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REPUBLIQUE D'HAITI

SERVICE NATIONAL D'HYGIÈNE PUBLIQUE

ANNUAL REPORT

OF

THE SANITARY ENGINEER

[Butler (C.S.)]

1923-1924

Port-au-Prince
Décembre, 1924

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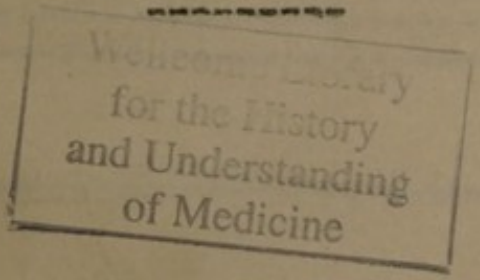

Port-au-Prince
December, 1924

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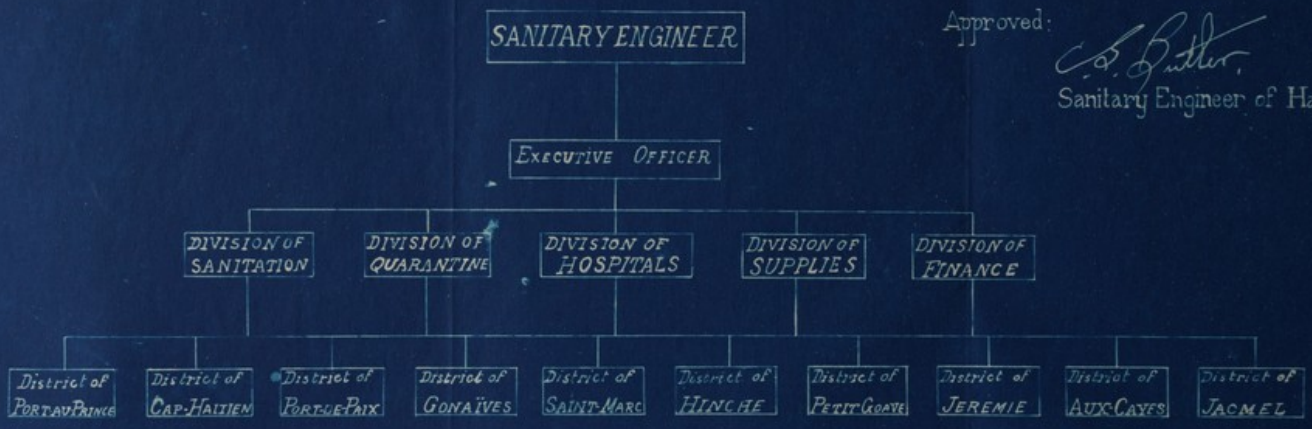
ORGANIZATION CHART 1925



Approved:

C. D. Butler

Sanitary Engineer of Haiti

REPORT OF THE SANITARY ENGINEER OF HAITI

FOR THE YEAR ENDING DECEMBER 31st, 1924.

RESUME OF 1923 ANNUAL REPORT.

It is very gratifying to be able to report that practically every one of the eight urgent recommendations enumerated on the last page of the previous annual report are soon to be accomplished facts:

(a) A Public Health Hospital at Hinche is being erected and equipped at a total cost of $76,626.73.

(b) An operating pavilion and a dispensary building have just been completed at Cape Haitian at a total cost of $20,000.oo.

(c) A total of $35,000.oo is being spent in repairs and renovation of the Justinien Hospital, Cape-Haitian.

(d) Biological products (vaccines, sera, etc.) to the amount of $3,000.oo have been purchased.

(e) Additional medical supplies to the amount of $10,000.oo have been purchased.

(f) The erection of $13,000.oo clinical building at the Haitian General Hospital is nearing completion.

(g) Arrangements are being made to finance the erection of 9 standard dispensaries at a total cost of $6,800.oo.

(h) The Budget for the fiscal year 1924-25 was increased to $369,176.40.

POLICY AND ORGANIZATION.

The more one observes the condition of the Haitian people, the more one is impressed with the fact that the lack of more definite progress is in as great measure due to widespread disease of body and mind as it is to other

causes. The duty of the Public Health Service is to remove this handicap as far as is possible by actual treatment of the sick and by the institution of sanitary measures to prevent the contraction of various diseases.

During the year the personnel of this Service was increased, making it possible to inaugurate various changes in its organization with subsequent enlargement of its scope of activities all of which it is hoped will be in full swing during the coming year. The following divisions have been established at the Central Office: Division of Hospitals and Dispensaries, Division of Sanitation, Division of Quarantine, Division of Property and Supplies and Division of Finances. The Officers in charge of these central divisions will act in an advisory capacity when problems arise in the various districts.

Divisions of Hospitals and Dispensaries.- The increase in personnel has made it possible to place a Medical Officer in charge of the hospitals in the larger districts. The additional officers are at St. Marc, Gonaives, Port-de-Paix, and Hinche. Within a month or so there will also be one at Jérémie and one more each at Port-au-Prince and the Cap Haitien Hospitals. X-ray technicians have been added to the staff at these latter two institutions. The hospital laboratories at Port-au-Prince and Cap-Haitien have been placed in charge of Chief Pharmacists Mates with special training in laboratory methods.

The policy of training recent graduates from the National Medical School in the larger hospitals after the manner of internes which was started last year is being continued, three having finished one year of such service. Following a year of service it is hoped to commission, under the recent act authorizing the commissioning of Haitian physicians in this Service, such internes as have shown themselves qualified.

Very definite progress is being made toward Government ownership of all hospitals operated by Service d'Hygiène and it is believed that another year will see this an accomplished fact.

In order to increase the facilities for treatment of the sick in the remote parts of the country an extensive program for the erection of standard dispensaries, 25 in number, has been approved, 9 of them to be erected during the present fiscal year. In the same connection the system of rural clinics which is at present meeting

with so much success will undergo further elaboration in order to reach as many sick as possible.

Division of Sanitation.- The increase in personnel has made it possible to place a hospital corpsman in charge of sanitation in each one of the districts. The Port-au-Prince district will serve as an educational center where each hospital corpsman will receive a short course of instruction in that particular kind of work which he is expected to know. In addition Port-au-Prince now serves as training center for sanitary inspectors in the out-lying districts. During the coming year it is hoped that the work of the sanitation service will be of a higher order than ever before.

Division of Quarantine.- During the latter part of the year the services of an Officer of the United States P-Public Health Service were secured in order to establish an up-to-date quarantine service for Haiti. This Officer is now making preliminary studies on this subject.

Lastly the splendid program for the development and operation of the Service during the next three years, a subject which will be given more definite consideration in another part of this report, gives assurance that the future policy of this Service will be one of continued progress from year to year.

PERSONNEL.

The personnel of Service d'Hygiène consists of the following:-

12	Medical Officers
3	Chief Pharmacists
12	Chief Pharmacists Mates
2	Chief Pharmacists Mates 1st. class
16	Haitian Physicians
1	German Physician (Specialist in diseases of children)
1	Haitian Dentist
2	Haitian Pharmacists
47	Sanitary Inspectors
4	Red Cross Nurses
23	Sisters
12	Haitian Nurses
24	Pupil Nurses

with so much success will undergo further elaboration in order to reach as many sick as possible.

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2	Haitian Pharmacists
47	Sanitary Inspectors
4	Red Cross Nurses
25	Stafers
12	Haitian Nurses
24	Pupil Nurses

17 Clerks
2 Mechanics (1 chief of garage)
20 Chauffeurs
7 Apprentice mechanics
72 Chefs d'Equipe
796 Laborers.

The handicap of lack of trained personnel mentioned in the last annual report has been somewhat relieved by recent additions in naval personnel, viz: three (3) Medical Officers and seven (7) Hospital corpsmen. However these together with the nineteen (19) Navy personnel already on the ground merely give a working skeleton organization with one Medical Officer and one Hospital corpsman in each of the larger centers. These 29 together with 16 Haitian physicians and 1 German physician give but one doctor or hospital corpsman to every 54,000 people, a very inadequate supply when you compare the United States with one physician to about every 500 people.

With the erection of the nine (9) standard dispensaries which are proposed for the present fiscal year, it will be possible to give employment to additional Haitian physicians of whom there are several applicants.

HOSPITALS.

As can be seen from the preceding charts the Service maintains and operates 11 Hospitals. In addition to being a general hospital each one operates a large dispensary.

Port-au-Prince.- Haitian General Hospital. It should be noted that the daily average number of patients has increased from 211, in 1923, to 248, in 1924; the daily average of out-patients, from 94, in 1923, to 149, in 1924. Although the cost of operation remains practically the same, this is believed due to minor economies and efficient cooperation of Sisters and employees. Also it should be noted that there are fewer weekly employees on the payroll for 1924 than for 1923.

During the year main structures and all outbuildings of the hospital have been repaired or rebuilt and painted. Permanent asphalt or paved roads and walks have been installed, and the dust nuisance greatly ameliorated.

17 Clerks
2 Mechanics (1 chief of garage)
20 Chauffeurs
7 Apprentice mechanics
72 Chefs d'Equipe
796 Laborers.

The handicap of lack of trained personnel mentioned in the last annual report has been somewhat relieved by recent additions in naval personnel, viz: three (3) Medical Officers and seven (7) Hospital corpsmen. However these together with the nineteen (19) Navy personnel already on the ground merely give a working skeleton organization with one Medical Officer and one Hospital corpsman in each of the larger centers. These 29 together with 15 Haitian physicians and 1 German physician give but one doctor or hospital corpsman to every 54,000 people, a very inadequate supply when you compare the United States with one physician to about every 800 people.

With the exception of the nine (9) standard dispensaries which are proposed for the present fiscal year, it will be possible to give employment to additional Haitian physicians of whom there are several applicants.

HOSPITALS.

As can be seen from the preceding charts the Service maintains and operates 11 Hospitals. In addition to being a general hospital each one operates a large dispensary.

Port-au-Prince.- Haitian General Hospital. It should be noted that the daily average number of patients has increased from 211, in 1923, to 238, in 1924; the daily average of out-patients, from 84, in 1923, to 139, in 1924. Although the cost of operation remains practically the same, this is believed due to minor economies and efficient cooperation of Sisters and employees. Also it should be noted that there are fewer weekly employees on the payroll for 1924 than for 1923.

During the year main structures and all outbuildings of the hospital have been repaired or rebuilt and painted. Permanent asphalt or paved roads and walks have been installed, and the dust nuisance greatly ameliorated.

PORTION OF HAITIAN GENERAL HOSPITAL, PORT-AU-PRINCE.

The hospital grounds have been graded, trees planted and lawns substituted for barren gardens.

The new out-patient building is rapidly nearing completion and when functioning will greatly increase the efficiency of the out-patient department. Progress is being made on plans to increase the water supply, and to connect the institution with a sanitary sewage system.

STATISTICS.

Average number of patients per day	248
Total number of admissions	3243
Total number of births	174
Total number of out-patients	43005
Daily average of out-patients	149
Discharges (including deaths)	3405
Daily average of deaths	1.745
Number of autopsies performed	15
Total number of major operations	160
Total number of minor operations	1587
Total number of salvarsan injections	4742
Total number of mercury injections	6209

X-RAY.

Number of X-ray pictures	308

DENTAL DEPARTMENT.

Total number of treatments	352
Total number of extractions	1123
Total number of fillings	3

The ASILE COMMUNAL.- During the fiscal year this institution has been caring for a daily average of 104 inmates. Three catholic sisters are employed and have rendered excellent service. A doctor from the Public Health Office of Port-au-Prince makes daily visits and not only cares for the inmates but any indigents in the neighbourhood who care to come in for treatment. During the year 86 prescriptions were filled for outside patients 13 minor operations performed under local anesthesia, 144 injections of Sulpharsenamine given and there were 235 consultations. One Haitian nurse is now employed here and renders excellent service.

The Chapel constructed and furnished at a cost of slightly over $2,000.oo was paid from savings from the subvention of $800.oo per month furnished by the

The hospital grounds have been graded, trees planted and lawns substituted for barren gardens.

The new out-patient building is rapidly nearing completion and when furnished, will greatly increase the efficiency of the out-patient department. Progress is being made on plans to increase the water supply, and to connect the institution with a sanitary sewage system.

STATISTICS.

Average number of patients per day--------248
Total number of admissions----------3545
Total number of births----------174
Total number of out-patients----------43005
Daily average of out-patients----------149
Discharges (including deaths)----------3405
Daily average of deaths----------1.745
Number of autopsies performed----------15
Total number of major operations----------150
Total number of minor operations----------1587
Total number of salvarsan injections----------4742
Total number of mercury injections----------6309

X-RAY.

Number of X-ray pictures----------306

DENTAL DEPARTMENT.

Total number of treatments----------352
Total number of extractions----------1153
Total number of fillings----------3

The ASYLUM COMMUNAL.- During the fiscal year this institution has been caring for a daily average of 104 inmates. Three catholic sisters are employed and have rendered excellent service. A doctor from the Public Health Office of Port-au-Prince makes daily visits and not only cares for the inmates but any indigents in the neighbourhood who come to come in for treatment. During the year 66 prescriptions were filled for outside patients 13 minor operations performed under local anesthesia, 144 injections of Sulpharsenamine given and there were 238 consultations. One Haitian nurse is now employed here and renders excellent service.

