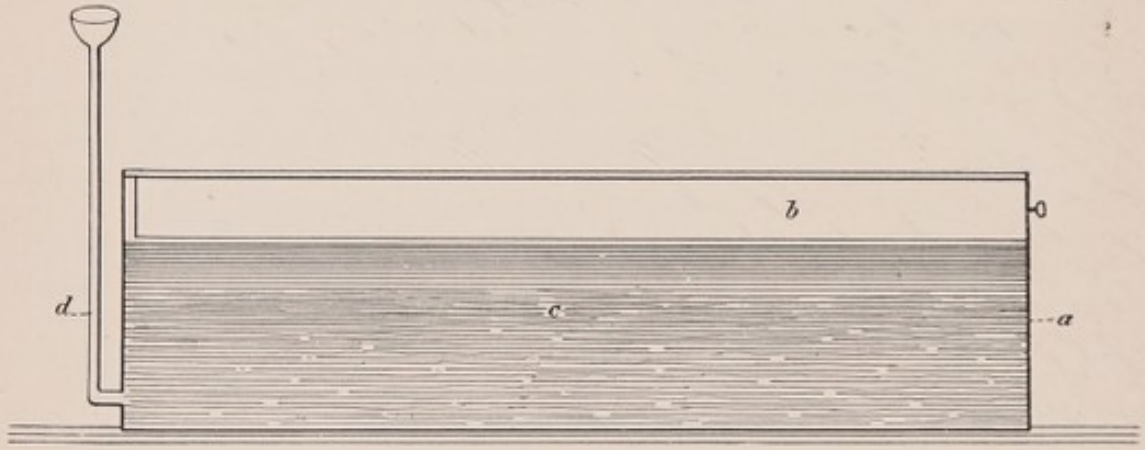
I have to invite your cooperation in this matter, and would request that if possible you will forward to this office samples of the aforesaid materials for these tests.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., September 5, 1896.

SIR: On July 18, 1896, a letter from this office was addressed to your company calling attention to certain experiments now being conducted in the Hygienic Laboratory upon the disinfection of railway coaches and their contents. You were asked to cooperate by submitting samples of material used in the upholstery and furnishings of the passenger coaches, and your prompt compliance with this request is again with thanks acknowledged.



a. Tray of sheet brass, containing —
b. A drawer of brass, with bottom of brass wire gauze,
c. Layer of absorbent cotton saturated with formalin,
d. Funnel for introducing formalin.

APPARATUS FOR DISINFECTING BANK NOTES WITH FORMALIN.

The experiments above referred to have progressed satisfactorily, and have now reached a stage where they should be of a more practical character; that is to say, tests should be made within a railway coach.

Your further cooperation is solicited, and it is requested, if possible, that you will place at the disposal of the officer in charge of the Hygienic Laboratory facilities for carrying out this work. The contemplated experiments will in no way injure the car or its furnishings.

If such privilege be granted it is desirable that your company be represented at these tests.

I would add that if, having found an inexpensive scientific method of disinfecting railway coaches without any possible injury to the wood or fabrics therein, it is contemplated, with your cooperation, to institute an inquiry as to the necessity of car disinfection. This matter is one which is attracting the attention of public health officers throughout the United States at the present time. As may be seen in the various published reports of public health organizations, there is a growing belief that the railway coach plays no unimportant part in the transmission of disease, particularly diphtheria and tuberculosis. At the present time, however, the data collected are not sufficient to determine to what extent this belief is justified, it being grounded chiefly upon inferences drawn from the known behavior of infectious disease in habitations, and it would not be proper to draw positive conclusions, because the conditions in a railway coach are different. For determination of the matter it will be necessary to make a number of observations upon the sanitary condition of a number of cars at different times and places.

I have therefore respectfully to request an expression of consent upon your part that facilities be extended for making these observations, and would be glad if the medical corps attached to your railway service would aid in said observations. After completion of the observations it is proposed to submit the results to your company with a view to arriving at conclusions of practical benefit.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

DISINFECTION OF BANK NOTES.

Following is the report on this subject made in accordance with your instructions:

MARINE-HOSPITAL SERVICE, HYGIENIC LABORATORY,
Washington, D. C., April 30, 1896.

SIR: Referring to inclosed letter of Dr. Samuel P. Duffield, health officer, Detroit, Mich., relative to the disinfection of bank bills possibly infected with smallpox, I would state that in my opinion it would be perfectly feasible to disinfect said bills by means of "formalin" (40 per cent solution of formaldehyd) used in apparatus, sketch of which is herewith inclosed, and exposed for not less than two hours. I would further state that the bills should be spread out upon the rack in a thin layer, preferably not more than one or two bills in depth. For the transmission of possibly infected bank bills, it is recommended that the bills in packages of twenty be inclosed between slips of blotting paper saturated with the above-mentioned "formalin," and that these packages, properly wrapped, be shipped through the ordinary channels.

Respectfully yours,

J. J. KINYOUN,
Passed Assistant Surgeon, M. H. S.

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

THE ANTIVIVISECTION BILL.

During the past year a bill was introduced in Congress which purported to be for the prevention of cruelty to animals, but the effect of which would be to prevent animal experimentation in the laboratories of the Marine-Hospital Service, the Army, Navy, and the Bureau of Animal Industry. Its passage was urged by the Humane Society and other antivivisectionists. In connection therewith I had the honor to address you the following letter:

HYGIENIC LABORATORY, *May 16, 1896.*

SIR: I have the honor to invite your attention to a certain bill introduced in the Senate (S. 1552) which has for its object the restriction and control of experimentation on animals. This bill, if it becomes a law, will materially affect the scientific research work of the laboratory of the Marine-Hospital Service as well as that of the Medical Department of the Army and Navy and the Bureau of Animal Industry. The reasons given by the promoters of the bill for need of such legislation is the fact that there now exist in the District of Columbia the aforesaid biological laboratories in which experimentation and vivisection of animals are performed. It is also claimed that in these laboratories the infliction of pain and unnecessary cruelty upon animals is constant and of common occurrence. Further, it is claimed that such experiments are performed in public schools and the medical colleges. The biological laboratories of the several Departments of the Government located in the District of Columbia have been established by acts of Congress, and have for many years received its sanction. It is quite remarkable, if such condition of affairs exists, that no notice has been thus far taken by Congress, save favorable action in appropriating funds for the continuance of investigations. It has been heretofore stated to me by persons who are now the most ardent advocates of the bill that the object of this agitation is to have enacted some law bearing upon vivisection and animal experimentation which will allow these persons to supervise and control all research work in these laboratories, with the ultimate purpose of abolishing it altogether. I am convinced that the same sentiment and purpose exists now as formerly, because similar expressions have been recently made by the advocates of the bill.

I have been connected with the laboratory of the Service, as you well know, since its institution, 1887, and have been in a great measure responsible for the character and manner of conducting the investigations therein. On account of these allegations, I feel it my duty, both to the Service and myself, to call in question these statements with regard to the cruel manner in which the research work of the laboratories is performed. It will not be necessary to review in detail what has been accomplished since the institution of the laboratory, because much of it is a matter of record, but to state that our researches have been in the line of investigations relating to the cause and prevention of quarantinable diseases, and other matters pertaining to the public health. These investigations have been made subjects of reports to the Bureau, and are a matter of record. Many of the subjects investigated in laboratory by reason of their nature required experimentation upon animals, for without such it would have been impossible to arrive at any conclusion of value. Our present methods of management of the contagious and infectious diseases rests entirely upon such laboratory investigations. Nothwithstanding the wonderful progress made in the prevention of diseases during the past twenty years, especially those designated as acutely contagious maladies, it has been stated by the opponents of vivisection and experimental research that all the knowledge for our guidance has been gained in the broad lines of common experience, and little, if any, benefits to the human race have been added by these cruel and awful experiments. These allegations are not worthy of being called arguments, for to anyone of unbiased mind the record should speak for itself.

To better illustrate what has been done with one disease in particular, let us consider the status of the disease diphtheria. The lesson taught by the year 1895 should bear some little conviction even to the most skeptical. During the past six months the Bureau has been engaged in a collective investigation showing the prevalence of and mortality from diphtheria and croup in the cities of the United States having a population of 25,000 and over. In 109 cities having a population of 11,125,000 there occurred from 1891 to 1894, inclusive, 131,620 cases of diphtheria and croup, with 51,820 deaths, a mortality of over 39 per cent. In 1895, in the same cities, there occurred 45,690 cases, with 11,640 deaths, or a death rate of 25 per cent as compared with the average 39 per cent of the four years previous. It is also remarkable that the diminution of the death rate has been in those cities where the diphtheria antitoxin has been in extensive use, and has remained stationary in others where its use was limited. The greatest diminution appears in the cities of New York, Brooklyn, Washington, St. Louis, Chicago, and Boston, where a large quantity of antitoxin has been used. This does not imply that antitoxin has been used in every case occurring in these places where the death rate has been lower. To form some estimate of the actual value of the remedy for the control of diphtheria as well as for reducing the death rate, I have tabulated, from reports sent to this Bureau by health officers and other authentic sources, a number of cases treated with antitoxin which I hope will be convincing arguments in favor of the remedy. In 1895, 5,125 cases of diphtheria and croup were treated with antitoxin, with a death rate of 552, or 10.7 per cent, while of 2,936 cases occurring synchronously in the same places there were 1,110 deaths, a mortality of 40 per cent. In addition to the above, I have also collected 2,400 cases which have been exposed to diphtheria or were found to have the diphtheria bacilli in their throats. These were immunized with the remedy, with the result of 19 mild cases occurring, and the majority of those within two days after the injection, and in none of these were unpleasant results noticed. Prof. William H. Welch, of Johns Hopkins University, has collected 7,166 cases of diphtheria occurring in Europe from 1894 to 1895 which were treated with antitoxin, with a mortality of 17 per cent, against 2,279 cases occurring synchronously not treated with antitoxin, with a death rate of 42 per cent. Compiling these two reports, we have 12,332 cases treated with antitoxin, with a mortality of 14 per cent, against 5,215 cases not treated with antitoxin, with a mortality of 41 per cent. From the study of the reports received from the 109 cities having a population of 11,125,000 it would be safe to infer that there have occurred in the United States during the past five years over 250,000 deaths from diphtheria and croup. If antitoxin could have been obtained and used in all cases of diphtheria occurring in the United States during the past five years, it would be safe to say that there would have been saved at the lowest estimate 150,000 lives. These five years represent an epoch in the prevention and treatment of diphtheria, for it was during this time that Behring, Roux, and their collaborators were patiently pursuing their labors with this purpose in view. The reports of the efficacy of the remedy are not confined to this country. The same come from all parts of the world. One of the most striking is submitted by Dr. Monod, director of the public health department of France:

"M. Henri Monod, of the public health department of France, has recently communicated to the Academy of Medicine certain statistics which have an important bearing upon the value of the antitoxin of diphtheria. In 108 towns of 20,000 inhabitants and over, with an aggregate population of 8,150,000, the average number of deaths from diphtheria during the first six months of the seven years 1888–1894 was 2,627. In the three months, November, 1894, to January, 1895, the Institut Pasteur distributed over 50,000 supplies of antitoxin serum, and this supply, which was maintained, was made available not only for the well-to-do but also for those who by reason of poverty were compelled to receive it by gratuitous distribution. Now, in the first six months of 1895 the number of deaths from diphtheria in the same 108 towns was only 904, or a diminution at the rate of 65.6 per cent. The rate

of diminution, month by month, went on almost uniformly from one of 56.2 per cent for the month of January to 47.5 per cent for the month of June. On these data alone a saving of 15,000 lives would have been effected during the first half of 1895."

Notwithstanding this array of facts presented in regard to diphtheria, many of the advocates of this proposed legislation—I may say the majority—are unwilling to admit that the use of such a remedy is of value or the means of producing it justifiable. To better illustrate the undercurrent of feeling which is entertained regarding the value of such experiments conducted upon animals for the prevention and cure of diphtheria, I call to mind an incident which occurred in this city about two and one-half years ago. I had consented to appear before a certain society for the purpose of stating what had been accomplished by the scientific researches of the laboratories in the prevention of disease. On explaining the value of our methods in preventing diphtheria, I was told by several female antivivisectionists that they would sooner let a child die of diphtheria than to save its life by the sacrifice of a guinea pig. I hope none of them were mothers. To further illustrate this peculiar order of mind—or rather, disorder of mind—I beg to recall an order, which emanated from this Bureau, directing me to investigate the claims made for the treatment of cholera by cobra venom. This substance was claimed by Perroux, of Calcutta, to be an infallible remedy against cholera, and that it had been used by the mountain tribes of India for many years in the treatment of disease with wonderful success. In carrying out the spirit of the order, and in order to arrive at the proof, it became necessary to resort to experiments upon animals. This fact happened to be mentioned by the daily press simply as a news item. A few days thereafter I began to receive anonymous letters, two of which I wish to submit as evidence:

Letter No. 1.—"You vile, merciless, rascally fiend. I judge from your name you are a nasty Frenchman, with no heart and without a God. If you think you will be permitted to set up a place of torture in this country for poor animals, you are vastly mistaken. You will have to betake yourself to the vile and godless country from which you came or to the hell to which you are destined; and if you wish to indulge in such fiendish performances when you reach the latter place, which I hope you will soon, unless you repent, you will have an opportunity, with kindred fiends, of torturing yourself through the endless ages of eternity. I am a woman who despises brutes and all brutal actions."