The Chapel constructed and furnished at a cost of slightly over $2,000.00 was paid from savings from the subvention of $800.00 per month furnished by the

Commune for maintenance of this institution. The walls and floors in the main building, the walls of latrine and bassin were all in very poor state of repair. These have been put in first class condition and a reinforced concrete veranda constructed in front of main building, numerous repairs to kitchen and concrete drainage made, the main building painted, all without additional cost to the commune.

On October 1, 1923 there were
inmates remaining--------97
Admission during year----------177
Discharged----------143
Died----------29
Remaining October 1, 1924----------102

The average cost per ration for past six months has been slightly over one gourde per day.

The subvention of $800.oo is considered sufficient for the number of inmates that can be accomodated at present.

The building is entirely too small to accomodate the poor that should be in this institution. There is sufficient ground to construct another building of the same dimensions as the existing building and in view of the fact that less than 50 per cent of the inmates are from Port-au-Prince it is recommended that Government aid be secured in order to provide for this addition. At present there are no provisions for caring for indigent children. If this additional construction could be secured and the building constructed with a second floor the indigent children now cared for at the Creche could be cared for here.

The census taken at the Asile recently showed nativity of indigents as follows:

Port-au-Prince------41
Léogane----------21
Jacmel----------19
Petit-Goave----------6
Arcahaie----------4
Gonaives----------3
Cap-Haitien----------2
Anse-à-Veau----------1
Jamaica----------3
San Domingo----------2

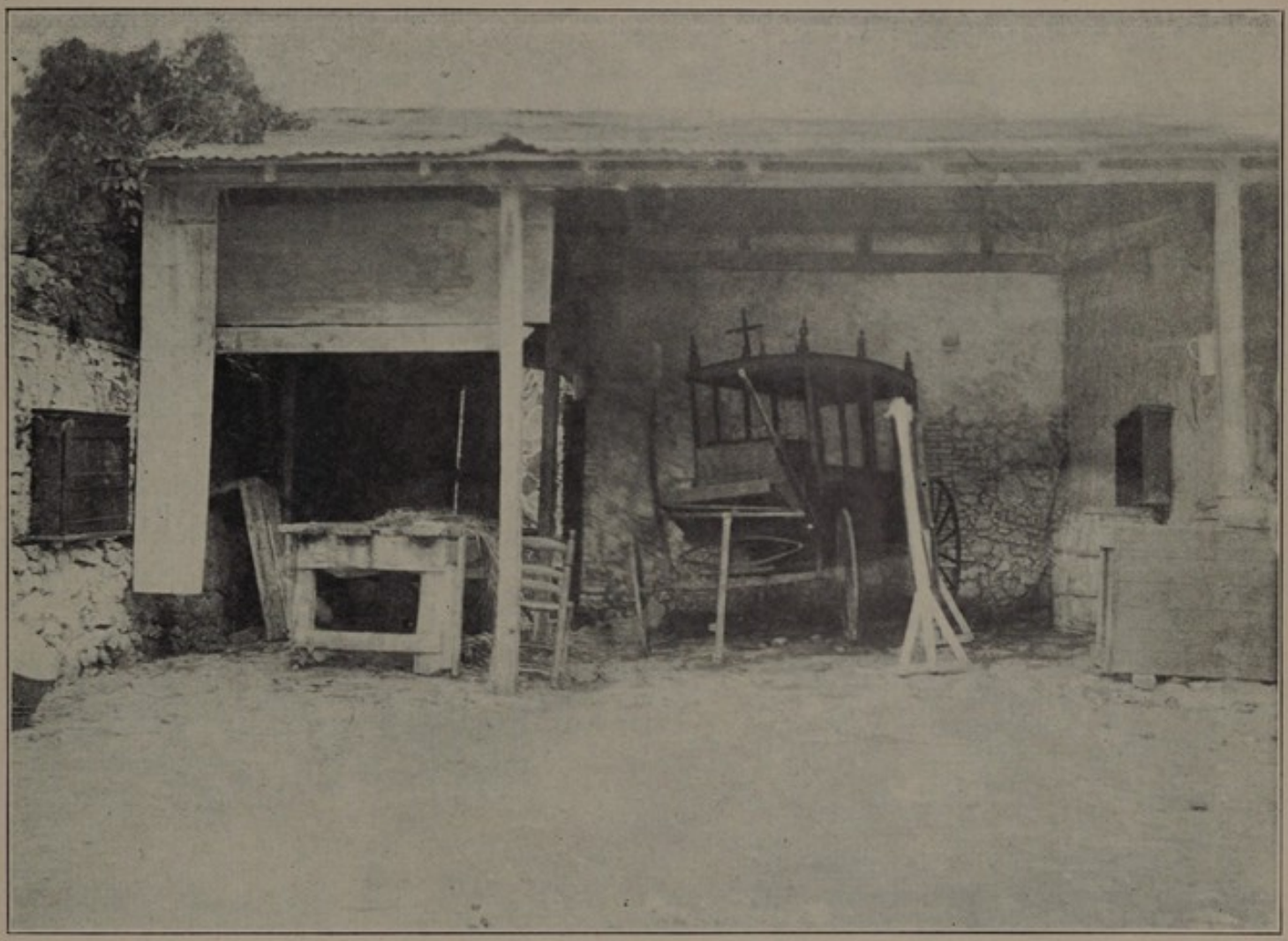
Cap-Haitien.- Justinien Hospital. There have been many improvements at this hospital during the past year in buildings, equipment, personnel, etc. A roomy dispensary has been built and is functioning. Another building with operating rooms, a room for dental work, a suite for ear and eye work and an X-Ray room has been finished. The unsanitary latrines have been done away with and others installed to the rear of the main building. A separate kitchen, two small wards and the renovating of the old building are in process of construction. With money received from private subscriptions, fêtes, etc., a beautiful structure has been built containing 16 private rooms below and two large and two small dormitory rooms on the second floor to serve for the better class of patients. Also with money obtained from the same sources a modern X-ray equipment has been purchased and installed. A gift of ten thousand dollars ($10,000.oo) has been made by the American Red Cross for the erection of a surgical ward and preparations are practically completed to commence construction. Much has been done in the way of construction to transform a former almshouse into a modern hospital; much however remains to be done: viz., a ward for children, a maternity ward and an isolation building. The grounds should be cleaned up, levelled and drained; two more latrines should be added, roads built and gardens planted.

The two wells which were sunk last year have improved the water supply. A pump operated by electricity is being installed and should serve to solve a problem which has long been troublesome and expensive.

The nursing situation is most pressing at the present time. Accomodations for nurses will soon be available and it is hoped that before long additional nurses will be employed to assist in the care of a constantly increasing patient personnel. The volume of work done at this Hospital may be judged from the following table:

Total number of admissions	1,185
Total number of Neo-salvarsan injections	4,568
Total number of out-patient treatments	51,864
Total number of out-patients	14,398
Total number of major operations	369
Total number of minor operations	712

The causes of mortality and morbidity in this district for the past year have been practically the same as for the preceding year except that flies have been



AT THE JUSTINIAN HOSPITAL, CAPE HAITIEN — UNTIL RECENTLY THE HEARSE SHOWN ABOVE WAS ROLLED OUT EACH MORNING TO PROVIDE SPACE FOR THE HOLDING OF AN OUT PATIENT CLINIC. MODERN FACILITIES ARE NOW AVAILABLE IN THE NEW DISPENSARY.

remarkably scarce for some unknown reason and consequently there have been but comparatively few cases of dysentery and typhoid fever. There has been a slight epidemic of mild smallpox (so called alastrim) which was promptly controlled by vaccination and isolation.

Facilities for isolation of contagious cases are absolutely lacking in this Institution. An attempt is made to isolate cases in tents but due to lack of a proper entourage this is practically impossible as tents are too often stolen in toto or in part for the sake of canvas. Plans have been completed to erect an isolation ward.

The senior Medical Officer of this hospital makes the following recommendations:-

"Infant mortality and mortality of parturient mothers remains high. Up to the present it has been necessary to refuse to take maternity cases owing to lack of accomodations. It is considered that a maternity ward should be constructed at the hospital together with a suitable ward for children which would act as a center of information for the proper care of mother and child."

Port-de-Paix.- The buildings occupied by this Service and used as a hospital consist of the following:

A closed-in veranda equipped with six field cots and used as formerly for infected female cases; one ward with ten Navy Standard beds for clean cases, one outside building with a hard clay floor, having on the average ten field cots for male patients, a small room used as an office, dressing and minor surgical operating room, and a small room used as a dispensary and store room.

Due to lack of space only the most urgent cases are admitted, and in order to provide room for others of like nature, it is necessary to discharge many cases "under treatment". This usually means that they never return. This place is entirely inadequate to fulfill the purpose for which it was intended. At present there is absolutely no space to care for an isolation case.

Two catholic sisters are employed as Nurses, and it is needless to state that their work has been excellent. The other employees consist of a cook, a janitor, and a Jamaican man who cares for all infected male patients.

OLD MASONRY CAVE UNTIL RECENTLY USED AS A WARD AT THE JUSTINIEN HOSPITAL, CAP-HAITIEN.
RECENT ADDITIONS TO THIS HOSPITAL HAVE ABOLISHED THIS DEPLORABLE CONDITION OF AFFAIRS.

STATISTICS.

Total patients treated in Hospital------159
Total out patient treatments----------37969
Total number of deaths----------21
Daily average in patients----------14.93
Daily average out patients----------103.79
Total number major operations----------1
Total number minor operations----------67
Total number mercury injections--------1530
Total number Neo-salvarsan injections----15

It is recommended that the Hospice Immaculée Conception be taken over, completed and equipped as soon as possible, or in lieu of this that a new institution be erected.

Gonaives.- Service d'Hygiène operates a 70 bed hospital at this place but as yet has no title to the institution. Negotiations are now pending for the transfer of the institution to this Service following the consummation of which it is proposed to make a considerable number of improvements.

The following is a summary of the work done during the past year:

Patients remaining in Hospital 1 October 1923---68
Patients in hospital 30 September 1924----------58
Patients admitted during the year----------293
Patients discharged as well during the year----235
Patients dead during the year----------40
Lowest number of patients any one day----------48
Highest number of patients any one day----------72
Total number of sick days----------21627
Daily average number of patients----------59.09
Total number of out-patients treated---------12945
Daily average number of out-patients---------35.36
Number of neo-salvarsans----------410
Number of sulpharsphenamines----------108
Number of intramuscular injections of mercury--878
Number of fractures treated----------9
Number of injuries----------52
Number of major operations----------7
Number of minor operations----------82
Number of miscellaneous injections, such as Bismogenol, emetine, etc.----------162
Number of patients that can be taken care of in the Hospital with present beds, etc.-------87
Number of pay patients----------9

INTERIOR VIEW OF OLD MASONRY CAVE SHOWN ON PRECEDING PAGE. THIS HAS BEEN REPLACED BY A MODERN HOSPITAL WARD.

Saint-Marc.- The Saint-Nicolas Hospital at this place is an institution of about 30 beds. This property has recently been transferred to this Service making it possible to make several additions, the most needed being an operating room and a dispensary. Statistics are as follows:-

Average number patients per day	24
Total number admissions during year	384
Daily average out-patients	60
Discharged dead	37
Total minor operations	53
Total salvarsan injections	280
Total mercury injections	2156

Petit-Goave.- Saint-Jean Hospital. There have been no changes in this hospital during the past year. Plans for the next three years contemplate the erection of a small hospital to replace this institution which is nothing more than an almshouse. The following statistics represent the activities for the past year:

Average number of patients in the hospital per day	51.18
Total number of patients admitted during the year	548
Average number of out patients per day	21.178
Discharged dead	86
Autopsies performed	0
Number of major operations performed	0
Number of minor operations performed	65
Total number of salvarsan injections	509
Total number of mercury injections	541

Jérémie.- The capacity of the Saint-Antoine Hospital was increased during the past year by the erection of three isolation units with a capacity of 12 beds each. A fourth unit is to be erected in the near future. Much work remains to be done such as clearing and grading the grounds about the Hospital. Statistics for the year are as follows:-

Average number of patients per day	32.75
Total number of admissions during the year	133
Total number out-patients	7480
Daily average out-patients for the year	20.6
Discharged dead	5
Daily average deaths	1/73%
Major operation	1
Minor operations	250
Salvarsan injections	70
Number mercurial injections	49

Saint-Pierre.- The Saint-Nicolas Hospital at this place is an institution of about 30 beds. This property has recently been transferred to this Service making it possible to make several additions, the most needed being an operating room and a dispensary. Statistics are as follows:-

Average number patients per day----24
Total number admissions during year---384
Daily average out-patients----60
Discharged dead----37
Total minor operations----55
Total antivenan injections----280
Total mercury injections----2156

Petit-Goave.- Saint-Jean Hospital. There have been no changes in this hospital during the past year. Plans for the next three years contemplate the erection of a small hospital to replace this institution which is nothing more than an almshouse. The following statistics represent the activities for the past year.

Average number of patients in the
hospital per day----31.18
Total number of patients admitted
during the year----648
Average number of out patients per day-31.178
Discharged dead----86
Autopsies performed----0
Number of major operations performed----0
Number of minor operations performed----65
Total number of salvarsan injections----509
Total number of mercury injections----641

Jérémie.- The capacity of the Saint-Antoine Hospital was increased during the past year by the erection of three isolation units with a capacity of 12 beds each. A fourth unit is to be erected in the near future. Much work remains to be done such as clearing and grading the grounds about the Hospital. Statistics for the year are as follows:-

Average number of patients per day----32.75
Total number of admissions during the year---133
Total number out-patients----7480
Daily average out-patients for the year----20.6
Discharged dead----5
Daily average deaths----1/735
Major operations----1
Minor operations----280
Salvarsan injections----70
Number mercurial injections----49

Ward, P.H.S. Hospital
Cap Haitian

Cayes.- The Hospital Immaculée Conception. This Institution in addition to being the only hospital in the Commune of Cayes is also an orphan asylum, housing and educating at all times about 36 orphan girls. It is the property of the Church but by a recent agreement it will soon be possible to acquire most of this property except the main building which is to remain an orphanage under the Church. The property under consideration has located on it a large modern dispensary nearly completed and contains sufficient ground on which to build a modern institution. The building program of this service calls for such a structure during the next two years, half of the construction to be completed in the year 1925 and the remainder two years hence.

Statistics are as follows:-

Number of patients carried over from the previous year	126
Admitted during the year	291
Daily average number of hospital patients	124
Discharged cured or improved	233
Discharged dead	41
Autopsies	5
Daily average out-patients	97
Total number of out-patient treatments	30584
Major operations performed	16
Minor operations performed	95
Number of neo salvarsan injections	7755
Number of mercury injections	1165

Jacmel.- The St. Michel Hospital. Plans for improving this Hospital during the year 1925 are as follows:-

a. Repairs and minor additions.
b. Isolation ward.
c. Private ward.
d. Dispensary.

The following statistical report is submitted:-

Total outpatients treated Hospital	16253
Total inpatients treated Hospital	391
Total number of deaths	32
Average number inpatients	62.7
Daily average outpatients	78.1
Daily average of deaths	0.08
Total number major operations	14
Total number minor operations	25
Total number neosalvarsan injections	8167
Total number mercury injections	1705

Cayes.- The Hospital Immaculée Conception. This institution in addition to being the only hospital in the Commune of Cayes is also an orphan asylum, housing and educating at all times about 35 orphan girls. It is the property of the Church but by a recent agreement it will soon be possible to acquire most of this property except the main building which is to remain an orphanage under the Church. The property under consideration has located on it a large modern dispensary nearly completed and contains sufficient ground on which to build a modern institution. The building program of this service calls for such a structure during the next two years, half of the construction to be completed in the year 1929 and the remainder two years hence.

Statistics are as follows:-

Number of patients carried over from the previous year	136
Admitted during the year	291
Daily average number of hospital patients	124
Discharged cured or improved	293
Discharged dead	11
Autopsies	5
Daily average out-patients	97
Total number of out-patient treatments	30584
Major operations performed	16
Minor operations performed	85
Number of neo salvarsan injections	7755
Number of mercury injections	1165

Jacmel.- The St. Michel Hospital. Plans for improving this Hospital during the year 1928 are as follows:-

a. Repairs and minor additions.
b. Isolation ward.
c. Private ward.
d. Dispensary.

The following statistical report is submitted:-

Total outpatients treated Hospital	16283
Total inpatients treated Hospital	391
Total number of deaths	32
Average number inpatients	82.7
Daily average outpatients	78.1
Daily average of deaths	0.08
Total number major operations	14
Total number minor operations	26
Total number neosalvarsan injections	8167
Total number mercury injections	1705

ELEPHANTIASIS

LEPER CASES

General.- As stated in the annual report of last year one of the greatest needs of this Republic is a large central hospital for the insane. This Service has been given reasonable assurance that this need will be met during the fiscal year 1925-26 by the erection of a 400 bed institution. Service d'Hygiène hopes to secure a piece of Government land suitable for such a hospital in the commune of Gressier. This tract of land contains about 150 acres and is well suited for the operation of a farm in connection with the care and treatment of the insane, occupational therapy being a well recognized method of treating those who are suffering from certain mental and nervous diseases.

Plans for the erection of a hospital for the segregation and care of lepers are taking shape. It is proposed to place this institution on the Island of La Gonave, possibly near the town of Anse-à-Galets where there is an ample water supply.

All present and future hospitals should be properly screened against flies and mosquitoes. It is an expensive procedure but justifiable in view of the danger of cross infections in these institutions. It is hoped to start this work at a later date.

A table summarizing the activities of all hospitals is appended to this report. The following table shows the increased amount of work done by Public Health Hospitals:-

	1922	1923	1924
Admitted to Hospitals	4,894	5,796	6,734
Discharged dead	-	-	1,015
Daily average outpatients	326	517	707
Major operations performed	310	356	568
Minor operations performed	1,747	3,797	2,936
Administration of salvarsan, etc.	2,260	9,206	33,214
Mercurial injections#	20,645	18,196	17,433

Decrease due to increase in administration of salvarsan, etc.

General.- As stated in the annual reports of last year one of the greatest needs of this Republic is a large central hospital for the insane. This Service has been given reasonable assurance that this need will be met during the fiscal year 1925-26 by the erection of a 500 bed institution. Service d'Hygiène hopes to secure a piece of Government land suitable for such a hospital in the commune of Gressier. This tract of land contains about 150 acres and is well suited for the operation of a farm in connection with the care and treatment of the insane, occupational therapy being a well recognized method of treating those who are suffering from certain mental and nervous diseases.

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A table summarizing the activities of all hospitals is appended to this report. The following table shows the increased amount of work done by Public Health Hospitals:-

	1922	1923	1924
Admitted to Hospitals	4,894	5,756	6,731
Discharged dead	-	-	1,015
Daily average outpatients	328	517	727
Major operations performed	310	586	586
Minor operations performed	1,747	3,797	2,956
Administration of salvarsan, etc.	2,260	9,206	23,21
Mercurial injections*	20,645	19,195	17,450

* Decrease due to increase in administration of salvarsan, etc.

RURAL DISPENSARIES.

In addition to dispensaries (out-patient departments) operated at each of the above mentioned hospitals the Service maintains in localities where there are no hospitals two dispensaries, located at Mirebalais and Grande-Rivière du Nord. The one at Las Cahobas was discontinued in May of the past year upon the withdrawal of a large force of men employed in building new roads in that vicinity. A Haitian physician is employed to operate each of these dispensaries and their services have been satisfactory. The following is the number of consultations at each of the above dispensaries during the years 1922, 1923 and 1924:-

	1922	1923	1924
Mirebalais	1,036	3,725	3,750
#Hinche	2,549	6,596	4,851
Grande-Rivière	8,339	25,428	21,369
##Las Cahobas	Not in operation:	2,428	2,663

#Incorporated in Public Health Hospital, Hinche, December 1st, 1924.

##Discontinued May 31st, 1924.

There is a pressing need for many more dispensaries in the isolated communes of the Republic many people living their entire lives without medical assistance other than that of a "bush-doctor". A standard dispensary of permanent structure has been planned and it is proposed to build twenty five of these during the course of the next three or four years. It is expected that nine of these will be built during the year 1925. The location of these nine dispensaries may be noted on the district map, appended to this report.

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	1922	1923	1924
Mirebalais	1,036	3,725	3,750
*Hinche	2,849	6,586	4,881
Grande-Rivière	8,239	25,429	21,369
*Las Cahobas		Not in operation	2,853

*Incorporated in Public Health Hospital, Hinche, December 1st, 1924.

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RURAL CLINICS.

As an adjunct to the permanent Standard Dispensary mentioned above the Rural Clinic is meeting with much success. These clinics were established a little over a year ago in the districts of Cape Haitian and Jacmel and as a direct result have reached the greatest degree of development in these two districts.

These clinics are gradually being extended to all parts of the Republic in order to bring medical assistance to the rural population unable to travel the long distances necessary to consult a physician. They have reached a great degree of efficiency in the district of Cape Haitian and the following is an outline of a recent address before the Monthly Medical Conference of the National Public Health Service given by the Public Health Officer of that district:-

"It is estimated that there are about 500,000 people in the Department of the North. To care for the rural portion of this population Rural Clinics have been established in 17 places. The local priest has been placed in charge of that particular clinic, assisted by a country dresser (usually a woman) to do the dressings. As a preliminary to this work these dressers are usually given a three months course of instruction in practical nursing (dressings, douches, irrigations, prescriptions, etc.) at the Cape Haitian Hospital. A doctor who is attached to the Public Health Service at Cape Haitian visits each of these clinics once a month, the priest announcing on the previous Sunday the day on which the clinic is to be held. In addition to this regular clinic there are held salvarsan clinics, on an average one such clinic to every four rural clinics. All of these clinics are conducted in the local school or in the priest's drawing room, and the day of the week on which held is usually Sunday or on the regular market day, in order to facilitate the presence of the country people. During these clinics the priest acts as scribe taking down in duplicate the history, diagnosis (usually a "snap" diagnosis on account of numbers) and treatment. One copy is filed for record and the other given to the patient from which to fill his prescription or administer subsequent treatment and dressings. The follow up treatment is carried out by the priest and dresser, many cases subsequently requiring daily

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medicine or dressings. The organization as outlined above has been very satisfactory".

"The making of a correct diagnosis is attended by many difficulties. One meets with two classes of people, the educated (occasionally highly educated) and the ignorant and superstitious (the peasants). There is no intermediate class. The peasant class has the mentality of children and as such give a history of their aliment that is very unreliable. They are more apt to narrate their own opinions as to the cause of illness than to enumerate definite symptoms. It is usual for them to attribute the infirmity to some curse that has been placed upon them. They may tell you they have no fever when the temperature is 105. Thus it is usually necessary to make a diagnosis not from the subjective symptoms of the patient but from the objective signs and by laboratory methods".

"To reach these simple minded people it is first necessary to gain the confidence and respect of the local Curé and through him gain the confidence of the people. Once their confidence is gained they will follow advice. The assistance of the priest is also valuable in the follow up treatment to prevent accidents as a result of some patient taking the whole amount of medicine intended to cover treatment for a week at one dose. Some of these priests have been on duty in Haiti over 35 years. They are an intelligent, industrious lot of men and very quick to learn, some of them soon acquiring the ability to diagnose obscure diseases, for example typhoid fever, before the arrival of the Medical Officer. They soon become very proficient in dressing the repulsive conditions that are so often met with in this kind of work".

"As to the diseases most frequently encountered in these clinics, as has been previously mentioned the diagnosis must be for the most part "snapshot". A more extensive attempt is now being made to confirm these diagnoses by laboratory methods. During the past year a total of 25,000 cases were treated at rural clinics. The three most frequent conditions were found as follows:

1. Fever (usually Malaria)---------5,000
2. Spirochaetosis (Syphilis and yaws)----------7,300
3. Intestinal parasites (worms)----3,176. "

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"The laboratory is the most important aid in diagnosis. Three mobile laboratories are needed to improve the efficiency of this important work. For lack of time and facilities to make microscopic examinations it is customary to give quinine to every case of fever. Recently it has been possible to test out by laboratory methods the validity of the above assumption. This test showed that from 14-32 per cent of a group of so called "Fever" cases were positive for malarial parasites. To this percentage should be added another 18 per cent for cases in which the parasites, though present, were not found. At Fort-Liberté (the most malarious place in the district) a group of School children who were not considered sick showed 35 per cent positive for malaria".

"Following three years of insufficient rainfall there this year came an unusual amount of rain which soon showed its effect on sanitation by a rather extensive epidemic of typhoid fever in certain parts of the district, as Le Trou, Limonade, Vallières. Out of a group of 29 persons ill with "fever" 7 had positive Widals 2 also showed the parasites of malaria. The only thing that could be done to assist in controlling this epidemic was to secure the assistance of the priests, magistrats, etc., in instructing the people to boil all their drinking water. This advice met with better response than anticipated owing to the already existing habit of boiling all milk intended for human consumption."

"It has been found that the incidence of diseases varies in different parts of the district, for example, there is a higher incidence of syphilis in the sections of the country where it was customary to quarter revolutionary armies. This disease is not so prevalent in the mountainous sections. There is an endemic center for goitre at Vallières. Dental disease is high in certain places, as high as 10 per cent at Ouanaminthe. Quartier Morin is the center for hydrocele. In operations on neglected cases of this condition an unusual condition is frequently found, the tunica being greatly thickened and adherent and containing a gelatinous substance resembling water-soaked grape nuts, so that it is now customary to term such cases "grape-nut" scrotum. In certain cases the testicle has atrophied completely, representing the final stage of a neglected condition."

"On the surgical side there are noted many cases of hernia especially those of the sliding variety. Cases have been operated on where it seemed as if all the

intestines were outside their normal abode. Cancer of the breast and uterus are frequently met with, and neglected myomata of the latter give rise to very bizarre findings such as calcification of large nodules, giving the operator the impression of the presence of a foreign body. Very little pneumonia or pyothorax was encountered."