Letter No. 2.—"When pain, the most awful sensation of the human frame, exists, let its alleviation or study prove the sole lawful guide to future cases.

"Only the most damnable fiend cloaked in human form ever lifted the knife in vivisection. May the curse of an all-merciful God rest upon you. Laugh, sneer; such as you do. But may every agony your hellish mind and hand inflicts be trebled upon yourself in this world and the one to come, and upon all like you. May your deathbed be such a scene of horror that all will forsake you. May God's curse be upon you."

In conclusion, I wish to quote the words of Professor Welch, who has spoken so clearly and forcibly on the value of the antitoxin treatment of diphtheria:

"The principal conclusion which I would draw from this paper is that our study of the results of the treatment of over 7,000 cases of diphtheria by antitoxin demonstrates beyond all reasonable doubt that antidiphtheric serum is a specific curative agent for diphtheria, surpassing in its efficacy all other known methods of treatment for this disease. It is the duty of the physician to use it.

"The discovery of the healing serum is entirely the result of laboratory work. It is an outcome of the studies of immunity. In no sense was the discovery an accidental one. Every step leading to it can be traced, and every step was taken with a definite purpose and to solve a definite problem.

"These studies and the resulting discoveries mark an epoch in the history of medicine. It should be forcibly brought home to those whose philozoic sentiments outweigh sentiments of true philanthropy that these discoveries which have led to

the saving of untold thousands of human lives have been gained by the sacrifice of the lives of thousands of animals, and by no possibility could have been made without experimentation upon animals."

Respectfully yours,

J. J. KINYOUN,
Passed Assistant Surgeon, M. H. S.

The SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

INSTRUCTION GIVEN TO REPRESENTATIVES OF BOARDS OF HEALTH.

During the past year, upon the request of the health officer of the District, the privileges of the laboratory have been extended by your direction to the representatives of the local health office, Drs. John E. Walsh, William B. French, and George M. Kober. These gentlemen have taken courses of instruction in bacteriology and hygiene.

Scheme of instruction in bacteriologic technique.

The scheme of instruction in bacteriology has been modified so as to cover more than was intended for the special investigation of the subject of diphtheria. Following is the scheme:

Name, synonym:
- Occurrence, habitat.
- Form.
- Size.
- Motility.
- Grouping.
- Spore formation.
- Capsulation.
- Cilia.
- Pleomorphism.

Relation to staining reagents:
- Alkaline methylene blue. (Loeffler.)
- Aniline fuchsin sol. (Koch-Erlich.)
- Aniline-gentian violet sol. (Flexner.
- Carbol-fuchsin sol.
- Dahlia-methyl green sol. (Roux.)
- Methyl-violet sol.
- Carbol-methyl blue sol. (Kuhne.)
- (Biondi-Erlich) triple stain.
- Eosin sol.
- Saffranin sol.
- Acid fuchsin sol.
- Decolorizing processes:
  - Water.
  - Alcohol.
  - Aniline oil.
  - Carbolic acid.
  - Acetic acid.
  - Oxalic acid.
  - Nitric acid.
  - Sulphuric acid.
  - Hydrochloric.
  - Sulphurous acid.
  - Iodine, Gram's method.
- Cilia staining:
  - Loeffler's method.
  - Van Ermangen's method.

Relation to media:
- Beef peptone bouillon, titrated, alkaline.
- Beef peptone bouillon, titrated, acid.

Relation to media—Continued.
- Beef peptone gelatine, titrated.
- Beef peptone lactose litmus gelatine.
  - Stab culture.
  - Streak culture.
  - Plate culture: Roll Petri: Colony (time of appearance; time of characteristic phases):
    - Shape.
    - Size.
    - Color.
    - Texture.
    - Opacity.
    - Translucence.
    - Character of edge of colony.
    - Influence of colony on media.
    - "Contact" preparation.
- Beef peptone agar.
- Beef peptone lactose litmus agar.
  - Stab culture.
  - Streak culture.
  - Plate culture: Roll Petri: Colony (time of appearance; time of characteristic phases):
    - Shape.
    - Size.
    - Color.
    - Texture.
    - Opacity.
    - Translucence.
    - Character of edge of colony.
    - Influence of colony on media.
    - "Contact" preparation.
- Beef peptone bouillon glycerine, 6 per cent.
- Peptone solution—Dunham, — per cent.
- Lactose peptone bouillon, 2 to 5 per cent.
- Glucose peptone bouillon, 2 to 5 per cent.
- Peptone—gelatine agar (Guarani).
- Peptone glycerinized gelatine, 6 per cent alk.
- Peptone agar alk., 6 per cent glycerine.
- Blood serum:
  - Sterilized fluid.
  - Coagulated, inspissated (Loeffler's).
- Potato:
  - Plain.
  - Glycerinized.
  - With bouillon.
  - With agar.
- Milk:
  - Plain.
  - Litmus.
- Special:
  - Pfeiffer's.
  - Flexner's.
  - Eggs.
  - Bouillon from special organs.
  - Bread paste.
  - Bread paste agar.
  - Infusions of vegetables.
  - Synthetic media.

Relation to gas production:
- Character and quantity of gas evolved, estimated in fermentation tube.

Relation to odor production.

Relation to acid and alkali production.
- (Bouillon, with lactose, glucose, containing acid and alkali indicators.)

Relation to color production:
- Reaction to be noted in the aforementioned culture of media.

Relation to phosphorescence:
- First, after being grown in the light.
- Second, those grown and kept in the dark.

Relation to production of enzymes.

Relation to air:
- Acerobic.
- Anaerobic
  - Strict.
  - Facultative.

Relation to temperature:
- Range of temperature in which it grows.
- Optimum temperature.
- Longevity.

Relation to physical agents:
- Heat { Dry. / Moist. } Thermal death point.
- Cold.
- Light.
- Electricity.

Relation to chemical agents:
- Inorganic acids and salts. } Gases.
- Organic acids and salts. }

Pathogenesis:
- Effect of pure culture on susceptible animals:
  - Local infection.
  - General infection.
- Pathology:
  - Macroscopic.
  - Microscopic.
    - Histology.
    - Bacteriology.
- Effect of the products of a pure culture on susceptible animals.
- Immunity:
  - Natural.
  - Acquired.
- Toxins; antitoxin; alexins.
- Clinical diagnosis.

In closing this report I have again to respectfully invite your attention to my previous recommendations made with reference to the location of the laboratory. In 1895 I stated as our work increases it is becoming more and more apparent that its present location in the Bureau building should be abandoned.

* * * * * * *

A laboratory of this character should not be placed in a building used for public offices. It is not only disagreeable to the other occupants, but in no little degree dangerous. I would recommend that a separate building be provided for the laboratory work.

Respectfully submitted.

J. J. KINYOUN,
Passed Assistant Surgeon, M. H. S.

INQUIRY REGARDING WATER SUPPLY OF CITIES—INVESTIGATION OF THE POLLUTION OF WATER SUPPLIES—BACTERIOLOGICAL STUDY OF THE WATER SUPPLY OF SAN FRANCISCO—ARID REGION SANITARIUM FOR TUBERCULOUS PATIENTS—HEALTH SERVICE OF THE UNITED STATES—REPLY TO INTERROGATORIES—THE MARINE-HOSPITAL SERVICE IN ITS RELATIONS TO PUBLIC HEALTH.

INQUIRY REGARDING THE WATER SUPPLY AND DISPOSAL OF SEWAGE AND GARBAGE IN CITIES AND TOWNS.

In the Annual Report of 1895 mention was made of an inquiry of the above character about to be begun by the Bureau. The board appointed to prepare a proper blank form submitted the following, which has been sent to a number of the larger cities, and reports received. The work is still in progress.

CIRCULAR LETTER.

Inquiry relative to water supply of cities and towns of the United States.

TREASURY DEPARTMENT,
Washington, D. C., November 16, 1895.

To Mayors of Cities and Towns of the United States:

Pursuant to the act of Congress of February 15, 1893, entitled "An act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service," and particularly of section 5 of this act, which provides that "the Secretary of the Treasury shall also, as far as he may be able, by means of the voluntary cooperation of State and municipal authorities, of public associations and private persons, procure information relating to the climatic and other conditions affecting the public health," I have the honor to request of you information relative to the water supply of your city and the disposal of sewage and garbage, to be indicated by answers to the specific questions enumerated on the following pages. This information is desired as a part of a collective inquiry to be made of all cities and towns of the United States, in order that the Department may be in possession of data upon a matter which so deeply concerns the public health. As a supplemental source of information, I will thank you to furnish any printed matter issued by your city or by any of its departments covering the general question of your municipal water supply and methods of sewage and garbage disposal.

The inclosed envelope is furnished for transmitting your reply.

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

Approved:
J. G. CARLISLE, *Secretary.*

SOURCE.

State the sources of the present water supply system, whether from springs, artesian wells, watersheds, or streams.

1. What are the physical characteristics of the waters furnished?
2. Is the supply constant in character?
3. Is it subject to contamination? If so, from what source?
4. What is the chemic analysis, and when last made?
5. What is the bacteriologic analysis, and when last made?
6. How long has the present system been in use?
7. What portion of the population depends upon surface wells, cisterns, or springs?

STORAGE.

1. State in what manner the water is stored. Whether (*a*) by reservoirs (their character and construction, and the capacity of such reservoirs) or (*b*) by cisterns (above or below ground).
2. What is the average daily consumption per capita?
3. Is the present water supply sufficient? If not, what method is proposed to supply the deficiency?

PURIFICATION.

1. State whether the water is subjected to processes of purification:
   (*a*) Sedimentation, stating process.
   (*b*) Filtration—
      (1) By mechanical filters.
      (2) By sand filtration.
      (3) By domestic filters.
2. If any of the above methods are employed, how long have they been in use?
3. Do the methods employed give satisfactory results?

DISTRIBUTION.

1. How is the water carried from the source for distribution to the consumer—in aqueducts or through pipes?
2. What is the pressure, how obtained, and is it adequate at all points of distribution?

CONTROL.

1. Is the system of water supply under municipal, corporate, or private control?

DISPOSAL.

1. Is there a system provided for the disposal of waste water?
   (*a*) By sewers.
   (*b*) By open drains.
2. What is the final distribution of the waste water of your city?
3. Does this waste water, directly or indirectly, contaminate water used for drinking purposes?

SEWERAGE.

1. What system is employed for the disposal of sewage—one or both of the following methods?
   (*a*) Sewers.
   (*b*) Cesspools.
2. Are the sewers flushed by natural or artificial means?

GARBAGE DISPOSAL.

1. What methods are in use for the collection and disposal of garbage?

VITAL STATISTICS.

1. What is the population of your city, as shown by the last municipal or other official census?
2. What has been the annual mortality ratio per 1,000 for the past ten years?

INVESTIGATION OF THE POLLUTION OF WATER SUPPLIES.

A bill providing for the investigation of the pollution of water supplies having been introduced at the first session of the present Congress, was referred to this Bureau, through yourself, for such opinion or suggestions as might be deemed proper. I have the honor to submit to you the following report: The bill is still in the Committee on Interstate and Foreign Commerce, House of Representatives, and has not yet been reported upon. Following is my letter, addressed to yourself, showing the necessity of the proposed investigations:

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., February 20, 1896.

SIR: I have the honor to acknowledge the receipt, through you, of the communication from the Committee on Interstate and Foreign Commerce of the House of Representatives relating to the investigation of the pollution of water supplies where such pollution affects, or threatens to affect, the sanitary condition of the people of more than one State, and have to submit the following report showing the necessity of an investigation of this character.

The importance of investigating the pollution of the water courses and other water supplies which are of necessity utilized for drinking purposes can not be questioned when we consider the enormous number of cases of illness and death which are annually caused by waters which have been polluted with sewage and garbage.

As time goes on the situation becomes more and more complex and is fraught with greater danger by reason of the increase in population and the dependence upon streams as the source of water supply.

The diseases which are carried by water are cholera, typhoid fever, dysentery, diarrheal diseases, malarial fever, and, exceptionally, diphtheria, glanders, and anthrax.

With regard to cholera, its frequent spread through the infection of rivers furnishing the water supply of cities has been demonstrated in nearly all European cities.

With regard to the other diseases mentioned, the literature upon the subject shows that they are carried by streams conveying the specific infection of each disease, but the exact distance to which the specific infection of each disease may be carried has not been determined, nor the exact relation that the sewage bears to the spread of disease. The quantity of sewage which may render the water of any particular stream unhealthful; the amount of dilution of the sewage, or other treatment thereof, necessary to prevent the lethal contamination of a particular stream, and the effect of sewage pollution upon the seasonal prevalence of disease, are as yet undetermined problems in the United States.

It can not be questioned at this day that sewage pollution of a water supply is responsible for the majority of the diseases above mentioned.

With regard to typhoid fever, no subject is attracting the attention of the sanitarians of the United States more widely at present than its spread through polluted water supply. The prevalence of typhoid fever throughout the United States during the past year has been very marked. During the calendar year 1895 the reports received at the Marine-Hospital Bureau show that of the cities and towns making report to the Bureau, located on the Mississippi River, with a total population of 1,260,143 (census 1890), there were 490 deaths from typhoid fever, and an estimated number of 4,900 cases; that of similar cities and towns on the Ohio River, aggregating a population of 1,141,527, there were 1,980 deaths reported, with an estimated number of 19,800 cases; or, in a total population of 2,401,660 of cities reporting on

the Ohio and Mississippi rivers, there were 2,470 deaths and an estimated number of 24,700 cases.

On the Great Lakes the cities of the United States reporting to the Marine Hospital Bureau in 1895, aggregating a population of 2,625,775, reported 188 deaths, with an estimated number of 1,880 cases. It should be remarked that two of the great cities on the lakes (Chicago and Buffalo), aggregating a population of 1,420,000, are not included in the above statistics. These cities failed to send in 1895 the weekly reports from which these statistics are compiled, but in the annual reports for the previous year there were 592 deaths reported, indicating 5,920 cases. Adding these cases and deaths to the totals above, it would give an annual total of 780 deaths and 7,800 cases of typhoid fever in the cities of the United States on the Great Lakes, aggregating a population of 2,622,775.

From the above statistics it is estimated that every year there are no fewer than 45,000 deaths caused by typhoid fever alone throughout the United States, not to speak of diarrheal diseases, which latter will augment the above number by half, and, based upon an estimated mortality of 10 per cent, it is within reason to assume a yearly prevalence of 450,000 cases of this disease. To what extent the prevalence of typhoid fever is due to the infection of the rivers and lakes from which cities take their water supply will be one of the subjects for the investigation. The carrying of this disease from one city or town to another by means of water courses has been definitely proven both abroad and in the United States, and the presumption is strong that in the Ohio River, taken as an example, which is the sewer and at the same time the source of water supply for nearly all the cities located upon its banks, this, and other diseases are annually disseminated thereby, and it is one of the prime objects of this bill to determine this point accurately.

There are a number of other streams, such as the Mississippi, Merrimac, Connecticut, Potomac, Missouri, the Red River, the Red River of the North, the Columbia and Wabash rivers, the cities on which in different States show a marked prevalence of typhoid fever.

In the event of cholera obtaining a lodgment in the United States, this accurate knowledge would be of the utmost importance, for while the conveyance of this disease by water courses has been demonstrated in European countries, the conditions relating to the amount of sewage, the length of water courses, etc., are so different in the United States as to absolutely require specific investigation. In other words, the conclusions to be drawn from experiments in foreign countries are not sufficient for the needs of this country.

This subject has long been one of inquiry in England, and the investigation made and conclusions reached have been of inestimable value to a great majority of the cities and towns which were compelled to depend upon streams for their water supply. The same action has also been taken by the sanitary authorities of France and Germany with equal benefit to their people.

In the United States it is impossible for one State bordering on a river, even by most stringent laws, to protect the health of its citizens, because it has no jurisdiction over others.

As our urban populations are rapidly increasing and the question of supplying this great number of people with a sufficient supply of potable water is becoming more important, it behooves our Government to give aid to this by at least pointing out some efficient remedy for this great disturber of the life and happiness of our people.

I am informed that fourteen State boards of health, the National Conference of State Boards of Health, and the American Public Health Association, have passed resolutions urging an investigation of this character.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

The SECRETARY OF THE TREASURY.

BACTERIOLOGICAL STUDY OF THE WATER SUPPLY OF SAN FRANCISCO, CAL.

SAN FRANCISCO, CAL., *November 6, 1895.*

SIR: The United States is interested in the general health of every portion of its vast domain, and the question of the supply of pure water has especial weight in a great seaport like San Francisco.

There have been questions raised about the purity of the supply of water of San Francisco, and you would add to the knowledge of the United States Government and to that of our own citizens if you would have a bacteriological and chemical analysis made of the sources of the water of this city.

In a conversation with Dr. John Godfrey, surgeon in charge of the United States marine hospital (at San Francisco), this question came up, and he said that a request from me, as mayor of the city, to the Surgeon-General of the United States Marine-Hospital Service might have the effect of authorizing Dr. M. J. Rosenau, who, I am imformed, is competent and now present here, to make such an examination.

With high regards, I am,

ADOLPH SUTRO, *Mayor.*

SURGEON-GENERAL MARINE-HOSPITAL SERVICE.

WASHINGTON, D. C., *November 23, 1895.*

SIR: In reply to your letter requesting that Passed Assistant Surgeon Rosenau be detailed to make a bacteriologic and chemic analysis of the water supply of your city, I have to state that it gives me great pleasure to grant your request. Passed Assistant Surgeon Rosenau has been instructed to commence at once a systematic bacteriological examination of the water supply, and on the completion of his work to make a full report thereon.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

Hon. ADOLPH SUTRO, *Mayor of San Francisco, Cal.*

WASHINGTON, D. C., *November 23, 1895.*

SIR: * * * I have to inform you that Hon. Adolph Sutro, mayor of San Francisco, has requested that a chemic and bacteriologic examination be made of the water supply of San Francisco by the Marine-Hospital Service, and you are hereby detailed for this duty. You will, so far as your duties at quarantine permit, make thorough bacteriologic examination of the general water supply of the city. It is not deemed necessary to make an examination of private wells, but only those which furnish a public supply. It is not practicable for a chemic examination to be undertaken. The necessary apparatus and culture media have been sent you.

On completion of your examination you will make a full report to the Bureau.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

P. A. Surg. M. J. ROSENAU, M. H. S.,
San Francisco Quarantine, Angel Island, Cal.
(Through medical officer in command.)

In accordance with the above correspondence, the following report was submitted by P. A. Surg. M. J. Rosenau:

SOURCES OF SUPPLY AND DISTRIBUTION.

The Spring Valley Water Company furnishes San Francisco most of its water. Its principal source is from three catch-basins, made by damming conveniently shaped valleys, between 12 and 20 miles from the city, in San Mateo County. These three

reservoirs are known, respectively, as Crystal Springs, San Andreas, and Pilarcitos. From each a pipe line leads to the city, thus making three water districts. These districts are irregularly shaped and discontinuous, owing to engineering difficulties. These three systems are connected in such a manner that the water from any one reservoir may be pumped to either of the other two districts. This fact negatives the importance of regarding the districts as separate, from a sanitary standpoint. Smaller reservoirs in the city are used more for the purpose of storage, in case of sudden increased demand by fire, or from accident, than for obtaining pressure. The flow is continuous.

The Visitacion Water Company supplies about 600 consumers in the southern section of the city. The source of this water is from eight wells, sunk in Bay View Valley, on the outskirts of the city. Six of these wells are 150 feet, one is 180, the other 130 feet, through sand and gravel. The wells do not flow spontaneously, and are fitted with deep-well pumps. They are known as artesian wells, but as they do not pass through an impervious stratum they do not comply with the original meaning of that term.

Wells.—From the best information at my command, there are very few private wells for drinking and household purposes in the city.

METHODS.

Collecting.—It was the purpose at first to obtain samples from the head waters and reservoirs, and follow them down. This being inexpedient, the plan was abandoned, and the samples were, for the most part, taken from the water as it flowed from the taps in houses. All samples were collected by myself, with due precautions. Special care was exercised to select a tap that led directly from the main. This was always a matter of concern, for many of the houses in San Francisco have cisterns on the roofs, for the purpose of lessening the pressure, thus cheapening plumbing. Some of these tanks are open, affording a lodging place for flying particles, bird excrement, and other refuse. Even the closed ones are a nuisance and false economy. In all cases the tap was allowed to flow sufficiently long to clear the pipe before the sample was taken.

Qualitative examination.—For isolating fermentative organisms the method of Theobald Smith was found a great help.[1] About 5 cubic centimeters of the suspected water is planted in a fermentation tube containing milk sugar or grape sugar bouillon and grown at 41.5°–42° C. for forty-eight hours. If fermentation occurs, the growth thus obtained is planted upon milk sugar or grape sugar agar and grown at 37° C. for twenty-four to forty-eight hours, at the end of which time red colonies usually make their appearance. These red colonies are transplanted to blue litmus milk, and, in case they cause coagulation, are further studied for their morphological and biological characters. In several instances the colon bacillus was isolated by planting 0.5 cubic centimeters of the suspected water directly upon Wurtz milk sugar litmus agar and growing the plants at 41.5°–42° C. This slight modification of Smith's method has proven useful, not only for isolating suspicious organisms, but it is believed that it may be used to give a proximate idea of their number to the cubic centimeter. In case the above methods failed to find fermenting organisms, the water was further studied upon gelatine and glycerine agar, with the result that in 7 samples 8 suspicious organisms were found. These all proved to be forms belonging to the group of proteus, and resembling Proteus vulgaris. They all grow well at room temperature, also at 37°, but not at 41.5° C.

Quantitative examination.—The counting of the colonies was done immediately upon returning to the laboratory, and without delay. The counting was done in the usual manner in gelatine, by adding a measured amount of the water to each Petri dish.

[1] For this method, as well as for other valuable suggestions, I am indebted to P. A. Surg. J. J. Kinyoun, U. S. M. H. S.

The average of 3 plates was taken as a result. The multiplication of Proteus colonies and the liquefaction of the gelatine in several instances spoiled the counts, a disadvantage of this medium over agar for this purpose.

SUMMARY AND CONCLUSIONS.

Thirty-six samples of the city's water were examined. They were collected from widely separated points, between December 4, 1895, and February 7, 1896. Fermenting organisms were isolated from 14 of the 36 samples. Eight of these 14 contained proteus and the remaining 6 the colon bacillus. In all, 26 organisms were studied, and are recorded in detail. The frequent presence of fluorescing bacteria (in particular, bacillus fluorescens liquefaciens), and the occasional appearance of the commoner mold fungi indicate the surface character of the water. In the San Andreas water both the colon bacillus and proteus were found. In the Pilarcitos water, also, both proteus and the colon organisms were isolated. In the Crystal Springs water only an occasional proteus was met with; that is, in only 2 samples of 17 examined were suspicious organisms isolated. The greater freedom from fermenting organisms enjoyed by this water is in accord with the control of the watershed, and indicates what may be accomplished in preventing contamination of the water, by excluding all habitation from the water basin. The Visitacion water was found to contain the colon bacillus.

Significance of the Proteus group.—The presence of proteus indicates fermenting processes, doubtless the decomposition of organic matter in the water. This organism is one of the most common and widely distributed putrefactive bacteria. Proteus was found in the samples from Crystal Springs, San Andreas, and Pilarcitos waters.

Significance of the Colon group.—The colon bacillus is an intestinal organism, and its presence in the water means contamination with alvine discharges, either of man or the lower animals. Concerning its meaning, I can not do better than quote Abbott:

"In the normal intestinal tract of all human beings and many other mammals, as well as associated with the specific disease-producing bacterium in the intestines of typhoid fever patients, is an organism that is frequently found in polluted drinking waters, and whose presence is proof positive of pollution by either normal or diseased intestinal contents; and though efforts may result in failure to detect the specific bacillus of typhoid fever, the finding of the other organism, the bacterium coli commune, justifies one in expressing the opinion that the water under consideration has been polluted by intestinal evacuations from either human beings or animals. Waters so located as to be liable to such pollution can never be considered as other than a continuous source of danger to those using them."

This organism was found in samples from San Andreas, Pilarcitos, and Visitacion.

The fact that the colon bacillus was more readily isolated from the water after the heavy rains[1] and that fermentation at 41.5°–42° C. was also more frequent after the heavy rains than before would indicate soil washings as one of the sources of this organism in the water; but that its presence in the water is not alone the result of soil washings of pasture lands is indicated by a study of the typhoid fever records. Typhoid fever is a constant factor in San Francisco, as will be seen from Table I (vide infra); and, further, a study of the death rate[2] from this disease to rainfall shows a striking coincidence in several years, i. e., a marked rise in deaths following the first heavy rains. (See Table II.)

It is reasonable to suppose that the greater freedom from biological impurities of the Crystal Springs water is due to the control of the watershed. If this is also practicable in the case of the San Andreas and Pilarcitos water basins, their control would accomplish much toward purer water. If control of the watersheds is not practicable, attention is again called to the value of central sand filtration, a method which has proven

[1] 8.14 inches of rain fell in sixteen days—January 13–28, 1896.

[2] Only the deaths, and not the number of cases, are recorded.

itself of great practical value at Altona, Prussia, during the recent cholera epidemic, and later at Hamburg, where, since the installation of filtering beds, there has been a marked decrease in the number of cases and deaths from intestinal diseases, such as typhoid fever, diarrhœa, and gastro-enteritis.

The work in detail follows:

SAN ANDREAS WATER.

(College Hill district.)

In six samples of water from the San Andreas district fermenting organisms were isolated from three. Both proteus and the colon bacillus were found, the latter before and after the heavy rains.

SAMPLE NO. I (December 12, 1895. From College Hill reservoir).—Ninety-five colonies to the cubic centimeter. Ferments milk-sugar bouillon 41.5°–42° C.