This system is being extended to other districts as fast as Medical Officers become available. It is arduous duty necessitating long, difficult trips by horse and boat to remote parts of the country and the Medical Officers engaged in this work deserve a great deal of credit for the enthusiasm they are showing. For the purpose of reaching remote points in the district where it is desirable to hold rural clinics a substantial sailboat is needed by the District of Jacmel. Yaws and syphilis and their numerous manifestations make up a large per cent of the cases treated at these clinics.

The Public Health Officer of Jacmel reports as follows:-

"As announced in the annual report of last year an attempt has been made to make a yaws survey of the arrondissement of Jacmel. This has been only partially successful for the reason that at no time during the year, except during September, 1924, have we had enough sulpharsphenamine to supply the demand of those patients coming to the outpatient clinics, to say nothing of the enormous demand in the country districts. Six different localities were visited at various times in the arrondissement of Jacmel, as supplies permitted. Later on in the year so many early and late cases of yaws came to the hospital for treatment that it was impossible to save enough sulpharsphenamine to carry into the country. The following figures showing the result of our yaws campaign are interesting. Only new cases have been counted.

Tertiary yaws cases treated as inpatients in the Hospital----------335
Tertiary yaws cases treated in rural clinics---------892
Tertiary yaws cases treated in dispensary----------6273
Total tertiary cases treated.....7500

Early infectious yaws cases treated in rural clinics--663
Early infectious yaws cases treated in dispensary----1046
Total early infectious yaws---------1709

Grand Total of all yaws cases.....9,209.

"It will be noted that of the 391 inpatients treated in the hospital 335 were tertiary yaws cases, or 85.9 per cent.

Patients treated as in patients-------391
Total dispensary outpatients--------16253
Total rural clinic patients----------3379

Grand total all new patients treated
in all departments.....20025

Of this number 9209 were yaws, early and late, or 45.94 per cent."

"It is impossible to state how many cases of early and late untreated yaws remain in the arrondissement of Jacmel, i. e. including only the late cases presenting tertiary open lesions or bone lesions of more or less activity which in turn cause in the aggregate a tremendous amount of economic loss to the community as well as individual suffering; but it is considered that this yaws campaign has just now been fairly started since the numbers coming in for treatment are increasing each week. On Tuesday of this week there were 425 doses of sulpharsphenamine given and the total sick call of outpatients for that morning was 491, and among the cases treated there were 56 early yaws. During the past year 20 clinics have been held in the country and we should have had enough supplies to hold 52 such clinics which is all that we could have expected to hold with the limited personnel employed. During the year 1922-23 only five cases of early yaws were treated."

"It is expected that this station will be furnished with sufficient quantities of the arsenicals or the new and cheaper bismuth preparation to cintinue with the yaws work without interruption, and it is believed that for the time being at least this is the most important public health work which can be done in this district for three reasons: First, on account of the quick disappearance of lesions especially in early cases, and the relief of pain in the older cases, this anti-yaws campaign is particularly valuable in gaining the confidence of the people and this will help greatly in any other public health work to be started later, such as hookworm and malarial work. Second: Eighty five percent of our inpatients at the hospital are tertiary yaws cases, and a thorough clean up of all infectious yaws cases would eventually mean a great saving in expense for their hospitalization.

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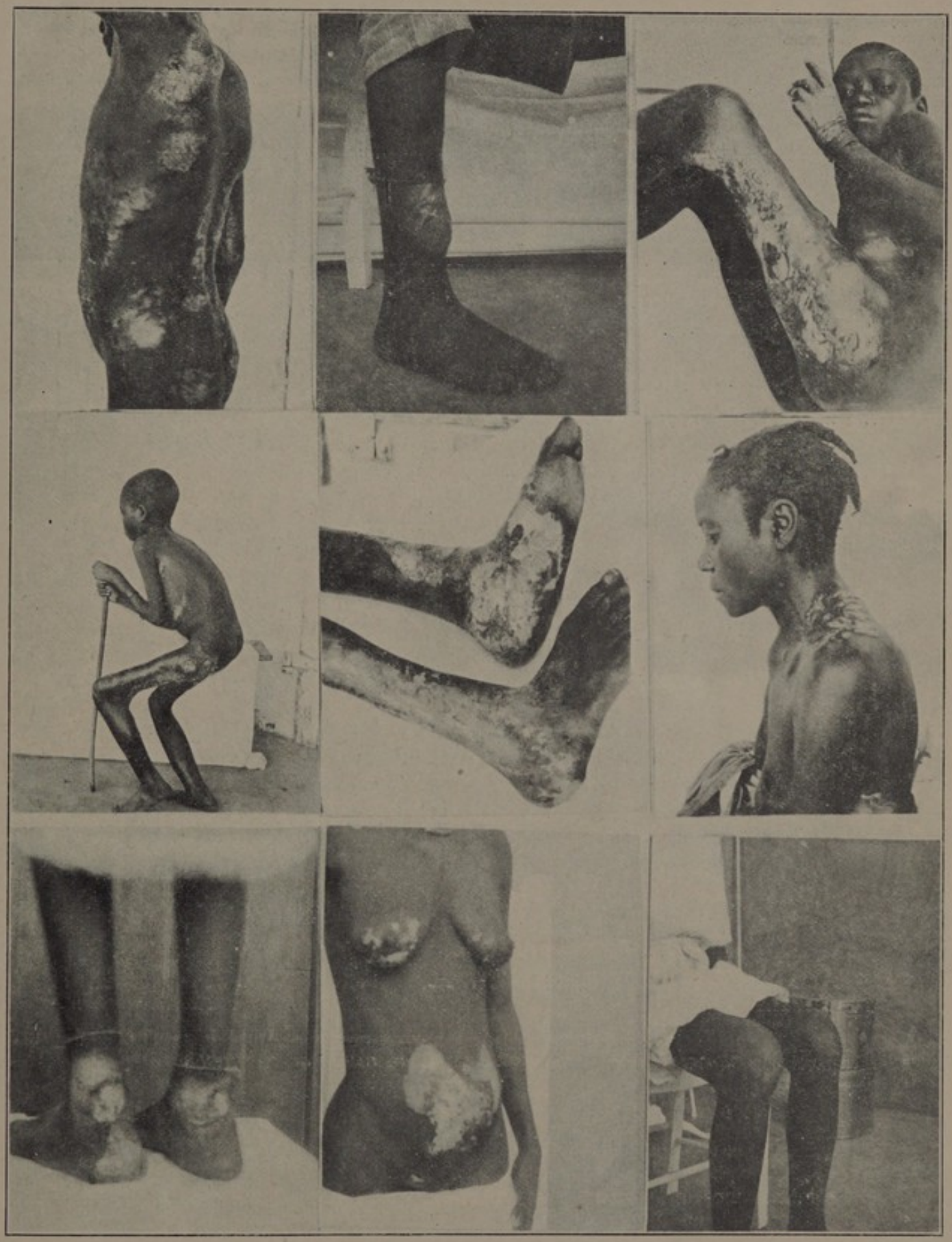
"It is expected that this station will be furnished with sufficient quantities of the arsenicals or the new and cheaper bismuth preparation to continue with the yaws work without interruption, and it is believed that for the time being at least this is the most important public health work which can be done in this district for three reasons: First, on account of the quick disappearance of lesions especially in early cases, and the relief of pain in the older cases; this anti-yaws campaign is particularly valuable in gaining the confidence of the people and this will help greatly in any other public health work to be started later, such as hookworm and malarial work. Second: Eighty five percent of our inpatients at the hospital are tertiary yaws cases, and a thorough clean up of all infectious yaws cases would eventually mean a great saving in expense for their hospitalization.



DISABLING EFFECTS OF YAWS, JACMEL DISTRICT, HAITI. THIS DISEASE IS THE MOST DAMAGING ONE TO THE EARNING CAPACITY OF THE HAITIAN PEOPLE.

Third: it is believed that the economic loss among the country people occasioned by disability from yaws is enormous. The patient does not die of this disease but lives in a more or less helpless state for periods varying from six months to twenty or more years during which time he becomes a beggar or he exists simply as a burden on his family, he himself being unable to more than partially pay his own way. Therefore the anti yaws campaign will be pushed to the limit during the coming year. With two country dispensaries near Bainet and Grand-Gosier and the hospital and dispensary at Jacmel it is believed that the entire district of Jacmel can be well covered within eighteen months. Pending the completion of the two dispensaries an intensive yaws campaign will be carried on in the arrondissement of Jacmel and this work will be extended in a widening circle when the dispensaries are finished, such dispensaries serving as bases for supplies for the work carried on at a distance from Jacmel. It is planned to train two young and intelligent natives to give intramuscular injections and give out the usual remedies for the more common complaints, such as "fever" (malaria), scabies, impetigo and worms. After a stay of two or three months at the hospital here they will be put in charge of the dispensaries, referring all doubtful cases to the doctor who will spend two or three days each month at the dispensary."

"A technician is being trained at the hospital and as soon as practicable it is planned to start a hookworm survey of all gendarmes, prisoners and all inpatients in the hospital. Positive cases will be treated and the scope of the hookworm study and treatment enlarged as the yaws work diminishes."

Annual statistics for country clinics are as follows:-

DISTRICTS:	No. Places held.	Average No. per clinic	Average cases per month	Total
#Port au Prince	-	-	-	-
Cap-Haitien	17	974	1299	14398
Port-de-Paix	2	-	-	142
Gonaives	7	?	?	?
Saint-Marc	5	65	600	7480
#Hinche	-	-	-	-
Petit-Goave	-	-	-	239
#Jérémie	-	-	-	-
#Les Cayes	-	-	-	-
Jacmel	6	169	281	3379

#Rural clinics opened recently.

SANITATION.

It is safe to say that sanitation in Haiti will be a problem for many years to come. In the ultimate analysis sanitation from a broad standpoint will be found to be closely connected with the economical and educational development of a people. As the economical status of an individual is bettered his demands for certain comforts in life are increased. One of the comforts found to be of utmost importance is that of living under sanitary conditions, whereby the individuals chance for living longer is increased.

When you are dealing with a mass of people who only know a from hand to mouth existence the chances for successful sanitation at an early date are small.

But that is no reason why we should not at all times attempt to instill the spirit of sanitation into the minds of the mass; this holds particularly true with regard to the larger centers of population.

Experience has taught us that the larger the centers of population are the more intensive should our attempts be to make sanitation more perfect.

At the present time there is a distinct line drawn between urban and rural sanitation.

Authorities tell us that when a town passes the 4,000 mark its sanitary problems become of marked importance and pains should be taken to insure for such a center a sanitary water supply and a water carriage sewage system. From a broad point of view these two measures may be considered the most important difference in urban and rural sanitation.

The conditions in Haiti today are such, however, that no marked difference exists between the two divisions.

The incidence of disease does not vary much between the town and the country. The same diseases may be found all over with probably an accentuation of the several disease rates in the towns.

One exception to the rule probably can be made with regard to malaria which is primarily a rural disease.

SANITATION.

Diseases of importance and their control.- As in any tropical country we may divide the important diseases found in Haiti into three distinct groups:

1. Diseases transmitted by mosquitoes.

2. Diseases carried through nightsoil.

3. Diseases transmitted through personal contact.

1. Diseases transmitted by mosquitoes:- Malaria. The one disease that stands out in this group is malaria. It is impossible to estimate the economic loss to the country due to the ravages of this disease. When it is realized that the population in certain sections of the country will give a history of every individual having at one time or another suffered from fever and that actual examination of the blood shows the presence of malarial organisms in 50 per cent of the population or over, the tremendous drain on the man power may be imagined.

Malaria presents one of the most important problems that confronts this service today. During the past year particular efforts were made in all our larger centers of population to attack this problem in a scientific manner. A survey of the mosquito breeding areas in these places is under completion coupled with a continuous control as new places are found.

In addition the Public Health Officer in each district is attempting to interest the various smaller communes in the importance of mosquito control. In this connection it may be stated that the Port-au-Prince district now serves as a central training center for sanitary inspectors. During the last few months, an intensive training has been carried on whereby the individual inspector is taught to recognize the larva of the Haitian malaria transmitting mosquito, where to look for likely breeding places and how to control them. It will be our aim during the coming year to have every inspector on duty in the Republic go through at least a two weeks course of training in Port-au-Prince. In this manner we feel sure of increasing the efficiency of the inspector and of encouraging him to take a certain pride in his work.

The common vector of malaria in Haiti is:

Anopheles albimanus. This mosquito has been found in every district of the Republic and is considered the most common carrier of malaria in the West Indies.

Methods of Control: The methods of controlling the anopheline mosquitoes are well defined and each method comes under one of the following groups:-

a. Filling and drainage.

b. The use of fish which prey on larvae and pupae.

c. Clearing away aquatic vegetation from the banks of streams, canals, ditches, etc., to allow a free flow of the water.

d. Larvicidal measures, e. g. oil, paris green, etc.

In the larger centers of population our aim is to institute permanent improvements whereby the mosquito breeding is stopped for all time. The most important measure in this regard is the filling of swampy and low lying tracts coupled with proper drainage.

One measure we are attempting to popularize as much as possible is the use of fish. The presence of the small surface feeders in a stream or any collection of water will as a rule completely control the mosquito breeding.

In order to increase the efficiency of these fish it is only necessary to keep the edges of a stream, ditch or pond free from all vegetation which otherwise would give the mosquito larvae a chance to hide. The common species of this kind of fish found in Haiti are members of the genera Gambusia and Poecilia.

The use of larvicides such as oil is of course only a temporary measure but it is of extreme importance in a country like this where a heavy downpour of rain may produce fresh pools in the most surprising places.

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Dengue.- Dengue fever is transmitted by the so called semi-domesticated mosquitoes - principally by Aëdes aegypti. This is primarily a house mosquito that breeds in artificial collections of water, such as tin cans, barrels, cisterns, etc. The control of this mosquito is a matter of house inspection and with the increased efficiency of the sanitary inspectors these house pests will grow less and less in number.

Filariasis.- This disease is capable of being transmitted by several varieties of mosquitoes the most important of which undoubtedly is Culex quinquefasciatus whose breeding places exactly coincide with those of Aëdes aegypti. Judging from the comparatively few cases of elephantiasis that are seen in this country filariasis undoubtedly is a disease of small importance.

Mosquitoes in Haiti.- During the year a casual survey of the different mosquitoes found in the Port-au-Prince district has been carried on in connection with the anti-malaria campaign.

For the proper identification of species we are indebted to the Bureau of Entomology, Washington, D.C. The following species have been collected:-

1. Aëdes aegypti.

2. Culex quinquefasciatus. These are two house mosquitoes common in the tropics. The first one bites during the day, the second during the night.

3. Anopheles albimanus. The common malaria transmitter in Haiti.

4. Culex nigripalpus. This is a common mosquito in Port-au-Prince, but is as far as we know harmless from a sanitary point of view.

5. Culex duplicator.

6. Psorophora pygmea.

7. Culex atratus.

8. Anopheles grabhamii.

9. Aëdes taeniorhynchus.

Dengue.- Dengue fever is transmitted by the so called semi-domesticated mosquitoes - principally by Aëdes aegypti. This is primarily a house mosquito that breeds in artificial collections of water, such as tin cans, barrels, cisterns, etc. The control of this mosquito is a matter of house inspection and with the increased efficiency of the sanitary inspectors these house pests will grow less and less in number.

Filariasis.- This disease is capable of being transmitted by several varieties of mosquitoes the most important of which undoubtedly is Culex quinquefasciatus whose breeding places exactly coincide with those of Aëdes aegypti. Judging from the comparatively few cases of elephantiasis that are seen in this country filariasis undoubtedly is a disease of small importance.

Mosquitoes in Haiti.- During the year a casual survey of the different mosquitoes found in the Port-au-Prince district has been carried on in connection with the anti-malaria campaign.

For the proper identification of species we are indebted to the Bureau of Entomology, Washington, D.C. The following species have been collected:-

1. Aëdes aegypti.

2. Culex quinquefasciatus. These are two house mosquitoes common in the tropics. The first one bites during the day, the second during the night.

3. Anopheles albimanus. The common malaria transmitter in Haiti.

4. Culex microplpus. This is a common mosquito in Port-au-Prince, but is as far as we know harmless from a sanitary point of view.

5. Culex duplicator.

6. Psorophora pygmea.

7. Culex atratus.

8. Anopheles grabhamii.

9. Aëdes taeniorhynchus.

2. Diseases carried through nightsoil and their control: There are three rather common diseases that stand in close relationship to the absolute lack of proper nightsoil disposal that at present is the common thing in Haiti. These diseases are dysentery, popularly known as "cholerine", typhoid fever and hookworm disease. It is very difficult to realize the actual conditions that exist with regard to this problem of nightsoil removal. There are so many factors that have bearing on this problem, the most important of which probably is the personal equation. It may be stated that for all practical purposes the individual properties in the larger centers of population are supplied with latrines. But in spite of this fact signs of the most indiscriminate disposal may be seen in any of our larger cities; just to cite an example: In Port-au-Prince there are several sea-side latrines for public use. Instead of using these it is deemed to be better form by a certain class of people to stop within a few hundred feet of these places and there obey the call of nature. The abuttments of the various bridges are sad things to look at, in many cases completely covered with faecal matter. Little wonder that dysentery is a common disease in Haiti.

Education of the masses is of course the fundamental thing and this education can only be part and parcel of a general raising of the standards of life.

The urban problem.- In the larger centers of population there is only one way of controlling the problem of nightsoil disposal and that is by the introduction of water carriage sewage systems. The necessary amount of water is at hand in most of these places. The outstanding feature today in Port-au-Prince commented upon by most of our visitors, is the lack of a water carriage sewage system. Port-au-Prince, the capital of Haiti and the pride of all Haitians should of course at the earliest opportunity be equipped with a proper system of nightsoil removal. The same thing holds true of such towns as Cape Haitian and Jacmel.

Another factor of importance in controlling diseases of this nature is a safe water supply. Means should be taken to render all municipal supplies free from harmful bacteria; this can in most cases be economically done by simple chlorination.

The rural problem.- At the present time it may

be safely stated that the larger number of small communes and villages have not even a latrine in which to deposit nightsoil. To improve these conditions will be part of the work of the Sanitary Inspectors of these smaller places.

The introduction of latrines coupled with their proper use will of course have a tremendous bearing on the hookworm situation.

Vaccination against typhoid fever.- One important factor in controlling typhoid fever is by means of vaccination. The efficiency of this method has been demonstrated in the military and naval organizations the world over. In certain places this method has also been employed as a civil measure.

The concensus of opinion however places proper sanitary measures as the most important means at our disposal to control diseases of this kind, always remembering of course that vaccination serves a distinct purpose.

There are two methods of vaccination against typhoid fever, the subcutaneous and the oral. The subcutaneous method has been in use ever since the first introduction of vaccination against typhoid. The oral method, which is more simple and less troublesome, has had several advocates during the last few years. Studies are at present being carried on in many places particularly in France, to determine which method is the most efficacious. On a small scale the Service d'Hygiène is trying to do its part in finding an answer to this question.

During the latter part of the year arrangements were made with the Gendarmerie d'Haiti for Service d'Hygiène to vaccinate a certain group of gendarmes in the Port-au-Prince district against typhoid fever by the oral method, this group to serve as control against the mass of gendarmes that the Medical Service of the Gendarmerie is vaccinating by the subcutaneous method.

The vaccine and the bile used in the oral vaccination, were especially prepared by the Army Medical School, Washington, D. C. One hundred and eighty four gendarmes were vaccinated in Port-au-Prince. In order to gather some specific data a short history of previous diseases was obtained from

each individual vaccinated, especially with reference to any intestinal disorder. In addition a Widal test was made on every individual before the administration of the vaccine. After the lapse of 2-3 months another Widal test will be performed in order to determine the effect of this method on the agglutin production. From a practical point of view the incidence rate of typhoid fever will of course serve as the criterion.

A certain group of individuals has also been vaccinated in Cape Haitian. In addition, the oral vaccine is administered at the Haitian General Hospital, Port-au-Prince to all patients of that institution.

3. Diseases transmitted through personal contact:- The outstanding diseases in this group are the venereal ones. Syphilis is an extremely common disease in Haiti. Yaws which probably is a tropical expression of this disease is found all over the country. The deformities and actual suffering caused by these diseases are pathetic to look at. It is a sight worth seeing to witness one of the larger rural clinics in the South or North in order to get the proper point of view regarding the tremendous reduction in the earning capacity of the individual caused by these diseases. In many cases the victim is absolutely unable to do any kind of work. (See picture on previous page.)

These diseases require the individual attention of a Medical Officer for the institution of proper treatment and cure. The proposed increase in the personnel of our Service will of course be a marked help in handling this situation.

Tuberculosis is another common disease in Haiti, the fight against which is primarily one of increased educational measures.

Smallpox.- During the year a few cases of smallpox have occured in Haiti. The nature of the disease and the rapidity with which a non-immune population may grow up renders it very important to carry on a continuous campaign of vaccination. The ideal method of producing a perfect protection against smallpox in any country is by a series of vaccinations during the individual's life. The first vaccination should be made during the first year of life, the second at the time of entering school and the third at the time of adolescence. In some countries a procedure of this nature is carried on with perfect results.

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However, experience has shown that an epidemic of serious nature hardly will develop in a population where every individual has had at least one successful vaccination. The aim of the Service at the present time is to vaccinate every child that is attending school. In addition various campaigns are carried on in isolated districts.

During the latter part of the year dried cowpox vaccine was substituted for the glycerinated one and the results obtained seem to warrant the conclusion that the former is better suited for tropical use.

Municipal engineering.- Municipal engineering in Haiti is for all practical purposes the final expression of permanent sanitary improvements. For this reason this office has the most intense interest in the successful solution of these problems. Amongst others they are:

1. Properr and sufficient water supply.
2. Water carriage sewage system.
3. Surface drainage.
4. Public markets.

It is unnecessary to bring forth arguments from a sanitary point of view to show the importance of these improvements. The question arises why is there not more general interest shown in attempts to bring about changes in these deplorable conditions. The cause is that there is so much work to be done in Haiti that the various Government departments have their hands full to carry on as it is.

This office believes that the only way to solve this problem is to create a committee, if you please, of municipal sanitary engineering whose particular duty it would be to consider facts and figures as to the relative importance of these various projects and the best means to accomplish them.

There are three factors that play their individual parts in the development of this scheme: namely finance, engineering and sanitation. Proper sanitation demands that these improvements be instituted. The Engineers are willing to do them provided funds be made available.

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The city of Port-au-Prince is probably next to Havana, Cuba, the most important city in the West Indies, and as such it should stand out as an example of a perfectly sanitated city, to which tourists are glad to come feeling assured that infectious diseases are reduced to a minimum.

A healthful water supply and a water carriage sewage system would have a tremendous bearing on the incidence of intestinal infections, proper surface drainage on that of mosquito-borne diseases and sanitary public markets -- not only for fruits and vegetables but also for meat, milk and fish -- on that of diseases transmitted through food.

In a city like Aux Cayes the problem is of course surface drainage, a question that should receive the proper consideration from the Government at the earliest opportunity.

Cape Haitian has felt the want of water, a condition that never should be allowed to exist again. The same holds true of Jérémie.

Dogs.- Systematic destruction of stray dogs is carried out in all the larger centers. No cases of human rabies were reported during the year. A national dog law is being framed. The following is a summary of dogs destroyed during the year:

Port-au-Prince	274
Cap-Haitien	399
Port-de-Paix	104
Gonaives	150
Saint-Marc	270
Petit-Goave	97
Jérémie	36
Les Cayes	30
Jacmel	305
Total	1,665

Rats.- Very little can be accomplished in reducing the prevalence of rats until such times as rat-proofing of buildings can be legalized and enforced. As far as can be determined plague has never appeared on this country but the possibility of its entrance must be carefully guarded against. This Service does not at present possess any facilities for the proper fumigation of ships and cargo but this matter is now

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Cap-Haitien	380
Fort-de-Paix	104
Gonaives	150
Saint-Marc	270
Petit-Goave	97
Jérémie	35
Les Cayes	30
Jacmel	303
Total	4,085

Note.- Very little can be accomplished in reducing the prevalence of rats until such time as rat-proofing of buildings can be legalized and enforced. As far as can be ascertained plague has never appeared on this country but the possibility of its entrance must be carefully guarded against. This Service does not at present possess any facilities for the proper fumigation of ships and cargo but this matter is now

under consideration by an officer from the U. S. Public Health Service and it is hoped that another year will see the installation of some simple apparatus for this purpose at one or more of the larger ports.

Markets.- The maintenance of suitable markets and abattoirs is largely a communal affair, this Service supervising their care and repairing. As usual lack of money handicaps results. An attempt is made to enforce the screening of all foodstuffs vended in the streets. There should be a milk law and a pure food law. There is very little milk borne disease in Haiti as most Haitian families boil all milk before using it.

Courts.- In most places the courts render good cooperation in bringing to justice those reported for infractions of sanitary regulations. The following is a summary of activities in this respect:

Notices sent out	23,849
Reported to Justice of the Peace	440
Fined	169
Condemned by default and no further action taken	136
Excused by Judge	78
Cancelled by this Service	29
Persons cited, but did not appear	2

Vital Statistics.- The new system of collecting these statistics instituted last year, the Officier d'Etat Civil making the returns direct to the District Public Health Officer, is working fairly well and gives much less annoyance. These statistics will continue to remain very inaccurate until the arrival of the day when all persons are seen during their last illness by a competent physician. As mentioned in the annual report of last year there still remains the desirability of annulling the law charging a fee for the registration of births and deaths, the belief existing that this charge is conducive to concealment. Instead the payment by the Commune of a small fee for the reporting of a birth or death would no doubt result in obtaining more reliable statistics.

During the past year a form was issued for the reporting of morbidity statistics. Quite accurate returns are being made by the Officers of this Service but as yet no attempt has been made to secure similar information from private physicians.

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A summary of vital statistics and morbidity statistics for the past year and the annual birth and death rate is appended to this report. This summary shows that the principal causes of deaths in the order of number of deaths are fever (probably principally malaria), dysentery, tuberculosis, malaria, syphilis, senility, pneumonia, nephritis, and heart disease.