Bacillus a (belongs to the Proteus group. From gelatin).—A short rod, single, and in pairs and short chains; actively motile; grows well at room temperature and at 37° C., but not at 41.5° C.; liquefies gelatin slowly all along stab, with a zone of cloudiness near the surface and whitish precipitate at bottom; young colonies upon gelatin are pale and finely granular, become more irregular, darker, brownish yellow, soon liquefying and spreading with amœba-like processes; the bouillon causes a uniform cloudiness; cultures in gelatin and bouillon have a putrefactive odor and alkaline reaction; coagulates blue litmus milk with acid reaction in four days; upon potato grows as a yellowish, raised, moist membrane; trace of indol; causes fermentation in milk-sugar bouillon (2 per cent) with alkaline reaction; no CO_2, no H; on grape-sugar bouillon (1 per cent) causes fermentation with acid reaction; gas not determined.

Bacillus b (belongs to the Colon group. Red colony).—A short rod, with rounded ends, single, in pairs, and short chains; motile but not active; grows at 41.5°–42° C.; does not liquefy gelatin; colonies upon gelatin plate are variable; small ones are hyaline and spherical, the older ones are finely granular, irregular in outline; some spindle shaped, and a few concentrically striated; pale yellowish in color and darker in the center; causes bubbles in gelatin shake culture; grows in decidedly acid bouillon, producing a uniform cloudiness; no indol; upon potato produces a moist, thin, shining, scarcely visible layer; coagulates blue milk in seven days; acid reaction; ferments both milk-sugar and grape-sugar bouillon, producing an acid reaction; and CO_2, and H.

Bacillus c (belongs to the Colon group. Red colony).—A short bacillus, with rounded ends, exhibiting slight motility; mostly in pairs; does not liquefy gelatin; upon gelatin plates, young colonies are spherical, homogeneous, and refractive; older ones become darker, granular, with paler zone about periphery, and irregular in outline; causes bubbles in gelatin shake culture; grows at 41.5°–42° C., also in decidedly acid bouillon; in alkaline bouillon it causes uniform cloudiness and acid reaction; no indol; coagulates blue litmus milk with acid reaction in seven days; upon potato produces a moist, scanty, glazed layer; ferments milk-sugar bouillon, with acid reaction, and produces CO_2 and H; ferments grape-sugar bouillon with acid reaction; no CO_2, no H.

Bacillus d (belongs to the Colon group. Red colony).—A short rod, with rounded ends; single, in pairs, and short rods; actively motile; does not liquefy gelatin; in gelatin plates colonies are hyaline and spherical, becoming granular, yellowish, darker in center, irregular in outline, some whetstone, and some marked in concentric zones. In gelatin shake culture causes bubbles; grows at 41.5° C. and in decidedly acid bouillon; uniform cloudiness in bouillon and decided odor; no indol; upon potato a moist, thin layer; coagulates blue milk in six days, with pink color; ferments 1 per cent grape-sugar bouillon, with acid reaction and production of H, but no CO_2; ferments 2 per cent milk-sugar bouillon, with acid reaction and production of both CO_2 and H.

Bacillus e (belongs to the Colon group. Red colony).—A short bacillus, with rounded ends; single, in pairs, and short rods; motile, but not active; does not liquefy gelatin; causes bubbles in gelatin shake cultures and in gelatin stab cultures; colonies in gelatin plates are hyaline and spherical, becoming granular and irregular in outline; grows at 41.5°–42° C., and also in decidedly acid media; in bouillon causes a diffused cloudiness and acid reaction; upon potato, grows as a moist, scanty, grayish layer; blue litmus milk is coagulated, with acid reaction in eight days; ferments grape-sugar bouillon, with acid reaction; no CO_2, no H.

Bacillus f (belongs to the Colon group. Red colony).—A short bacillus, with rounded ends; single, in pairs, and short rods; slight motility; does not liquefy gelatin; colonies in gelatin are hyaline and round; larger ones are granular, irregular, darker in center; distinct edge; causes bubbles in gelatin shake cultures; grows at 41.5° C., and in decidedly acid bouillon; in alkaline bouillon causes a diffused cloudiness and acid reaction; upon potato, produces a moist, scarcely visible layer; blue litmus milk is coagulated and turned acid in eight days; no indol; ferments milk-sugar bouillon, with acid reaction, and production of CO_2 and H.

SAMPLE NO. II (December 21, 1895. From tap at northwest corner Ellis and Jones streets. College Hill district).—Eighty-one colonies to the cubic centimeter. Not studied further.

SAMPLE NO. III (January 8, 1896. From tap at 517 Jones street. College Hill district).—Eight hundred and sixty colonies to the cubic centimeter. Does not ferment grape-sugar bouillon at 41.5°–42° C.

SAMPLE NO. IV (January 15, 1896. From tap at 124 Turk street. College Hill district).—Seven hundred and twenty colonies to the cubic centimeter. Does not ferment milk sugar or grape sugar bouillon at 41.5°–42° C.

SAMPLE NO. V (January 29, 1896. From tap at 115 Jones street. College Hill district).

Bacillus g (belongs to the Colon group. Red colony).—A short rod, with rounded ends, mostly in pairs; a few short chains; motile, but not active; does not liquefy gelatin; colonies upon gelatin plate are yellowish brown, coarsely granular, and broken-glass appearance; young colonies are rounded, larger, are irregular in outline, and some have wavy striations; causes bubbles in gelatin shake cultures; grows in decidedly acid media; diffused cloudiness in bouillon; no odor; upon potatoes, a moist, grayish white, elevated layer; coagulates and turns blue litmus milk pink in four days; no indol; ferments grape-sugar bouillon, with acid reaction and production of CO_2, and H; ferments grape-sugar bouillon, with acid reaction, but gas does not respond to tests for CO_2 or H.

SAMPLE NO. VI (January 29, 1896. From tap at 324 Grant avenue. College Hill district).—Four hundred and forty colonies to the cubic centimeter. Ferments grape-sugar bouillon at 41.5°–42° C.; does not ferment milk-sugar buillon at the same temperature.

Bacillus h (belongs to the Colon group. Red colony).—A short rod, with rounded ends; mostly in pairs; a few short chains; very slight motility; does not liquefy gelatin; colonies in gelatin; deeper colonies are brownish, granular, darker in center, and irregular in outline; some spindle shaped; surface colonies are paler, finely granular, and irregularly shaped; causes bubbles in both gelatin stab and shake cultures; grows at 41.5°–42° C., and in decidedly acid media; in bouillon a diffused cloudiness and alkaline reaction; no indol; upon potato, a moist, thin, gray membrane; coagulates blue milk in five days; acid reaction; ferments both milk-sugar and grape-sugar bouillon, with acid reaction, and CO_2 and H.

Bacillus i (belongs to the Colon group. Red colony).—A short rod; rounded ends; mostly in pairs; doubtful motility; does not liquefy gelatin; colonies in gelatin are brownish yellow, mostly round, sharp edges, granular, and darker in center; surface colonies are pale, larger, irregular, and with a nucleus; causes bubbles in both gelatin stab and shake cultures; grows at 41.5°–42° C. and in acid media; diffused cloudiness in bouillon; upon potato produces a scanty, shining, dirty-gray layer;

coagulates blue milk with acid reaction in two days at 41.5° C.; ferments milk-sugar bouillon, with acid reaction, and production of CO_2 and H; ferments grape-sugar bouillon, with acid reaction, and production of H, but no CO_2.

Bacillus j (belongs to the Colon group. Red colony).—A short rod, with rounded ends; single and in pairs; slight motility; does not liquefy gelatin; colonies in gelatin are mostly spherical, amber colored, granular, with distinct edge; some are pale yellow, irregular in outline, with darker centers; causes bubbles in gelatin shake culture; grows at 41.5°–42° C. and in acid bouillon; upon potato a grayish, thin, moist membrane; coagulates blue litmus milk, with strong acid reaction, in two days, at 41.5° C., ferments grape-sugar bouillon, with acid reaction, and production of CO_2 and H; ferments milk-sugar bouillon, with acid reaction, and production of CO_2 and H.

PILARCITOS WATER.

(Laguna Honda and Upper Russian Hill districts.)

Fermenting organisms were isolated from 7 of the 10 samples of water collected from the Pilarcitos districts. Proteus was found in 5 samples, the colon bacillus in 2 samples. The samples were collected, for the most part, before the heavy rains.

SAMPLE NO. VII (December 4, 1895. From outside tap at 801 Sutton street. Laguna Honda district).—One hundred and twenty-six colonies to the cubic centimeter.

Bacillus k (belongs to the Proteus group. From gelatin).—A short rod, single, in pairs, and short chains; actively motile, rapid progression, and undulating movements; grows well at room temperature and at 37° C., but not at 41.5° C.; liquefies gelatin all along stab; the liquefied gelatin has a characteristic appearance—a zone of cloudiness near the surface and an abundant precipitate at the bottom; young colonies in gelatin are brownish yellow, coarsely granular; liquefaction rapidly begins and spreads along the surface, with deposits in the center and granular zones arranged concentrically; in bouillon causes uniform cloudiness; cultures in gelatin and bouillon have a strong putrid odor and alkaline reaction; upon potato a moist, grayish white, thin layer; coagulates blue litmus milk, with pink color in two days; moderate amount of indol; ferments milk-sugar bouillon, with alkaline reaction, and production of CO_2 and H; also ferments grape-sugar bouillon.

SAMPLE NO. VIII (December 8, 1895. From tap at 914½ Ellis street. Laguna Honda district).

Bacillus l (belongs to the Proteus group. From gelatin).—A short bacillus, with rounded ends; actively motile; grows well at room temperature and at 37° C., but not at 41.5° C.; liquefies gelatin; young colonies in gelatin are granular, irregular in outline, and darker in the center; soon begin to liquefy and spread; a white sediment in the center of each colony, and granular rings arranged about the periphery; small processes, like cilia, all around the edge; liquefies gelatin all along puncture; liquefaction gradually extends to sides, with a zone of cloudiness at surface, and an abundant white sediment at bottom; diffused cloudiness in bouillon, with thin zoogleal scum on surface; cultures in bouillon and gelatin have an alkaline reaction and sweetish, putrid odor; trace of indol; upon potato produces a yellow, moist layer; milk is coagulated in five days; ferments grape-sugar bouillon, with acid reaction; gas not determined.

SAMPLE IX (December 12, 1896. From Laguna Honda).—One hundred and six colonies to the cubic centimeter; ferments at room temperature, but does not ferment either grape-sugar or milk-sugar bouillon at 41.5°–42° C.

Bacillus m (belongs to the Proteus group. From gelatin).—A short rod, with rounded ends; mostly in pairs; very actively motile; liquefies gelatin and sends out processes; young colonies upon gelatin become granular and irregular in outline; soon liquefy and spread with processes about the edge; granular deposits in center and arranged concentrically toward periphery; stab cultures in gelatin have the

characteristic appearance of Proteus vulgaris; in bouillon produces a uniform cloudiness, with zoogleal mass at the surface; cultures in bouillon and gelatin have an offensive, putrid odor and alkaline reaction; considerable indol; upon potato a dry, gray-white, thin layer; coagulates blue litmus milk, with acid reaction, in five days at room temperature; ferments 1 per cent grape-sugar bouillon, with acid reaction; gas not determined; ferments 1 per cent milk-sugar bouillon, with acid reaction; and production of H, but no CO_2.

Bacillus n (belongs to the Proteus group. From gelatin).—A short rod, with rounded ends; single and in pairs; motile, but not active; liquefies; grows well at room temperature and at 37° C., but not at 41.5° C.; colonies in gelatin are pale yellowish, becoming darker and granular; some begin to liquefy and spread; in gelatin stab cultures liquefaction occurs all along the puncture, extending to the sides; liquefied gelatin has a zone of cloudiness at the surface and a white precipitate at the bottom; alkaline reaction; diffused cloudiness and acid reaction in bouillon; both bouillon and gelatin cultures have a putrid odor; upon potato a thin, moist, scanty layer; coagulates milk, with acid reaction, in eight days; ferments both milk-sugar and grape-sugar bouillons, with acid reaction; gas not determined.

SAMPLE NO. X (December 12, 1895. From Laguna Honda).—One hundred and eighty-four colonies to the cubic centimeter.

Bacillus o (belongs to the Proteus group. From gelatin).—A short rod; single pairs and short chains; rounded ends; actively motile; liquefies gelatin; colonies in gelatin are pale yellowish and granular, also round, dark brown, with opaque centers; soon liquefies, with white deposit in center and granular zones toward periphery; spreading at edges; in gelatin stick culture liquefies like Proteus vulgaris; putrid odor and alkaline reaction; in bouillon, produces sweet, putrid odor, and acid reaction; no indol; upon potato a thin, moist, gray membrane; coagulates and decolorizes blue litmus milk in four days; ferments both milk-sugar and grape-sugar bouillons; acid reaction; gas not determined.