Port-au-Prince.- Inspection Service: During the year a few changes have been instituted in the sanitary inspection service of Port-au-Prince. There has been, however, no marked increase in personnel over that of the previous year but enough inspectors have been added to insure a weekly inspection of every property in town. At present eleven inspectors are employed in the city of Port-au-Prince.

Attempts have been made to give individual instruction to every inspector, especially in the subject of mosquito control. Every inspector knows now the difference between Anopheles larvae and those of other culicine mosquitoes, a little point of importance bearing on malaria work.

In the ordinary house-to-house inspection the inspector pays particular attention to mosquito breeding, fly breeding, care of latrines, trash and garbage. This mosquito campaign has proven to be quite effective in many parts of the city as evidenced by many unsolicited reports.

This office is looking for still better results in this regard with the increased efficiency of the individual sanitary inspector.

During the year Six thousand five hundred and twenty three notices were sent out to property owners with instruction to abate various nuisances. The system of handling delinquents has been changed during the course of the year. Instead of employing a lawyer and usher for court the service of the Police Department has been solicited with subsequent marked improvement in the despatch of these cases.

Control of Anopheles breeding:- The most important malaria transmitting mosquito in Haiti is, as stated elsewhere, Anopheles albimanus. During the year an extensive survey of Anopheles breeding places was made in Port-au-Prince and vicinity

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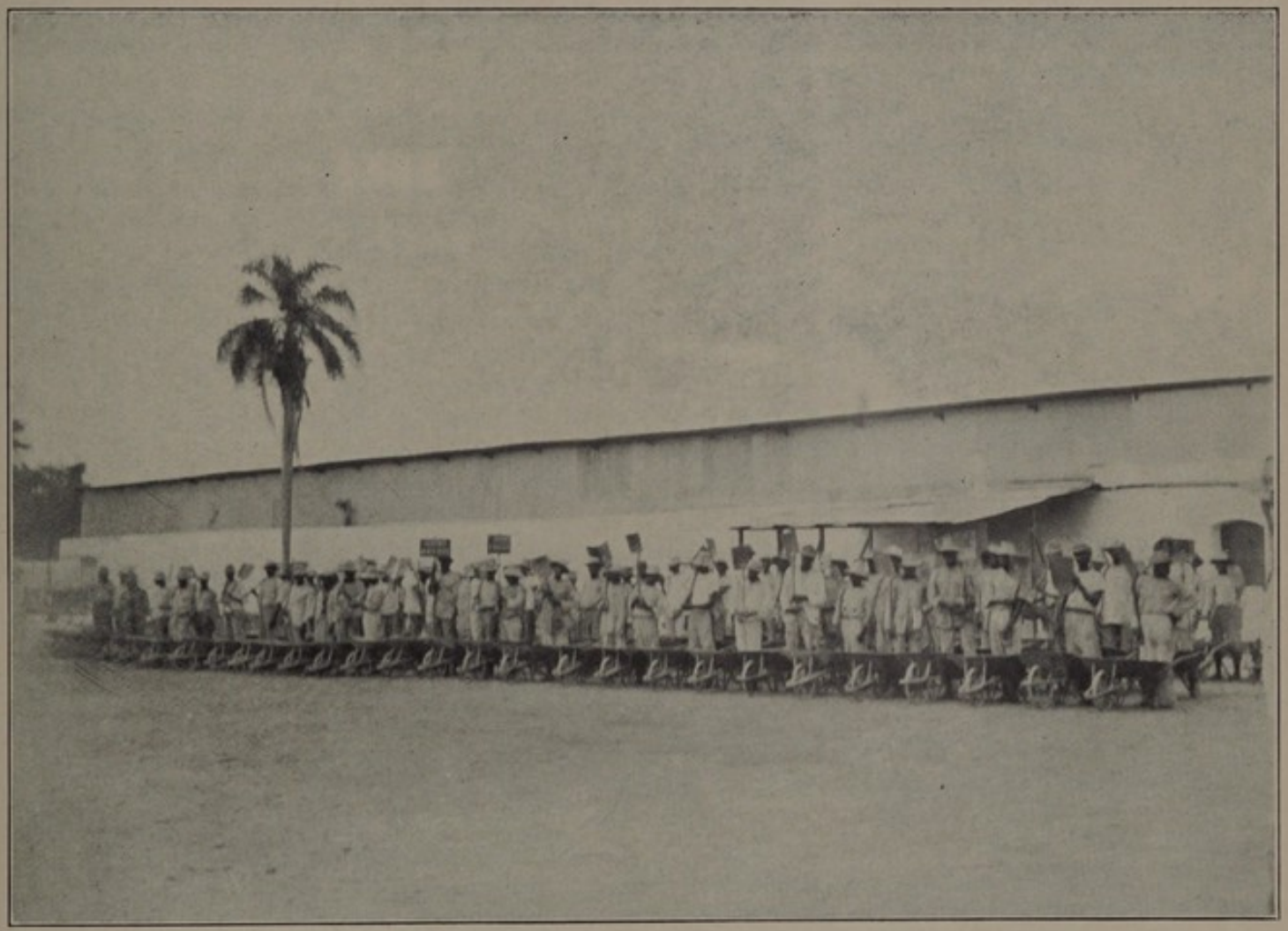

WEELBARROW SQUAD, STREET CLEANING FORCE, PORT-AU-PRINCE.

and the larvae were occasionally found in the most surprising places.

The most important areas were found to be the shore line and the various large ravines that traverse the town. Between the dock and southern end of town one could go into any property along the shore and find Anopheles mosquitoes breeding, a condition which extends all along the shore at each end of town beyond the city limits. In these sections springs and wells are found in abundance, marshy tracts are common and the surface gutters are overflowing, all these places being ideal for mosquito breeding.

The region around Hasco Sugar Company is another place where extensive areas of low land not under cultivation are located. Here acres and acres of swampy tracts were found teaming with anopheline larvae.

The ravines of the town act as storm sewers during the rainy seasor when during a heavy shower they are filled to the brim and even to overflowing. Many pools remain in these places for weeks. In addition many of them are continually fed from springs on the hillside, making them an ever-present source of danger. Anopheline mosquito larvae were found in all these ravines.

During the year a continuous control was instituted in these areas. As a preliminary measure all mosquito breeding was temporarily controlled by the use of mosquito oil in all places where anopheline larva had been found.

A systematic control of permanent or semi-permanent character was instituted at the earliest opportunity. The large ravines were graded, vegetation and trash removed thus giving the water a free flow which in the absence of small side pools is quite an efficient method of control. In addition these ravines are weekly sprayed with oil. After heavy showers the work in these places is to a large extent undone, and must be done over. Our aim is to have the work accomplished at least one week after the last shower. All surface gutters which are potential breeding places are maintained in the same manner.

Along the shore line all springs and wells have been cleaned out and supplied with mosquito destroying fish.

SECTION OF STREET CLEANING FORCE EQUIPPED WITH HAND CARTS, PORT-AU-PRINCE.

Numerous drainage ditches have been dug to drain the swampy areas until these are filled in. A systematic scheme of permanent sanitary improvement is now being carried out in this section of the city, namely the filling in of all swampy tracts and low lying areas with the city refuse. Within a few weeks all the anopheline breeding areas will have been abolished within the thickly populated section of the city.

The region around Hasco has received particular attention during the year. It was found that a small stream in this section was the cause of a large part of the swampy condition of this area. The lower part of the stream bed was filled up with dirt, allowing a large amount of water to be diverted and run along the sides on the railroad traversing this section and thus inundating the low lying land in the vicinity.

The old river bed has been cleaned out and all the water is now running freely. The banks of the stream are free from vegetation and the water is teaming with mosquito fish. During the last few months of the calendar year the Service d'Hygiène succeeded in getting a close cooperation between the various property holders in this section whereby better control of the mosquito breeding is made possible.

During an inspection in the middle of December, 1924, when hundreds of dipperfulls of water were examined in this section one single anopheline larva was found, which is a demonstration worth while, showing the effect of the work done.

The only part within the present city limits in which anopheline larvae may still be found is from Avenue Louverture to the south-western limits, along the shore line. With the beginning of 1925 this section is going to receive particular attention. A large amount of difficulty is expected to be met in this area due particularly to the poverty of the various property owners. Practically the whole of the shore line in this section may be considered a swampy tract. In many places rice fields may be found which will contribute their share of trouble from the economical point of view. It is hoped however that mosquito control may be established without too much interference with rice growing. In this connection it may be stated that the Agricultural Experimental Farm, located at the city limits presents a cond-

ition typical of this entire section. It contains rice fields, swamps and springs. The Agricultural Department has expressed their eagerness to cooperate with the Service d'Hygiène in producing an ideal farm with regard to mosquito control. In this manner some scheme may be developed whereby a rice crop may be raised profitably within the city limits without breeding mosquitoes.

During the year, 4,000 gallons of oil, 550 gallons of kerosene, 275 gallons of crude carbolic oil, and 150 gallons of crude oil were used. Fifteen hundred (1,500) gallons of the oil were procured gratis from the various garages in town and from the Motor Transport Company and observation Squadron of the U. S. Marine Corps. By diluting this oil with kerosene a satisfactory mixture of good spreading quality was obtained.

Effect of work already accomplished.- During the year the incidence of malaria amongst U. S. Marines stationed in Haiti has been used to check up on the effect of this work. The Brigade Surgeon was requested to submit reports on all cases occuring in the Brigade. From previous experience it is known that the incidence of malaria is particularly high during the months of November, December and January, and June and July. For the purpose of analysis the cases have been divided as to the probable source of infection. The three main groups are: (1) City proper including Barracks, Military Police, Headquarters, Field Hospital, etc.; (2) Hasco region, including Observation Squadron, Signal Company, Transport Company and Rifle Range; (3) Outside infection such as those contracted during practice marches, etc.

During January, 1924, there were 21 cases from the city proper and 13 from the Hasco region. In June there were no cases in city proper and 5 in Hasco region, in July there were 5 cases reported from city and 18 from Hasco region. In November, 3 from the city and 9 from Hasco Region. The three cases from the city were contracted by individuals attached to the Field Hospital at the time. The chances are however that these cases received their infection elsewhere. With regard to the Hasco region it may be stated that control in this area was not accomplished until the end of November.

During December 1924, there were no cases

GROUP OF FORD TRUCKS IN USE UNDER SANITATION, PORT-AU-PRINCE.

reported from the city and 3 cases from the Hasco Region. These figures speak for themselves.

The effect of this anti-mosquito campaign upon the entire population of the city may be roughly estimated when it is realized that the 34 infections amongst say - 1,000 men sleeping under nets - in January would mean amongst the population of the city which probably reaches 120,000 individuals who as a rule do not sleep under net. Even if we discount the net and closer proximity to infection and figure on population only it would mean 120 times as many cases or 4,080 new infections. It would be a futile guess to calculate the total number of new infections prevented during the year but undoubtedly they run into tens of thousands.

Street Cleaning.- The cleaning of city streets is as a rule not the work of the city's Health Department and its cost should hardly be charged up against its Sanitation Service. The condition in Haiti is such, however, that this work forms an important part of the activities of the Health Department. The number of swamps and low lying areas within the limits of Port-au-Prince are steadily decreasing due to the fact that every load of refuse is used as fill. In addition the city may point with pride to the cleanliness of its streets.

Port-au-Prince now uses a fleet of ten Ford trucks for this service. The question of changing to Dodge trucks is now being studied and if proved to be economical the change will be commenced during the coming year.

The street cleaning is in charge of a director with two assistants; twenty-three (23) bosses and two hundred and ten (210) laborers are employed.

Markets and abattoir.- The public markets and abattoir are maintained in a sanitary condition at all times, all cattle are inspected on hoof and also after slaughter. Three market inspectors spend their entire time in the markets. Between 45 and 50 men are employed to clean the public markets and abattoir.

Nightsoil Removal.- For all practical purposes there exists no system of nightsoil removal in Port-au-Prince, indeed a sad part to relate. Pit latrines constitute the common mode of disposal. When filled

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Nightsoil Removal.- For all practical purposes there exists no system of nightsoil removal in Port-au-Prince, indeed a sad part to relate. Pit latrines constitute the common mode of disposal. When filled

they are emptied through means of private enterprize. The Service takes care of the Government latrines. To be sure there are a certain number of water closets in the better houses, the sewage from which in most cases is emptied in to some convenient pit. There is also a series of shore latrines that do good service.

The lack of a modern system of nightsoil removal coupled with the filthy habits of a certain part of the population constitutes an ever present danger to the inhabitants of the city. The incidence of such diseases as dysentery and typhoid fever is undoubtedly larger than our hospital records show, when it is taken into consideration how many of the young white children contract dysentery.

Vaccination.- During the year several campaigns of vaccination were carried on amongst the school children. In all 14,864 children were examined; of these 2,692 showed evidence of having had smallpox, 10,099 showed signs of previous positive vaccination and 2,073 were vaccinated.

Outlying Communes.- During the year the activities have been extended to a number of smaller communes. Every inspector sent out to these places has received an intensive training in Port-au-Prince. At present there is one inspector with two assistants at L'Arcahaie, Mirebalais, Las Cahobas and Belladère; one inspector at Croix-des-Bouquets and Thomazeau; one at Pétion-Ville and one at Léogane. The payment of this service is to a large extent contributed by the various communes. In the future it is the hope to have an inspection service in all of the more thickly populated places.

In this connection it gives this Service pleasure to express its appreciation of the assistance of the Gendarmerie representatives in these various communes. The co-operation between the district and subdistrict Commanders, the various magistrats and the Sanitation Service is hearty indeed and promises great things for the future as far as improved sanitary conditions are concerned.

Recommendations.- The various municipal improvements that are essential for Port-au-Prince have been discussed in a previous paragraph. Improvements of minor nature will constitute part and parcel of the ordinary work performed by the Service and will be done as opportunity and funds become available.

MAKING LAND ON THE WATER FRONT, PORT-AU-PRINCE — DUMPING GROUND FOR REFUSE — FORMERLY A BREEDING GROUND FOR MALARIAL MOSQUITOES.

It is with pleasure that this Service notes that the Council of State has favorably passed upon some measures that have a marked bearing on a better sanitated Port-au-Prince, namely the enlargement of the sewer from the Palace and the Barracks whereby this Service will become part of a future scheme, comprehending the entire city; and the installation of proper surface drain on the streets near the shore line whereby the breeding of anopheline mosquitoes will automatically stop in this thickly populated area, thus removing the necessity of the present temporary scheme of control.

The municipal improvements essential to Port-au-Prince are: Improved water supply, water carriage sewage system, a proper system of surface drainage and improved public markets.

Cape-Haitian.- Sanitation activities in this area are carried on by twenty-three (23) directing personnel and 98 laborers.

The usual cleaning of streets, gutters, removal of garbage, cleaning of fixed latrines, emptying of portable latrine boxes, cleaning of market and abattoir, inspection of cattle, etc. has been done as during the preceding year. The routine inspection of milk at the city gates has been carried out to prevent dilution and contamination of milk. One milk Inspector circulates around town for the purpose of apprehending milk vendors diluting or contaminating milk. A system is being inaugurated of having all milk sold at the market instead of from house to house which will render easier the prevention of dilution and contamination of milk after it has been once brought into the town. Nine thousand four hundred and ninety three (9,493) notices have been sent to proprietors to clean up their premises. The system of inspection of premises has not been altegether satisfactory during the past year owing to the inspection personnel not being headed by a competent Chief Pharmacist's Mate. The abattoir and cattle shed have been repaired and proper drainage provided; also a well dug in order to provide water for cleaning butchering utensils, abattoir and cattle shed. A large number of wells have been stocked with minnows to prevent mosquito breeding as well as several city drains to the sea cleaned, levelled and cemented. The old meat market which was a fly trap has been torn down, and rooms around

the outside of the market screened as a meat market. Work has been continued on the latrine for the market. The garage which has been in very poor state of repair is being renovated and painted. The equipment for proper upkeep of cars and carts in the garage has been greatly improved. During the spring there was a considerable incidence of malaria for about a month in the La Fossette quarter and the quarter of the town near the Marine Camp. It was found that this was due to a marshy low land just south of the road between "Belle Entrée" and "Barrière - Bouteilles" which was overgrown with rushes. The vegetation was cut and the city refuse dumped here.

Sanitation outside of the Cape is carried on as follows: The usual allotment of fifteen dollars ($15.00) a month to the Gendarmerie at Ouanaminthe for the cleaning of the town has been continued. The worst mosquito breeding spots in Grande-Rivière have been eradicated by drainage and filling thro' the Gendarmerie. There is more to be done in this direction at this place. Fort-Liberté and Limbé are in urgent need of anti-mosquito work. It is recommended that One hundred dollars ($100.00) be allotted for each of these communes to be supplemented by communal funds to undertake this work. Practically nothing, outside of the country clinics, has been done for the sanitation of communes outside of Cape-Haitian. It is considered essential that fifty gourdes (Ø50.00) for each commune be allotted for the employment of a representative of the sanitary Service in each commune to oversee necessary sanitary work and at the same time the forced monthly allotment of communal funds to do the necessary work.

Port-de-Paix.- Sanitation in Port-de-Paix proper consists of cleaning of streets, drains and ditches, markets, abattoir, collection of garbage and refuse, the inspection of markets, private residences, bakeries, kola and rhum factories, etc. In all other communes this work is attended to by the various Magistrats assisted when possible, by prisoners. All candy, bread and fish boxes in Port-de-Paix and Saint-Louis du Nord, are properly screened against flies. Those persons not complying with the law are quickly presented with a "Mandate", and the contents of the box destroyed. Rarely is there a second offender. A goodly number of houses in Port-de-Paix and Saint-Louis du Nord, have no latrines and it is extremely hard to enforce the law

in that regard as in most instances the inhabitants of these "houses" are poverty stricken. Two sanitary inspectors were employed lately and as a result many wells have been covered and numerous other nuisances corrected.

The Commune of Port-de-Paix has contributed the sum of Gourdes 1,581.52 during the past fiscal year toward sanitation. This represents a gain of Gourdes 178.38 over the previous year. Gourdes 245.52 were received from commune of Saint-Louis du Nord, the first ever received and Gourdes 17.90 from Commune Jean-Rabel. Nothing can be expected from Bombardopolis, Baie-de-Henne, or Bassin-Bleu.

During the year the meat market has been repaired and enlarged and ten screened tables with impervious tops installed. It is hoped that ere long a proper meat and fish market, both as to size, ventilation, and all other sanitary requirements will be erected upon state land on the Bord-de-Mer. The unsightly, unsanitary former "Grand-Marché" has been replaced by a market similar to the one at Gonaives. This consists of a raised platform of concrete, divided into four sections, with a canal ten inches deep leading from it to the sea. It is uncovered, but is kept clean and sanitary by an employee of the Service d'Hygiène. During the year the canal was extended a distance of seventeen (17) feet six inches, so that now, even at low tide the blood from slaughtered animals is not deposited on the beach. Much is slaughtered in the country and brought to Port-de-Paix for sale. If not all sold it is carried back and forth until in a state of putrefaction. It was necessary for the Public Health Officer to destroy much meat due to this fact. Plans are being worked out by the District Commander and the Public Health Officer to put into operation proper inspection of milk. One case of smallpox was seen during the year and one case of chicken pox. Malaria and syphilis are the prevailing diseases.

It is recommended that a small street cleaning squad be placed in Saint-Louis du Nord.

Gonaives.- During the past year the established routine of street cleaning has been continued by a force of sixty one (61) men employed under sanitation. Rubbish and manure are either burned or used to fill in

swampy land. Continued efforts to keep the meat market free of flies are embarassed by carelessness and wilful injury to wire screening. The trash boxes at both markets have been recently lined with sheet metal and a hinged lid attached, making them as nearly fly proof as possible. House to house inspections are made daily and the city covered twice a month.

The inadequate water supply of the city is soon to be augmented by the inclusion of additional springs at a distance of about eight (8) miles. As far as it has been possible to ascertain there have been no cases of disease traceable to the water supply.

During the dry season there is very little standing water but during the rainy season, the salines to the north and south of the town are flooded making ideal breeding grounds for mosquitoes. It is impossible to oil these areas.

Two cases of smallpox were reported during the year. Vaccination of 2,569 school children was carried out.

Monthly inspection trips to Terre Neuve, Marmelade, Gros-Morne, Saint-Michel, Ennery have been made with trips to Anse-Rouge and the smaller places occasionally. Trips to Hinche and Maissade were discontinued in April in accordance with instructions from the Sanitary Engineer. The five percentum communal collections have been used at those places for street cleaning and ditching under the direction of the Gendarmerie. The communes of Saint-Michel, Gros-Morne and Ennery send funds to the local hospital monthly. The commune of Gonaives contributed about one hundred and twenty five gourdes (Ø. 125.00) each month for the care of indigent patients sent there by the Magistrat or "Juge de Paix". Gros-Morne has built a very fine abattoir from communal funds and the streets are kept in very good sanitary condition. It has been attempted to hold clinics at all these towns.

Saint-Marc.- Three (3) inspectors and thirty (30) laborers are employed under sanitation and the usual routine of street cleaning, collection of refuse and garbage carried out. Several carts are needed for the disposal of refuse. A new Public Health Office should be erected. At Arcahaie there are maintained one inspector and a small force of laborers.

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Petit-Goave.- Sanitation in this district is carried on in five (5) towns, Petit-Goave, Miragoane, Anse-à-Veau, Grand-Goave, and Baradères. Rainfall in this district is fairly heavy the year around, making sanitation more difficult than in places having a dry season. The town of Petit-Goave is in need of a water system, all water having to be carried in by burro from a spring about a mile away. The water system of Miragoane gives a plentiful supply but during the rainy season the water is unfit for drinking or cooking. The supply at Anse-à-Veau is very good and plans for improving the present system are under consideration.

In Petit-Goave an intensive campaign is being carried on to force property owners to keep their irrigation canals free of grass and weeds and thus assist mosquito destroying fish in their work of devouring mosquito larvae. In Grand-Goave the wells are the principal mosquito breeding places. A marsh near Miragoane is being filled in. Petite-Rivière du Sud is surrounded by a large marsh which would be very expensive to fill. The salt marsh near Anse-à-Veau is being filled in. The town of Petit Trou is surrounded by many square miles of marshes. In Baradères there are numerous marshes and two sluggish rivers which increase the mosquito population of the community.

During the year a small storeroom was built on the grounds of the Public Health Office. These grounds should be surrounded by a substantial wall.

Jérémie.- The market place of Jérémie is being remodeled, also that of the town of Corail. The water supply in Jérémie is altogether inadequate for the population. The water, although of excellent quality obtained from a spring about a mile or two from the town, has been steadily decreasing for the last four or five years and has reached a point where, according to the figures of the Hydraulic Service, the actual supply is but 2-1/2 gallons per head per day. In several previous reports the water question of Jérémie has been seriously called to attention. Quoting from letter of 28 August, 1924: "One fire in Jérémie may be more disastrous at the present time than the first cost of the proposed project for immediate relief". In Corail plans are being prepared for the betterment of the distribution of water to the public. In Anse d'Hainault the pipes and reservoir which served over

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25 to 30 years ago, and which for lack of repairs were completely abandoned, have been repaired and pipes cleaned and readjusted and water is being distributed to the population from a public fountain. All of the other towns of the District obtain their water from rivers and springs.

Three inspectors patrol the city limits, visiting all yards for stagnant water, cocoanut shells, tin cans, etc. During the year 35 latrines have been built and 60 are under construction. There have been no new public latrines put in, the present number being seven.

There has been no case of a property owner being taken to court; a routine notice suffices. The only court actions that have been taken, were in cases where the person is caught committing a breach of the Sanitary Law and such a person pays a fine to the courts of G. 5.00 or 30 days prison. The total number of these cases for the year was 22, and 320 notices have been served for the cleaning up of yards, stables, latrines, and building of additional latrines.

All wells of the town that are being used are covered and those not being used are oiled about once a month. Only fifty (50) gallons of oil were used last year.

Thirty (30) laborers sweep all the streets, and lanes of the town each day, and clean out drains of weeds and sand. There are three mule carts hauling on an average ten loads of refuse per day.

A Poor farm is being built, comprising three buildings of a capacity of 12 beds each.

Sanitation substations should be organized in the towns of Corail, Dame-Marie, Roseaux, Pestel and Anse d'Hainault.

Les Cayes.- The general sanitary condition of the town of Aux Cayes is about the same as it has been for the past several years as there has been no increase in the funds allotted to undertake any new improvements of any note. Minor improvements have been made here and there, but the town is not receiving sufficient funds to take care of the increasing number of improved streets.

The Sanitary inspection of properties in this town has been done by one man. He is not able to inspect properties as often as they should be inspected especially to revisit those properties on which work has been ordered to be done. During the year a total of 8,530 inspections have been made. There should be at least three times this number. It is imperative that funds for at least one additional inspector be granted if this work is to be performed in a satisfactory manner. Street sweeping in this town is done entirely by women, as it is impossible to obtain any men at the present scale of wages. The work of these women is satisfactory, but there is not enough of them to properly perform this task. At the present time an average of 30 women are employed as sweepers. Fifteen (15) more women should be employed at once. Garbage and street sweepings are collected by five (5) mule carts which are hired by the week. Every street corner has been provided with a suitable box for garbage collection. The amount of garbage collected and hauled is constantly increasing as is also the amount of territory to be covered. At least two more carts are necessary at the present time. During the year approximately 18,000 loads of refuse were collected and hauled to fill in swampy land around the town.

In addition to the women employed in sweeping streets, an average of about 35 laborers are employed in keeping the mouths of rivers and ditches open cutting weeds, cleaning ditches, burying animals and like work. At least eighty (80) additional men should be employed in opening the old drainage ditches from swamp land, making new ditches and cutting underbush and weeds so that the water from this land may drain and dry.

At present the average wage paid by the Sanitary Service is one gourde. None but old men and boys can be hired for this. The wages paid by the Travaux Publics are one gourde and a half per day, and it is very difficult to find men for this wage. From this port two to five thousand men leave each month to labor in the cane fields of Cuba.

Public latrines in this town are considered to be more or less a public nuisance because of the very filthy habits of a great number of the people who use them. It is impossible to keep them clean. No new latrines have been built and one old one

has been torn down. The others have been repaired. A great number of private latrines have now been built. In fact almost every house has one where the ground is large enough to build one. The need for public latrines has been decreasing.