Bacillus p (belongs to the Proteus group. From gelatin).—A short rod; single and in pairs; very actively motile; liquefies gelatin; grows well at room temperature and at 37° C., but not at 41.5°–42° C.; colonies in gelatin have a yellowish amber color and mulberry shape; soon liquefy and spread; short processes about the edge; liquefies gelatin all along stab, with a zoogleal layer and cloudiness at the surface and sediment at bottom; also air bubbles along the sides; liquefies gelatin; has an alkaline reaction and putrefactive odor; diffused cloudiness in bouillon; no indol; upon potato scanty, glistening layer; causes a firm coagulum in blue milk in five days; ferments grape-sugar bouillon, with acid reaction; ferments milk-sugar bouillon, with acid reaction; the gas does not respond to tests for CO_2 or H.

SAMPLE NO. XI (January 15, 1896. From tap at 412 Ashbury street. Laguna Honda district).—Four hundred and forty colonies to the cubic centimeter; does not ferment milk-sugar or grape-sugar bouillon at 41.5°–42° C.

Bacillus q (belongs to the Proteus group. From gelatin).—A short bacillus, with rounded ends; actively motile; liquefies gelatin; grows well at room temperature and at 37° C., but not at 41.5° C. Colonies in gelatin are yellowish brown, granular, and round; become darker in center; short processes about edge; soon liquefy and spread; liquefies all along stab in gelatin; diffused cloudiness in bouillon; liquefies gelatin, and bouillon cultures are alkaline in reaction and have a putrefactive odor; no indol; upon potato scanty, moist, gray-white membrane; coagulates blue milk, with pink color, in five days; ferments grape-sugar bouillon, with acid reaction, and CO_2 and H; ferments milk-sugar bouillon, with acid reaction; gas does not answer to tests for CO_2 or H.

SAMPLE NO. XII (February 7, 1896. From tap at 914½ Ellis street. Laguna Honda district).—Three hundred and fifty colonies to the cubic centimeter; does not cause fermentation at 41.5°–42° C; not studied further.

SAMPLE NO. XIII (December 12, 1895. From Upper Russian Hill Reservoir).—One hundred and forty-three colonies to the cubic centimeter.

Bacillus r (belongs to the Colon group).—A short rod; single, but mostly in pairs; rounded ends; very slight or no movements; does not liquefy gelatin; colonies on gelatin are pale hyaline, and larger ones are finely granular, darker in center, irregular in outline; uniform cloudiness in bouillon; causes bubbles in gelatin shake culture; no indol; upon potato produces a moist, yellow, raised membrane; grows well in acid bouillon; causes coagulation of blue litmus milk, with pink color, in fourteen days; ferments milk-sugar bouillon, with acid reaction; no CO_2; no H; ferments grape-sugar bouillon, with acid reaction; gas not determined.

SAMPLE NO. XIV (December 21, 1895. From tap at 411 Greenwich street. Upper Russian Hill district).—Two hundred and thirty colonies to the cubic centimeter; ferments grape-sugar bouillon at 41.5°–42° C. Diligent search through many plates failed to isolate the fermenting cause.

SAMPLE NO. XV (December 21, 1895. From tap at southwest corner Lombard and Dupont streets. Upper Russian Hill district).—One hundred and thirteen colonies to the cubic centimeter. Not studied further.

SAMPLE NO. XVI (December 21, 1895. From tap at 1414 Dupont street. Upper Russian Hill district).

Bacillus s (belongs to the Colon group. Red colony.)—A short rod with rounded ends; single, mostly in pairs; motile; does not liquefy gelatin; young colonies in gelatin are spherical, hyaline, and refractive. Larger ones are yellowish, granular, and darker in center, irregular in outline; causes bubbles in gelatin shake culture; grows at 41.5°–42° C., and in decidedly acid media; diffused cloudiness in bouillon, with thin zooglea on the surface; trace of indol; upon potato dry, thin, dirty-gray layer; blue litmus milk is coagulated with acid reaction in eleven days; ferments milk-sugar bouillon, with acid reaction; ferments grape-sugar bouillon, with acid reaction, and production of CO_2 and H.

Bacillus t (belongs to the Colon group. Red colony).—A short rod, with rounded ends; single and in pairs; actively motile; does not liquefy; grows at 41.5°–42° C.; colonies in gelatin plates are homogeneous and refractive, and spherical when small; become granular, dark in center, and irregular in outline; in gelatin shake culture causes bubbles; in bouillon, a diffused cloudiness; trace of indol; upon potato a moist, grayish-white layer; coagulates blue milk in five days, with strong acid reaction; ferments grape-sugar bouillon, acid reaction, and CO_2 and H; ferments milk-sugar bouillon; acid reaction; CO_2 and H.

Bacillus u (belongs to the Colon group. Red colony).—A short rod; single and pairs, motile; not very active; does not liquefy; grows at 41.5°–42° C.; colonies on agar are irregular in outline, granular, dark in center, some spindle shaped; causes bubbles in gelatin shake culture; in bouillon a diffused cloudiness, with zoogleal membrane on the surface; potato dry, thin, gray-white layer; coagulates blue milk in six days; ferments grape-sugar bouillon, with acid reaction, and CO_2 and H; ferments milk-sugar bouillon with acid reaction; gas not determined.

Bacillus v (belongs to the Colon group. Red colony).—A short rod; single, in pairs and short chains; rounded ends; very actively motile; does not liquefy; grows at 41.5°–42° C.; colonies in agar are granular, irregular in outline; sharply defined edges; some are elongated and darker in center; causes bubbles in gelatin shake culture; diffused cloudiness in bouillon, and thin scum on the surface; no odor; trace of indol; upon potato a yellow, moist, and elevated layer; coagulates blue milk in six days; ferments grape-sugar bouillon, with acid reaction, and CO_2 and H.

CRYSTAL SPRINGS WATER.

(University Mound, Clarendon Heights, Lafayette Square, and Clay Hill districts.)

Of the 17 samples examined from this district, fermenting organisms were found in only two, and in both instances, proteus. These results correspond to the fact that the land draining this basin is all owned and controlled by the company and kept free of habitation.

SAMPLE NO. XVII (December 12, 1895. From tap at 2324 Taylor street. University Mound district).—Four hundred and twenty-one colonies to the cubic centimeter; ferments at room temperature, but not at 41.5°–42° C.; nothing suspicious isolated.

SAMPLE NO. XVIII (December 21, 1895. From tap at 175 Minna street).—Eight hundred and ninety-four colonies to the cubic centimeter; ferments at room temperature, but does not ferment either milk-sugar or grape-sugar bouillon at 41.5°–42° C.

Bacillus w (belongs to the Proteus group. From gelatin).—A short rod; pairs and short chains; active motility; rapid, progressive, and undulatory movements; colonies in gelatin are pale and yellowish, granular, liquefying, and spreading with short processes about the edge; liquefies gelatin all along stab, like Proteus vulgaris, alkaline reaction; uniform cloudiness in bouillon; cultures in gelatin and bouillon have a putrefactive odor; no indol; upon potato a thin, dry, grayish layer; coagulates milk with a pink color in six days; ferments grape-sugar bouillon, with very acid reaction; gas not determined.

SAMPLE NO. XIX (January 8, 1896. From tap at 705 Howard street. University Mound district).—One thousand six hundred and eighty colonies to the cubic centimeter; does not ferment milk-sugar bouillon at 41.5°–42° C.; no fermenting organisms isolated.

SAMPLE NO. XX (from tap at 9 Everett street. University Mound district. January 8, 1896).—One thousand eight hundred and sixty colonies to the cubic centimeter; not studied further.

SAMPLE NO. XXI (from 623 Natoma street. University Mound district. January 15, 1896).—Five hundred colonies to the cubic centimeter; ferments grape-sugar bouillon, but not milk-sugar bouillon at 41.5°–42° C.; many plates made and many organisms studied, but the fermenting cause was not isolated.

SAMPLE NO. XXII (from 577 Minna street. University Mound district. January 16, 1896).—One thousand two hundred and eighty colonies to the cubic centimeter; ferments grape-sugar bouillon, but not milk-sugar bouillon at 41.5°–42° C.; the fermenting cause not isolated.

SAMPLE NO. XXIII (January 29, 1896. From tap at 22½ Everett street. University Mound district).—Three hundred and fifty colonies to the cubic centimeter; ferments grape-sugar bouillon at 41.5°–42° C., but does not ferment milk-sugar bouillon at the same temperature.

Bacillus x (belongs to the Proteus group. Red colony).—A short bacillus; mostly in pairs; active motility; liquefies gelatine; grows at 41.5° C.; colonies in gelatine are brownish, coarsely granular, liquefying, and spreading; younger colonies are paler and more irregular, with ciliated margins; soon liquefy and spread; liquefies gelatin all along puncture like Proteus vulgaris; decided odor; bouillon, uniform cloudiness; no indol; upon potato a moist, grayish, glistening membrane; coagulates blue milk; ferments milk-sugar bouillon, with acid reaction, and CO_2 and H; ferments grape-sugar bouillon, with acid reation; gas not determined.

Bacillus y (belongs to the Proteus group. Red colony).—A short bacillus; motile; liquefies gelatine; grows at 41.5° C.; colonies upon gelatin are at first refractive and clear, become granular, striated, brownish yellow, and give off amœba-like processes; causes a uniform cloudiness in bouillon; liquefies gelatine all along puncture; alkaline reaction; no indol; coagulates blue litmus milk in four days; ferments milk-sugar bouillon, acid reaction, and CO_2 and H; ferments grape-sugar bouillon, with acid reaction; gas not determined.

SAMPLE NO. XXIV (February 2, 1896. From tap at 24 Hunt street. University Mound district).—Two thousand colonies to the cubic centimeter; does not ferment at 41.5°–42° C.

SAMPLE NO. XXV (February 2, 1896. From tap at South San Francisco primary school. University Mound district).—Ferments both grape-sugar and milk-sugar bouillons at 41.5°–42° C. Diligent search through many plates failed to isolate the fermenting cause.

SAMPLE NO. XXVI (February 7, 1896. From tap at 213 Tahama street. University Mound district).—Ferments both milk-sugar and grape-sugar bouillons at 41.5°–42° C. Fermenting cause not isolated.

SAMPLE NO. XXVII (December 8, 1895. From outside tap at 1817 Jackson street, Lafayette Square and Clay Hill districts).—Three hundred and thirteen colonies to the cubic centimeter. Not studied further.

SAMPLE NO. XXVIII (December 21, 1895. From 1331 Washington street. Lafayette Square and Clay Hill districts).—Five hundred and nine colonies to the cubic centimeter. Nothing suspicious.

SAMPLE NO. XXIX (December 21, 1895. From 1334 Washington street. Lafayette Square and Clay Hill districts).—One thousand three hundred and seventy-five colonies to the cubic centimeter. Nothing suspicious.

SAMPLE NO. XXX (December 12, 1895. From 1226 Ashbury street. Clarendon Heights district).—One thousand eight hundred and seventy colonies to the cubic centimeter. Ferments neither milk-sugar nor grape-sugar bouillons at 41.5°–42° C.

SAMPLE NO. XXXI (January 15, 1896. From tap at 121 Tremont street. Clarendon Heights district).—Does not ferment at 41.5°–42° C. Six hundred and fifty colonies to the cubic centimeter.

SAMPLE NO. XXXII (January 15, 1896. From 741 Ashbury street. Clarendon Heights district).—Does not ferment either grape-sugar or milk-sugar bouillons at 41.5°–42° C.

SAMPLE NO. XXXIII (January 15, 1896. From 117 Tremont street. Clarendon Heights district).—Eight hundred colonies to the cubic centimeter. Does not ferment either grape-sugar or milk-sugar bouillons at 41.5°–42° C.

VISITACION WATER.

The colon bacillus was found in one of the three samples of this water.

SAMPLE NO. XXXIV (February 1, 1896. From tap at northwest corner Railroad and Twelfth avenues).—Five hundred and eighty-seven colonies to the cubic centimeter; ferments both milk-sugar and grape-sugar bouillon at 41.5°–42° C.; the fermenting cause not isolated. This water contains a bacillus which coagulates milk and produces red colonies on lactose litmus agar, and diffuses itself uniformly through the long arm of the fermentation tube, but does not cause fermentation. It grows well at 41.5°–42° C., and in other ways resembles bacterium coli communis.

SAMPLE NO. XXXV (February 1, 1896. From tap at corner Thirteenth avenue and M street).—Ferments milk-sugar bouillon, but not grape-sugar bouillon, at 41.5°–42° C.

Bacillus z (belongs to the Colon group. Red colony).—A short bacillus with rounded ends; in pairs and short rods; slight motility; does not liquefy; grows at 41.5° C.; colonies in gelatin are hyaline, refractive, and spherical when young; become granular, pale yellowish, and irregular in outline; causes bubbles in gelatin shake culture; grows in decidedly acid bouillon, causing diffused cloudiness; no indol; upon potato a moist, scanty, glistening membrane; coagulates blue milk, with acid reaction, in five days; ferments milk-sugar bouillon, with acid reaction, and CO_2 and H; ferments grape-sugar bouillon, with acid reaction, and CO_2 and H.

SAMPLE NO. XXXVI (February 1, 1896. From 1182 Fifteenth avenue).—Two thousand colonies to the cubic centimeter; ferments milk-sugar bouillon at 41.5°–42° C., but does not ferment grape-sugar bouillon at the same temperature. Fermenting cause not isolated.

TABLE NO. I.—*The mortality from typhoid fever at San Francisco, Cal., from 1870 to 1895.*

[Compiled from the reports of the health department.]

Years.	Deaths.	Population.	Per cent.	Years.	Deaths.	Population.	Per cent.
1869–70.....	69	*a* 170, 250	0. 00040	1882–83.....	137	*c* 250, 000	0. 00055
1870–71.....	107	*b* 172, 750	.00062	1883–84.....	180	*c* 270, 000	.00067
1871–72.....	104	*b* 178, 276	.00058	1884–85.....	138	*c* 270, 000	.00051
1872–73.....	87	*b* 188, 323	.00046	1885–86.....	102	*c* 280, 000	.00036
1873–74.....	80	*b* 200, 770	.00039	1886–87.....	145	*c* 300, 000	.00048
1874–75.....	136	*b* 230, 132	.00059	1887–88.....	152	*c* 330, 000	.00046
1875–76.....	161	*b* 272, 345	.00059	1888–89.....	138	*c* 330, 000	.00041
1876–77.....	193	*b* 300, 000	.00064	1889–90.....	149	*a* 300, 000	.00049
1877–78.....	160	*b* 300, 000	.00053	1890–91.....	137	*c* 330, 000	.00042
1878–79.....	121	*b* 305, 000	.00039	1891–92.....	113	*c* 330, 000	.00034
1879–80.....	85	*a* 234, 520	.00036	1892–93.....	106	*c* 330, 000	.00032
1880–81.....	87	*a* 234, 520	.00037	1893–94.....	114	*c* 330, 000	.00035
1881–82.....	93	*c* 234, 520	.00039	1894–95.....	123	*c* 330, 000	.00037

a United States Census. *b* According to Sangley's City Directory. *c* Estimated by health department.

TABLE NO. II.—*Showing the relation of typhoid fever to rainfall at San Francisco, Cal.*

[*a*, Deaths from typhoid fever. *b*, Precipitation.]

Years.	July.		August.		September.		October.		November.		December.	
	a	*b*	*a*	*b*	*a*	*b*	*a*	*b*	*a*	*b*	*a*	*b*
1882–83	9	.00	11	.00	9	.00	17	2.66	23	4.18	22	2.02
1883–84	15	.00	20	.00	15	.42	11	1.48	28	1.60	17	.92
1884–85	14	.00	8	.04	13	.13	19	2.55	12	.26	10	7.08
1885–86	6	.06	12	.00	10	.11	13	.72	9	11.78	6	4.99
1886–87	12	.23	19	.06	13	.01	21	1.48	11	.84	13	2.07
1887–88	6	.....	9	.01	9	.29	8	1.00	17	.99	25	3.34
1888–89	12	.01	10	.01	18	.98	13	.13	15	3.99	12	5.80
1889–90	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1890–91	17	.02	13	.00	11	.31	21	.00	14	.00	10	3.25
1891–92	18	.10	16	.02	7	.77	8	.04	11	.56	12	5.62
1892–93	13	.00	14	.00	5	.02	13	1.65	11	3.91	7	5.08
1893–94	10	.02	11	.00	10	.21	9	.16	16	4.18	10	2.25
1894–95	8	.00	13	.00	12	1.05	9	1.73	10	.88	20	9.01

Years.	January.		February.		March.		April.		May.		June.	
	a	*b*	*a*	*b*	*a*	*b*	*a*	*b*	*a*	*b*	*a*	*b*
1882–83	10	1.92	6	1.04	7	1.04	10	2.64	6	2.52	7	.01
1883–84	20	3.94	11	6.65	14	8.24	10	6.33	9	.23	10	2.57
1884–85	13	2.53	15	.30	9	1.01	10	3.17	10	.04	5	.19
1885–86	5	7.42	9	.24	7	2.07	12	5.28	7	.37	6	.01
1886–87	13	1.90	9	9.24	9	.84	6	.....	11	.06	.....	.07
1887–88	23	6.81	8	.94	6	3.60	13	.11	12	.38	16	.27
1888–89	6	1.28	10	.72	8	7.78	13	.96	12	2.17	9	.03
1889–90	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1890–91	13	.98	6	7.26	10	1.96	5	2.44	9	1.25	8	.11
1891–92	8	2.42	6	2.90	8	2.85	4	1.39	4	1.86	1	1.00
1892–93	4	3.08	5	2.75	3	4.08	4	10.30	3	.15	12	.03
1893–94	11	5.99	7	2.69	5	.60	5	.50	9	1.31	6	.56
1894–95	14	6.99	11	2.31	4	1.89	6	1.24	5	.60	11	.00

M. J. ROSENAU,
Passed Assistant Surgeon, M. H. S.

ON THE PROPOSED ARID REGION SANITARIUM FOR TUBERCULOUS PATIENTS OF THE MARINE-HOSPITAL SERVICE.

Referring to the contributed article upon the above-named subject by Passed Assistant Surgeon Bratton in the last annual report, the Bureau has undertaken a collective investigation concerning the number of patients annually treated in the several marine hospitals, the number of days' relief given, and the cost of their maintenance and treatment. The following circular letter was addressed to the officers of the Service calling for the required information:

CIRCULAR LETTER RELATING TO CASES OF TUBERCLE TREATED AT HOSPITALS.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C.

To medical officers and acting assistant surgeons, United States Marine-Hospital Service:

You are directed to forward to the Bureau, as soon as practicable, the information indicated upon the cards sent you for the purpose, concerning cases of tubercle treated in the hospital at your station during the fiscal years ended June 30, 1891, 1892, 1893, 1894, and 1895. This information includes the name of station, year and month, name of patient, age, nativity, the dates of admission and discharge, the number of days

in hospital, and the result of treatment. You will leave blank the columns marked "Cost of treatment per day" and "Total cost." In the event that the same patient has been under treatment more than once a separate card should be filled out, one for each admission.

In retransmitting the cards you will have them arranged in regular order by years and months.

You will acknowledge the receipt of this circular letter and cards.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

[U. S. Marine-Hospital Service.—Form No. 104.]

Statistical card.

Port of ———. Year 189—. Month ———. Tubercle of ———.

Name.	Age.	Nativity.	Date of admission.	Date of discharge.	Result.	No. days in hospital.	Cost of treatment per day.	Total cost.[a]

[a] Cost of treatment per day and total cost to be omitted.

From the definite information to be obtained from the collection of the reports received on the cards it may be demonstrated that the cost of maintaining these patients in our hospitals, aside from the danger of spreading the contagion of tuberculosis, may be so great as to warrant the establishment of a sanitarium in an arid region favorable to their recovery. The matter will be further reported upon in the next annual report.

In connection with this subject it is pertinent to refer here to the inquiry mentioned in the report of the division of sanitary reports and statistics into the various methods now adopted by the several State boards of health for the prevention of the spread of tuberculosis. The subject of car sanitation, which is treated of in the report from the Hygienic Laboratory and which is attracting much attention on the part of sanitarians, has also a bearing upon the same matter. In other words, there appears to be an awakening among all sanitarians upon the subject of the danger of tubercular contagion; and the Marine-Hospital Service, which has in its care so many patients afflicted with this disease and among a class of men whose very occupation involves traveling, should be well in the advance of this progressive sanitary movement.

HEALTH SERVICE OF THE UNITED STATES.

Following are certain interrogatories propounded by the minister of Belgium at this capital concerning the health service of the United States, received through the honorable Secretary of State, and the replies thereto submitted by myself to you for transmission to the minister.

Interrogatories by the Belgian minister.

1. What are the attributes of the National Board of Health at Washington?

2. Are there any general laws for the whole Union relative to the prevention of epidemic diseases, formulating a uniform plan to be followed by the States, or do the Federal States remain absolutely independent in this matter?

3. Do quarantine doctors belong to a Federal ministry, or are they simply officers taken (relevant) from the Federal States having maritime ports?

4. Is there any difference, and if so, what is it, between "naval hospitals" and hospitals of the "Marine-Hospital Service?"

5. Are there any general sanitary regulations applicable to the whole Union concerning contagious diseases of animals, and established not only in regard to exportation, but also with regard to the development of agriculture and interstate commerce?

6. Are there any general regulations for the whole Union relative to commerce, manufactures, and the adulteration of food commodities?

7. What are the relations existing between the sanitary or medical officers of the Union and those of the different Federal States?

Reply to interrogatories concerning the health service of the United States.

TREASURY DEPARTMENT,
OFFICE OF THE SUPERVISING SURGEON-GENERAL, M. H. S.,
Washington, D. C., August 26, 1896.

SIR: I have the honor to submit herewith a report in reply to the inquiries made by the minister of Belgium, and transmitted through the usual channels, concerning the health service of the United States.

It will be convenient, first, to reply seriatim to the inquiries of the minister of Belgium.

1. "What are the attributes of the National Board of Health at Washington?"

There is no National Board of Health, so called. A National Board of Health was created by act of Congress approved March 3, 1879. Another act was approved June 2, 1879, clothing the Board with certain powers, but this last act was limited to a period of four years, at the expiration of which time Congress declined to renew it. The National Board of Health therefore had an active existence from 1879 to 1883. The act establishing the Board, March 3, 1879, remained upon the statute books until February 15, 1893, when it was formally repealed by Congress, but the operations of the Board were confined to the four years above mentioned—1879 to 1883.

The principal functions of the National Board of Health are now administered by the Marine-Hospital Service, whose duties will be enumerated in another portion of this report.

2. "Are there any general laws for the whole Union relative to the prevention of epidemic diseases, formulating a uniform plan to be followed by the States, or do the Federal States remain absolutely independent in this matter?"

The act of Congress approved February 15, 1893, provides for the formulating of uniform regulations to be observed by all State and local quarantine authorities in preventing the introduction from foreign countries of epidemic diseases, and for preventing the spread of epidemic diseases from one State or Territory into another.

The regulations are promulgated by the Secretary of the Treasury, and the Surgeon-General of the Marine-Hospital Service is charged under the direction of the Secretary with the performance of all the duties in respect to quarantine and quarantine regulations which are provided for by said act. The law further provides that if the States or municipalities shall fail or refuse to execute the quarantine regulations, the President shall appoint a proper person to execute them.

3. "Do quarantine doctors belong to a Federal ministry, or are they simply officers taken from the Federal States having quarantine ports?"

There are two classes of quarantine physicians. First, those commissioned by the National (Federal) Government; second, those commissioned by State governments. The quarantine physicians employed by the National Government are the medical officers of the Marine-Hospital Service. The National Government has the conduct of eleven fully equipped quarantine stations, and maintains, moreover, quarantine inspection at seven ports. At the remaining quarantine stations of the United States quarantine physicians are appointed by State or municipal authority. These latter, however, are all subject to inspection by the Marine-Hospital Service.

4. "Is there any difference, and if so, what is it, between naval hospitals and hospitals of the Marine-Hospital Service?"

Yes. Naval hospitals are hospitals provided by the National Government exclusively for the treatment of sailors belonging to the United States Navy, while marine hospitals are administered by the Marine-Hospital Service, a Bureau of the Treasury Department, for the treatment of seamen employed in the merchant marine of the United States.

5. "Are there any general sanitary regulations applicable to the whole Union concerning contagious diseases of animals, and established not only in regard to exportation, but also with regard to the development of agriculture and interstate commerce?"

The Bureau of Animal Industry in the Department of Agriculture makes investigations as to the existence of contagious pleuro-pneumonia and other dangerous communicable diseases of live stock, superintends the measures for their extirpation, makes original investigations as to the nature and prevention of such diseases, and reports on the condition and means of improving the animal industries of the country. It also has charge of the inspection of import and export animals, of the inspection of vessels for the transportation of export cattle, and of the quarantine stations for imported neat cattle; supervises the interstate movement of cattle, and inspects live stock and their products slaughtered for home consumption.

6. "Are there any general regulations for the whole Union relative to commerce, manufactures, and the adulteration of food commodities?"

There are many general regulations for the whole Union relative to commerce. The interstate quarantine regulations, promulgated under the act of February 15, 1893, are based upon the constitutional right of the National Government to regulate commerce.

Practically, it may be said there are no national health regulations concerning the adulteration of food commodities or concerning manufactures. These matters are subjects of careful legislation by the different State governments.

7. "What are the relations existing between the sanitary or medical officers of the Union and those of the different Federal States?"

The relations between the national and local quarantine authorities have been explained in answer to previous questions.

Each State has its own health laws and organization, and each city its own health board, and in general it may be said that municipal and domestic sanitation is left entirely to the State or local health authorities without interference by the National Government.

I quote an editorial in the New York Times of August 2, 1893, showing the general sentiment concerning the proper relation between the national and the State Governments in the matter of public health:

"The sanitary condition of cities and towns, and the control of the influences which affect the health of the people are matters that come very distinctly within the police power of the States. Regulations and restrictions for the protection of the public health can be best established and administered by State and local authorities, and the nearer their administration comes to the people affected the better. The subject may be neglected in some States, or they may be slow in appreciating its importance and providing for the sanitary well-being of their people, but

that fact does not impair their authority or transfer it elsewhere. They may be dilatory or negligent in many things that the national Government can not look after for them.

"When it comes to dealing with contagious diseases brought from other countries the matter takes a different aspect. The enforcement of measures for preventing their introduction at our seaports or over our borders necessarily involves interference with foreign commerce. Vessels have to be detained, inspected, and disinfected, and passengers and merchandise have to be subject to regulations that concern the people and the interests of the country regardless of State lines. National jurisdiction has here an appropriate field and is alone adequate to its requirements. Quarantine regulations affecting communication with foreign countries should be national, and national only. The same principle may apply in some degree to protection against the transmission of infectious diseases from one State to another through the agencies employed in interstate traffic, as interference with those agencies pertains to the regulation of commerce between the several States. But there is seldom any occasion for interference in the case of infections originating in this country."

MARINE-HOSPITAL SERVICE—DUTIES OF MEDICAL OFFICERS.

The function of the Marine-Hospital Service may be seen by an enumeration of the various duties of its officers, as follows:

(1) The management of hospitals and relief stations for the care of sick and disabled seamen of the merchant marine of the United States, over 50,000 seamen being treated annually.

(2) The active management of eleven national quarantine stations, including the steam vessels belonging thereto. These national quarantine stations, particularly in the South, are the refuge stations for neighboring local quarantines, and for a large number of years have done the greater part of the actual cleansing and disinfecting of infected vessels. In the last fifteen years their hospitals have, with but few exceptions, received and cared for all the yellow-fever patients taken from vessels entering United States ports.

(3) Inspection of local quarantines, under the act of February 15, 1893.

(4) Investigation of reported cases of epidemic disease, including bacteriological examinations and local sanitary conditions.

(5) The suppression of epidemic diseases and enforcement of the interstate quarantine regulations.

(6) The collection and dissemination of mortality statistics and sanitary information.

(7) Scientific investigation into the causes of disease. (Hygienic Laboratory.)

(8) The examination of pilots for color-blindness.

(9) Physical examination of keepers and crews of the life-saving stations; professional examination of their claims on account of disability and their treatment in hospital.

(10) Physical examination and treatment of the officers and crews of the Revenue-Cutter Service, both prior and subsequent to enlistment, and medical and surgical service under special detail on revenue cutters engaged in Arctic cruising or on other long voyages.

(11) Physical examination of immigrants under the law excluding those afflicted with contagious disease.

(12) Service in the office of consuls at foreign ports to assure the accuracy of bills of health given to vessels.

(13) Miscellaneous duties imposed from time to time by the Treasury Department.

As further illustrating the function of the Marine-Hospital Service, I insert herewith an extract from an address delivered by myself before the Committee on Interstate and Foreign Commerce of the House of Representatives May 18, 1894.

"MEDICAL CORPS.

"The medical corps of the Marine-Hospital Service, as will be seen by the small blue book before you, consists of a Supervising Surgeon-General, 16 surgeons, 26 passed assistant surgeons, 19 assistant surgeons, and 93 acting assistant surgeons, making a total of 154.[1] The regular corps, that is to say, all of the above excepting the acting assistant surgeons, are appointed by the President after thorough physical and professional examination. The acting assistant surgeons are appointed by the Secretary of the Treasury, on recommendation of the Supervising Surgeon-General, who satisfies himself as to the professional qualifications of the officer. The employment of acting assistant surgeons in times of emergency for temporary service, and the discontinuance of their services when the emergency is over, furnishes an excellent method of increasing or contracting the medical corps as occasion requires.

"The acting assistant surgeons are men who have been long in the service and are trained in Government routine. When newly appointed in emergency they are usually assigned to a marine hospital under the observation of the commanding officer and one of the older assistants, detailed to meet the emergency.

"I have heard that intimations have been made concerning the youth and inexperience of the members of the regular corps, the absurdity of which is shown by a table which I have caused to be prepared giving the age and date of graduation of every officer of the service. From this table it will be seen that the average age of the 16 surgeons is 50 years, the average age of the 26 passed assistant surgeons is 35 years, and of the 19 assistant surgeons, 29 years.

"The medical colleges represented are as follows: Medical College of Maine; Western Reserve Medical College; Jefferson Medical College, Philadelphia; Pennsylvania Medical College; Chicago Medical College; Rush Medical College; University of Georgetown, D. C.; University of Michigan; Columbian College, Washington, D. C.; Bellevue Hospital Medical College, New York; National Medical College, Washington, D. C; University of Pennsylvania; University of Maryland; College of Physicians and Surgeons, New York; College of Physicians and Surgeons, Baltimore; College of Physicians and Surgeons, Boston; Dartmouth Medical College, New Hampshire; McGill College, Montreal, Canada; Harvard Medical School, Boston; Howard University, Washington, D. C.; Medical College, South Carolina; Virginia Medical College; University of Virginia; Miami Medical School, Cincinnati; Long Island Medical College, New York; St. Louis Medical College.

"It will thus be seen that the members of this corps are fairly representative of the medical profession of the country. Many of them, in spite of the fact that they are subject to change of station every four years or oftener, have held and are now holding professorships in the medical colleges of the cities in which they are stationed.

"Concerning the new admissions to the corps, the law requires that they shall be appointed to the grade of assistant surgeon only, and provision is made for subsequent promotion. The examination is held once or twice a year as occasion requires, and the applicant must pass a very severe test, making an average of 80 per cent on all branches. The successful candidates are relatively few. For example, this month, out of 29 who appeared for examination, only 4 made the required grade. These new appointees represent the very best men among the newer graduates of the colleges; but very rarely do they come direct from the medical college, most of them having had hospital or private practice before seeking admission to the corps. Out of the total 61 medical officers, 53 had hospital practice before entering the service, 7 were engaged in private practice, and only 2 had neither private practice nor hospital service.

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[1] Since the above was written, the corps has undergone a slight change in its personel, consisting at this date of 1 Supervising Surgeon-General, 16 surgeons, 30 passed assistant surgeons, 15 assistant surgeons, and 76 acting assistant surgeons.

"There are 19 hospitals owned and operated by the Service, and 95 additional relief stations, where at contract hospitals seamen are admitted and treated by acting assistant surgeons.[1]

"DISTRIBUTION AND QUALIFICATIONS OF THE CORPS.

"The officers of the Medical Corps, just mentioned, are stationed in every important port on the coast, lakes, and rivers, and, being trained in the execution of Government business, become valuable agents for the immediate execution of any sanitary measures which may be imposed upon them by telegraph or otherwise from the Bureau. It is always possible for the Marine-Hospital Service in any part of the country, on the shortest notice, to have qualified agents at a place of danger. There is scarcely an officer of the regular corps who has not had actual quarantine experience, and the corps numbers among its members men whose names have become national by reason of their effective service in various epidemics. The corps embraces a number of skilled bacteriologists, also men who have had large practical experience in the treatment of yellow fever and other contagious diseases, men thoroughly acquainted with all the military duties connected with sanitary cordons, detention camps, and with the methods of train and vessel inspections, scientific disinfection, etc. The effectiveness of this corps is the result of special care exercised to secure within it men who by natural inclination and special education are fitted for sanitary work, and is also the result of long and active experience.

"The Marine-Hospital Service dates as far back as 1798. It was reorganized and put upon its present basis in 1871. Though established for the purpose of caring for sick and disabled seamen of the merchant marine of the United States, there have been from time to time other responsibilities imposed upon it, growing out of the necessities of other branches of the Government with which it is intimately and necessarily associated. For example, the Revenue-Marine Service, a branch of the Treasury Department, relies upon the Marine-Hospital Service for the physical examination of its officers and men and their professional treatment when sick or disabled. The Life-Saving Service relies upon the Marine-Hospital Service for the physical examination of the keepers and surfmen. Hundreds of rejections of physically unsound men seeking to become surfmen have been made by the officers of the Marine-Hospital Service. The Steamboat-Inspection Service, a most important branch of the Treasury, relies upon the medical officers of the Marine-Hospital Service for a determination as to the ability of the pilots to distinguish signal lights, and large numbers of applicants for pilots' license are annually rejected by the officers of this Service on account of color blindness. The Immigration Bureau relies by law upon the Marine-Hospital Service for the medical inspection of immigrants.

"Naturally, too, by reason of the intimate association of the Marine-Hospital Service, through its sailors, with shipping and commerce, the National Government has imposed upon this Service the execution of the national quarantine laws, to which reference has already been made. I will only add here that so far as national quarantine is concerned, the Service, by tradition and constant activity, save for a period of four years, is the natural executor of the same. National quarantine received its first executive impulse through the first Surgeon-General of the Marine-Hospital Service, Dr. John M. Woodworth, in 1878. Both prior and subsequent to this last date the Bureau has controlled, wholly or in part, epidemics of yellow fever and of smallpox; notably yellow fever in 1873, 1876, 1877, 1878, 1882, 1887, 1888, and in 1893, the Brunswick epidemic, when it was confined within the cordon on lines established by the Service.

"It also took charge of railroad quarantine against smallpox in Canada in 1885, and at Harris Neck, Ga., in 1891, it stamped out the disease.

"It had complete control of the quarantine measures against yellow fever in Texas in 1882, and in Florida in 1888.

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[1] Since the above was written the number of hospitals owned and operated has been increased to 21.

"THE NATIONAL QUARANTINE STATIONS.

"The Marine-Hospital Service has under its immediate control eleven national quarantine stations, equipped with modern appliances for disinfection of vessels, hospitals for the care of the sick, and barracks, where required, for the detention of suspected immigrants.[1] These stations are so far remote from populous centers as to be seldom visited, but their completeness and the scientific care exercised in isolation of the sick, the surveillance of those suspected and held under observation, the cleansing and disinfection of vessels, has excited the surprise and commendation of the few Members of Congress who have visited one or more of said stations. There is a fleet of thirteen vessels connected with these stations, three of them being old vessels turned over from the Navy for the purpose of receiving and housing people in quarantine.

"COOPERATIVE ASSOCIATIONS.

"Now, referring to the work done by the Marine-Hospital Service for other branches of the Government—namely, the Revenue Marine, the Life-Saving Service, Steamboat-Inspection Service, and Immigration Service—a return service on the part of these branches of the Government adds to the strength and ability of the Marine-Hospital Service for quarantine work. For example, the Revenue-Cutter Service, under the same Secretary as is the Marine-Hospital Service, may be called upon at any time, and frequently is, to assist in quarantine measures through the medium of their fleet of vessels. During the past summer revenue cutters have patrolled the Southern coast in aid of the quarantine cordon around Brunswick. They have carried medical officers and supplies to the Sea Islands, off the coast of South Carolina, in the sanitary work demanded of the Marine-Hospital Service by reason of the great storm. They have furnished vessels for the Marine-Hospital Service repeatedly in New York Harbor, and in fact practically form a fleet subject to demand for service at any time in the aid of quarantine. During the past summer, when it was feared that the immigrant detention camps at Camp Low and at Delaware Breakwater, both under the control of the Marine-Hospital Service, might of necessity be occupied by immigrants held under observation, an arrangement was made with the Revenue-Marine Service for the immediate detail of their enlisted and armed men from the several cutters to form the necessary guards around these camps, the places of the enlisted men to be supplied by new enlistments on the vessels.

"The Steamboat-Inspection Service, in return for the examination of pilots, furnishes experts to examine the hulls, boilers, and machinery of the vessels which belong to the Marine-Hospital Service.

"The Life-Saving Service, on request of the Supervising Surgeon-General of the Marine-Hospital Service, is required by its Superintendent to watch carefully for all dunnage and other stuff that might float ashore from infected vessels, thrown overboard before said vessels reach port; to gather up with rakes such material and burn it.

"The presence of medical officers at the immigrant reception stations at the several ports enables the Bureau to keep fully informed with regard to immigrants and their baggage, which constitute so large a proportion of the danger in the matter of epidemic importation.

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[1] These stations are located at Delaware Breakwater; Reedy Island, Delaware River; Cape Charles, Virginia; Southport, North Carolina; Blackbeard Island, Sapelo Sound, Georgia; Brunswick, Ga.; Dry Tortugas, Fla.; Ship Island, Gulf of Mexico, off the coast of Mississippi; San Diego, Cal.; Angel Island, San Francisco Bay, California; and Port Townsend, Wash.

"OPERATIONS OF MARINE-HOSPITAL SERVICE.

"The operations of the Marine-Hospital Service, independent of quarantine, during the fiscal year ended June 30, 1893, may be summarized as follows: Total number of sailors treated in the hospitals and dispensaries, 53,317, of which number 14,857 were treated in hospital, the remainder being office or dispensary patients. There were 1,353 pilots examined for color-blindness, of whom 48 were rejected. One thousand and ninety-five surfmen and keepers of the Life-Saving Service were examined, of which number 41 were rejected for physical causes. Two hundred and seventy-nine seamen of the Revenue Marine were examined before shipment as to their physical fitness, and 22 were rejected."

I transmit herewith annual reports of the Marine-Hospital Service for 1894 and 1895.

Respectfully, yours,

WALTER WYMAN,
Supervising Surgeon-General, M. H. S.

The SECRETARY OF THE TREASURY.

THE MARINE-HOSPITAL SERVICE IN ITS RELATIONS TO PUBLIC HEALTH IN THE UNITED STATES.

In connection with the above subject attention is respectfully invited to the discussion of the various bills which had been introduced in Congress for the creation of a bureau of public health, set forth in extenso in the annual report of the Marine-Hospital Service for 1894. It is now of interest to chronicle the voluntary expressions which have appeared in print during the past year concerning this Service. First may be mentioned an editorial in the Sanitarian, published in Brooklyn, of April, 1896:

Clearly, the United States Marine-Hospital Service, however objectionable some of the phases through which it has passed, now possesses the basal qualities of an elaborate and efficient national health service, superior to any new project, departmental or otherwise.

Following is an extract from the proceedings of the forty-seventh annual meeting of the American Medical Association, held in Atlanta, Ga., May 5 to 8, 1896:

Report of the committee on department of public health, American Medical Association.

Our committee was appointed in 1891, with the object in view of securing the passage of a law creating a national department of public health, with a secretary of public health at the head of it, with a seat in the Cabinet of the President of the United States. The bill which was prepared for presentation to Congress was extremely crude and indefinite in its provisions and gave this proposed high official very little important work to do. It was, indeed, found to be so defective that last year the effort to have it enacted into a law was abandoned.

In the meantime the Marine-Hospital Service, which in 1890 had already been invested with some important health functions, was by the act of 1893 converted into a national health department, with very large and far-reaching powers and abundant means. It is not called a department of public health, but is a department of public health in fact.

Since 1893 until the effort was abandoned last year our committee has been engaged in the hopeless and unwise enterprise of endeavoring to induce Congress to establish another department of public health—a very weak and inconsiderable department by the side of a very powerful department. Such an effort could not succeed. Such an effort did not deserve to succeed.

It seems to us to be a fundamental proposition that we shall have but one national department of public health. This being conceded, one of three courses remains open to us:

(1) We may devise and advocate a plan to deprive the Marine-Hospital Service of its public-health functions and for the establishment of an entirely new department; o

(2) We may accept the Marine-Hospital Service just as it stands as a department sufficient for our present use; or,

(3) We may endeavor to improve the Marine-Hospital Service and make it a more satisfactory national health department than it now is.

It would seem that this last method promises to be the most fruitful of beneficent results, and the question then arises as to the modifications that may be wisely made in the existing law.

In arranging any scheme of national public-health supervision it would seem desirable that nothing should be done to discredit and weaken the various State boards of health, but that, contrarywise, the effort should be to strengthen the State organizations and to foster and facilitate their further evolution. If this principle is conceded, it is at once made evident that the national department of public health should act in and through the State boards of health, in cooperation and harmony with them, and not outside of them and independent of them. If the national department acts within the States independently of the State boards and assumes the work that ought to devolve upon the State boards, then the State boards become comparatively useless institutions and will fall into disfavor. Some of the State boards are still weak institutions, and any rivalry between them and the national department in State work would doom them to speedy destruction. In this direction it would seem that additional legislation is needed, and the simplest plan to reach the desired reconciliation would embrace two provisions:

(1) That the national department should act within the States by and through and in cooperation with the State boards.

(2) That the head of the national department should call annually, to meet in the city of Washington, an advisory council, to be composed of one representative from every State board of health. This would bring about mutual understanding and cooperation and reciprocity of action, and would virtually constitute a great central school of public hygiene.

Such a scheme as this would probably command the approval and support of the National Conference of State Boards of Health, which conference is quite as deeply interested in movements of this character as is the American Medical Association.

As the conclusion of the whole argument, we recommend that we be authorized to draw up a new bill along the lines we have indicated, and that we be authorized to invite the cooperation of the Conference of State Boards of Health and of the American Public Health Association in our endeavor to have the proposed bill enacted into law.

All of which is respectfully submitted.

JEROME COCHRAN, M. D.,
Chairman Committee.

Dr. HIBBERD. I move that the report of the committee be accepted, the plan outlined adopted, the committee continued and enlarged by the appointment of a member from each State.

Seconded.

Dr. I. N. LOVE. If I understand the proposition rightly, it provides for a department of public health, built upon the present foundation of the Marine-Hospital Service. I am therefore in favor of it. It is an elaboration, a building up in a stronger and more definite shape of the public health department and quarantine service which we already have. When we consider that every other department of life is represented in our national conference board, or cabinet, and yet public health is not represented, surely the dignity of medicine and the best interests of

the health of the community demand such recognition, and I think the most practical way in which to accomplish this great and good work is by building up that which we already have and crystallizing it in the shape of a more dignified body.

The report was adopted.

Following is an extract from the proceedings of the eleventh annual meeting of the National Conference of State Boards of Health, held in Chicago, Ill., June 10, 11, and 12, 1896:

National Conference of State Boards of Health—Question proposed by the State board of health of Alabama—A national department of public health—Is such an institution desirable, and what should be its functions, and its relations to the State boards of health?

Dr. COCHRAN. I think this is really a question of great practical importance, and I am very sorry that there is not a larger number of the members of the conference present. The various medical bodies in the country have been passing resolutions in favor of a national department of health. With two exceptions none of these medical bodies have formulated any plans for presenting the matter to Congress, and their resolutions have had very little influence in any way. The two exceptions are the American Medical Association and the New York Academy of Medicine. Both of these bodies drafted bills and presented them to Congress several years ago. They were bills of very widely different character, and very naturally embarrassed one another. I was made chairman of the committee of the American Medical Association at its meeting in San Francisco. I went to Washington and surveyed the ground, and became convinced that it was utterly impracticable to pass our bill. It was a bill for the creation of a public health department, whose secretary should have a seat in the President's Cabinet. After satisfying myself of that fact and studying the details of the plan very thoroughly, I suggested at Baltimore some modifications of the proposed plan. That was voted down in committee, however, and did not go before the American Medical Association at all. They insisted upon continuing the fight for a secretary of public health with a seat in the Cabinet. We then prepared for a very active campaign. I went to Washington again, and in the meantime was studying up the situation and became very much embarrassed when I found that the proposed plan of the American Medical Association was not only one that it would be impossible to pass into a law, but was also one that was not desirable to so pass.

I found that we had already a department of public health in the Government, and one which was a very powerful department, namely, the Marine-Hospital Service. It is not only a public-health department, but it has public-health functions which are very great, particularly in the way of maritime quarantine and quarantine between States. Indeed I have no hesitancy in saying that it is the most powerful department of public health in the world. There is nothing like it anywhere else. Nothing with so much power and such abundant means. Now, the bill of the American Public-Health Association proposes not to interfere with the Marine-Hospital Service, but to establish a board of public health alongside of it. We involve the absurdity of having two national health authorities side by side, and it became very clear to me that it would not be expedient to have two national departments of public health, but that there must be only one. Having reached that conclusion, the next question was whether the Marine-Hospital Service should be adopted as a part of our movement and its powers added to and developed, or whether we should fight the Marine-Hospital Service and abolish its health functions. I very soon became convinced that the Marine-Hospital Service was politically very powerful, and that it would be very unwise to fight it, and really could not see any very good reason why we should fight it at all. It had the power and had the means to discharge the larger functions of a department of public health, and I therefore did

not see any wisdom in fighting it, but I did see how we might supplement the present law and round it out more completely. In the meantime I visited New York to confer with the Academy of Medicine there. Their people proposed to create a great board of health composed of fifteen members, nine of them to be selected from the nine judicial districts of the United States, and each of those nine to have supervision over his own district They proposed to ignore the Marine-Hospital Service. If the bill passed it would set that aside virtually. They modified that plan after my visit to New York by proposing to accept the Marine-Hospital Service and make the head of the Service president of this great commission they proposed to establish. The idea was that with that modification the Marine-Hospital Service might rally to the support of the bill, but they did not see fit to do that. Now, I have stated as a fundamental proposition that we should have but one department of public health. Another principle which seems to me important in a department of public health is that there should be no national board of health which is inimical in any way to the State boards of health. If the Marine-Hospital Service, for example, ignores the State boards of health, and does its work in the several States through its own agents and without cooperation with the State boards, they emasculate the power and influence of the State boards; people are always ready to favor work done at the expense of the General Government, and the result would be the breaking down of a great number of our State boards. It would at any rate weaken the influence of the State boards.

I take it, therefore, that any plan that may be adopted must recognize the State boards of health, and cooperate with the State boards and not in any way independently of them. So much being conceded, and I think that you will all concede that that is the best plan, the next question is, What additional legislation should we ask Congress to make? I presume all the members present are familiar with the existing legislation, especially the act of 1893, which gave such powers and functions to the Marine-Hospital Service. In the way of quarantine we could not ask to have any department of public health given more power than the Marine-Hospital Service has. What addition, then, can we make to the law?

The General Government in regard to public health can act only when a particular necessity arises. They can not take immediate charge of the sanitary institutions of the various States and municipalities. They can only interfere when one State is threatened with danger from another State. In other words, the limit of their power is almost purely within the lines of what we call quarantine. I have often asked the advocates of a department of public health what they would put in a bill—what they would ask Congress to do, and have never been able to get any satisfactory answer. The fact is, they have an idea that Congress can do a great deal and ought to do a great deal, but exactly what that is they can not say. They want to put in wandering generalities about vital statistics, and other similar subjects. The subject of vital statistics is pretty well cared for in the census. Then they want to put in something about the meteorological conditions in various parts of the country. The Signal Service is making that a study in a very thorough manner, better than any other department of the Government could be expected to do. And so suggestion after suggestion is made, when an examination of the present law shows that its extension should confine itself to the proper relation between a national board of health and the State boards of health, and it is this feature which makes it seem to me that this conference ought to take special interest in the matter. This conference represents the State boards of health of the country, and we want to sustain their authority and usefulness. The conference heretofore held at Washington passed a resolution favoring a public-health board being established, but they formulated no plans regarding it. The mere passing of a resolution does not amount to much. I have been absolutely unable to think of any other direction in the development of the present national system in which we can proceed, except to define the relation between the national health department and the State boards. I have

here the essential parts of a bill projected upon these lines which I have just indicated which I will beg the privilege of reading.

It reads as follows:

* * * * * * *

Now, the existing law would be reaffirmed, and that includes a great many sections which enter into the details by which information is obtained in foreign countries, and by which the examination and disinfection of vessels and emigrants are made in foreign countries, and the rules under which they are allowed to come into this country when they arrive at our own ports. That is the already existing law and would be reenacted. In this little sketch I have endeavored to outline the particular ideas along the lines indicated in my remarks. The details of the plan of course would admit of some modification, and could be worked out into a more definite form. Now, it seems to me, Mr. Chairman, as I stated in the beginning, that this conference ought to feel especially interested in a movement of this sort, and I am deeply interested in it myself, as, in spite of feeble health, I took the journey from Montgomery to Chicago to bring before this conference this important question in the hope of getting an expression from the members of it as to what it is desirable to ask for and to urge that you use whatever influence you can bring to bear on the Congress of the United States to get the suggested modifications placed in the law. The plan was unanimously approved by the Atlanta Medical Association at their November meeting, and I have the authority of the American Medical Association, and I want one member from every State in the Union to interest himself in the matter. I should like to get the sanction of this conference to ask every State board of health in the Union to appoint a representative to represent their State. The New York Academy of Medicine will withdraw its opposition. Now, with all these influences brought to bear it seems to me we can accomplish something, and the only thing necessary, in my mind, to be yet accomplished is to define the proper relations which should exist between the national health department and the State boards of health. I hope that the members of the conference will express their opinions freely, and as a basis for any discussion I move you that the conference approve in a general way of the plan submitted.

Dr. LEE. I second that motion. * * *

The PRESIDENT. It has been moved and seconded that the plan submitted be approved in a general way. Are you ready for the question?

Dr. BAKER. I wish to supplement that by another motion. * * *

The PRESIDENT. The question recurs on the substitute of Dr. Baker.

Dr. HEWITT. What is Dr. Baker's motion?

Dr. RUGGLES (in chair). The motion is that this conference appoint a committee to cooperate with committees appointed by other associations in the matter of obtaining the passage of a law establishing a national board of health. * * *

The motion of Dr. Baker was put, and the result being in doubt, a division was called for. The motion was lost by a standing vote of 8 to 5.

The PRESIDENT. The question now recurs on the original motion, the motion made by Dr. Cochran.

This motion prevailed.

CONTENTS AND ILLUSTRATIONS.

Attention is respectfully invited to the table of contents published with this volume, which gives a faithful résumé of the transactions of the Service. In my last annual report (1895) I stated that the illustrations accompanying it included one-half of the total number of marine hospitals and one-half the total number of quarantine stations, and that the other hospitals and quarantine stations were illustrated in the

report of 1894. Since the issue of the 1895 report, the hospital at Cleveland, Ohio, which had been leased for a number of years to a local association, has been returned, and is now operated by the Service, and the illustration thereof in this report completes the list of illustrations of marine hospitals. Since the last report also the quarantine station near Southport, N. C., has been erected, and is herein illustrated.

Acknowledgment is due the United States Coast and Geodetic Survey for the preparation of maps, and assistance in the construction of scientific appliances designed in the laboratory for use in experiments relating to disinfection.

I have the honor to remain, very respectfully, yours,

WALTER WYMAN,

Supervising Surgeon-General, Marine-Hospital Service.

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