The markets are kept in very fair condition. Extensive repairs are being made to the butchershop, which is situated in the market at the present time. A new roof and new tables are being provided at an expense of approximately fifteen hundred gourdes (Ø. 1,500.00) which is being paid from the communal funds.

The town of Cayes now has a continuous and plentiful water supply which is obtained from wells situated about one and one half miles from the center of the town. The reservoir property has recently been enclosed by a high wire fence and the ground filled in to prevent contamination by surface water.

Very little work has been done on mosquito control due to lack of funds for personnel and supplies. The first proposition is to secure sufficient laborers to open existing ditches and construct new ones for drainage purposes. The second is removal of underbrush and weeds so that the sun may dry out certain areas. It is useless and wasteful to try to cover any of the swamps with oil until the foregoing have been accomplished. The Public Works Department has offered to aid in the drainage problem by furnishing labor, etc. but the Sanitary Service must furnish an equal amount. Spraying outfits have been requisitioned and a limited use will be made of them where it is thought they will be effective. Estimates were recently submitted to cover cost of this work for the coming year. During the past four or five months it has rained continuously. The result has been an enormous crop of weeds, etc. The present force of men employed is entirely inadequate to take care of these and the work has been gradually falling behind.

Prostitution exist in Cayes as it does in most every other place. The extent of it is not known. Many of these girls come to the Hospital for treatment, mostly for Salvarsan and mercury. Neither personnel or facilities are available at the present time at the Hospital to properly care for these persons.

Provision must soon be made for a new Public

Health Office. The Gendarmerie is about to vacate a tract of land on which it was intended to build a new barracks. The Sanitary Officer has been informed that it would be possible for him to obtain possession of this property. It is about the size of an ordinary public square and is surrounded by a stone wall which is in good condition. On this property are several sheds and a small building. It is proposed to rebuild the latter for an Office. As this is a large tract of land it is proposed to repair the sheds and establish a kitchen for the feeding of laborers, also to establish stables and places for the storage of the Sanitary Service tools and other property. At the present time no place belonging to the service is available and these must be kept in a haphazard manner in several places. The sum of about seven thousand five hundred gourdes (G. 7,500.00) is necessary for this work.

Immediate needs are as follows:-

(a) Provision for a new Office, stables, kitchen, storehouse, etc.

(b) Drainage of certain swampy areas in conjunction with the Public Works Department, opening of old drainage ditches and the construction of new ones.

(c) An increase in personnel. This District should have an additional Haitian physician immediately. An additional house inspector is absolutely necessary to keep properties inspected as often as necessary. An addition of fifteen (15) women street sweepers. An addition of eighty (80) laborers to be employed on drainage work.

During the month of November the town of Cayes has suffered one of its periodic inundations. The Ravine du Sud overflowed its banks about one and one half miles north of town and in the space of two hours covered the roads leading to town and the town itself, with from several inches to five feet of water. Enormous damage was done to recently completed road and street repairs. At places where there was but little current four or five inches of mud was deposited. Many mercantile establishments were flooded with consequent loss of merchandise as the flood reached its height during the early hours of the morning. This flood was the largest in the memory of the oldest living residents. The hospital

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grounds were covered to a depth of about two feet. The cemetery was covered with about four feet of water which deposited there tons of mud, sand and gravel. The inundation of this town is a yearly occurence to a greater or lesser degree. When it happens it destroys the results of several months hard work by all departments. Streets and roads must be resurfaced, washouts filled in, ditches and canals cleaned of sand and gravel to say nothing of mud and debris. This annual inundation is preventable and this by a very moderate outlay of funds, probably less than the amount of the annual damage accruing.

Jacmel.- One inspector and fifty-two (52) men are employed under sanitation. There has been considerable improvement in the water supply during the past year but there is a great deal which remains to be done, viz., the main line pipes have numerous leaks, and the surface water contamination is unavoidable especially in the case of one of the masonry aqueducts which feeds into the main line from one of the four springs. During the past year the use of the reservoir has been discontinued in order to give increased pressure. This increased pressure has caused many of the leaks in the old pipes which have been in position for twenty or more years. A hydraulic system has existed in Jacmel since 1875 and it was considerably improved in 1914. It is believed that there is considerably more than sufficient water for all the needs of Jacmel, and this water can be brought into town under greatly increased pressure, if the entire system can be thoroughly repaired.

Bainet, a town of about 1,000 people has no water system, but a river runs through one side of the town.

Saltrou, a town of about 500 to 600 people has no water system, and for good fresh drinking water they have to send their calabashes a distance of about one hour from town. There are numerous wells in town but the water is brackish.

Grand-Gosier has one well of very brackish water and they have to send about two hours distant for fresh drinking water. This is a town of about 100 people and the immediate back country is only sparsely inhabited.

It is believed that two large factors in the poor development of the country immediately back of Saltrou, Grand-Gosier and Anse-à-Pitre is the lack of fresh water and the poor trails.

With one sanitary inspector and insufficient funds to employ labor, mosquito control has been ineffective. A considerable amount of filling-in has been done in a marsh which exists near the mouth of the river. Mosquito control work has been instituted.

No campaign for the extermination of rats has been started in Jacmel. Ships do not tie up to the dock, all of the freight being handled to and from ships by means of lighters. In last annual report it was recommended that the cement of the market place be replaced. Nothing has been done in this connection on account of lack of funds. About 1,200 meters of masonry gutters have been constructed during the year. A great deal remains to be done.

Recommendations are as follows:-

(a) The ditches draining the low ground to the East of the city should be reopened; estimated cost 3,$00 gourdes.

(b) The water system of Jacmel should be put in a sanitary condition including the installation of a chlorination plant if such a plant is practicable in view of the fact that there is no reservoir.

(c) The cement gutter construction on the streets of Jacmel be completed as soon as practicable.

(d) The cement floor of the city market be replaced, and open gutter construction be used in the market rather than the culverts in use at present which are difficult to clean.

(e) A public latrine, flush type with septic tank be constructed at or near the public market.

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QUARANTINE.

P. A. Surgeon John T. Mahoney of the U. S. Public Health Service arrived November 15th, 1924. He is serving in the capacity of an adviser to the Sanitary Engineer on matters pertaining to Quarantine. Since arrival he has been making a close study of the quarantine problems that confront this service and it is expected that he will soon submit a complete report with recommendations.

This Service possesses as yet no quarantine stations or facilities for fumigating ships. The expansion program has listed an item of $50,000.00 for a Quarantine Station at Port-au-Prince to be erected during the year 1927. Prior to the construction of this station it will probably be necessary to establish one or more small stations in connection with the operation of fumigating vessels.

The ever present menace of plague makes imperative facilities for ship fumigation. Once introduced into Haiti, this disease might be expected to spread with great rapidity owing to the great prevalence of rats. As stated in last year's report authorities are agreed that the best defense against the introduction of plague is the periodic fumigation of vessels when empty. In article 26 the International Sanitary Convention of 1913 recommended as follows:-

"Article 26. It is recommended that vessels be periodically rid of their rats, the operation to take place at least once every six months. The Health Officer of the port in which the rat ridding is performed shall deliver to the captain, owner or agent, whenever request is made therefor, a certificate showing the date of the operation, the port where it was performed, and the method employed".

Suitable boats should be provided for Quarantine Officers at all ports of entry. At present there is only one such boat, the one at Port-au-Prince, Despite this handicap all vessels are boarded promptly and the movements of vessels facilitated in every way possible.

During the year one case of smallpox was detected

QUARANTINE.

P. A. Surgeon John T. Mahoney of the U. S. Public Health Service arrived November 15th, 1924. He is serving in the capacity of an adviser to the Sanitary Engineer on matters pertaining to Quarantine. Since arrival he has been making a close study of the quarantine problems that confront this service and it is expected that he will soon submit a complete report with recommendations.

This Service possesses as yet no quarantine stations on facilities for fumigating ships. The expansion program has listed an item of $50,000.00 for a Quarantine Station at Port-au-Prince to be erected during the year 1927. Prior to the construction of this station it will probably be necessary to establish one or more small stations in connection with the operation of fumigating vessels.

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in a member of the crew of a vessel coming from New-York. The case was isolated promptly, only one other case developing in a stevedore who had been exposed to this case. There was a small epidemic of mild small-pox in the Cape Haitian District which was soon controlled by vaccination and isolation.

The examination of immigrants devolves upon the Quarantine Officer. No facilities for their detention exist. At Cayes many of the foreign ships are emigrant ships running between Cayes and Cuba. From two to five thousand persons leave this port for Cuba each month. The Haitian doctor employed as Port Doctor has been assisting at the Hospital. The demands of these ships upon his time have reached a point where he can no longer give very much time to the morning clinic at the Hospital, as the emigrant vessels arrive here in the morning and it takes considerable time to reach these vessels by row boat and to make a proper inspection of the passengers returning from Cuba.

The following is a tabulated statement of the number of ships, foreign and coast-wise, boarded during the year:

Port	Foreign	Coastwise
Port-au-Prince	411	Not reported.
Cap-Haitien	200	" "
Port-de-Paix	167	776
Gonaives	122	Not reported.
Saint-Marc	92	" "
Petit-Goave	155	
Jérémie	8	" "
Cayes	211	101
Jacmel	47	71
Total	1,413	948

Grand Total----------2,361.

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Petit-Goave	155	
Jérémie	8	" "
Cayes	211	101
Jacmel	47	71
Total	1,413	348

Grand Total----------1,761.

LABORATORY.

During the past year a second well equipped laboratory was established, located at Cape Haitian. It is now proposed to develop a small laboratory in connection with each hospital and to make a beginning of mobile laboratories by the installation of two mobile laboratory-dispensaries, one in the Port-au-Prince district and the other in the Cape Haitian district.

The following is a list of laboratory examinations made during the past year:

	Port au Prince.	Cape Haitian	All others
Autopsies	15	1	5
Feces	469	352	18
Urine	1966	417	42
Sputum	369	137	2
Blood smears	997	1583	38
Blood counts	305	-	-
Water	96	-	-
Soft drinks	58	-	-
Milk	28	-	-
Wasserman reactions	2588	1822	-
Widal reactions	25	-	-
Coagulation time	46	-	-
Non Alcoholic beverages	57	-	-
Ice	2	-	-
Feces cultures	73	-	-
Tissues	42	-	-
Smear cultures	148	-	-
Rats	30	-	-
Drinking water	82	-	-
Agglutinations	102	-	-
Pleural fluid	1	-	-
Spinal fluid	7	-	-
Blood culture	14	-	-
Milk culture	19	-	-
Examinations for leprosy	3	-	-
Rabbit injections	8	-	-
Dog examinations for rabies	1	-	-

Examinations made at the Central Laboratory in Port-au-Prince show the following:

(a) 37.9 per cent of stools examined were positive for ova or parasites.

(b) 30.6 per cent of sputums were positive for tubercle bacilli.

(c) 30.5 per cent of blood smears were positive for malaria.

(d) 61.1 per cent of bloods examined showed positive Wassermanns.

(e) 8 per cent of bloods examined for typhoid reaction showed positive widals.

(f) 27 per cent of faeces cultured were positive for dysentery.

SUPPLIES AND ACCOUNTS.

This deparrment is directly in charge of a Chief Pharmacist, United States Navy, who is designated as the Supplies and Accounts Officer. The purchase of all supplies is, however, controlled by the Sanitary Engineer. The method of obtaining supplies and equipment is to secure bids from several representative firms and award the contract to the lowest bidder. This competitive system results in a substantial annual saving. All supplies and equipment are stored at the Supply Depot and accurate records are kept of their receipt and expenditure; issues being made only on requisitions approved by the Sanitary Engineer. The available storeroom space has, so far, been adequate, but with the increased activities of the Service, it will be only a short time before more space will be necessary.

The Central Garage is located in the same buildings as the Supply Depot. Trained mechanics employed by the Service keep in good repair all motor vehicles operated by the Service in the vicinity of Port-au-Prince. All motor vehicles, with exception of those used at the Haitian General Hospital are housed in this garage.

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Many of the motor vehicles used for removal of garbage and rubbish are rapidly wearing out from long and hard usage, and it is only a question of a very short time until, in the interest of economy and efficiency, it will be necessary to replace them with new trucks.

The work of the Service is greatly handicapped by the lack of funds for the purchase of supplies and equipment, the amount available for the purchase of medicines, surgical dressings, etc., being totally inadequate. The district of Cape-Haitian alone could use the total annual supply of these items and still be unable to meet the needs of the sick. The knowledge that each Public Health Officer submits requisitions for only such quantities as he deems absolutely essential to carry on his work makes disagreeable the necessity of eliminating from requisitions many items entirely and the reducing of the amounts of others to a minimum. Considering that illness is probably the greatest economic drain upon Haiti, one may put aside the humanitarian point of view and argue that it would be of a sound business principle to invest many thousands of dollars annually in specifics for the cure of syphilis, yaws, intestinal parasites, malaria, etc.

The total budgetary funds for the past fiscal year were 1,400,004.00 gourdes, and this was expended as shown in the following tables.

Medicine & other supplies not enumerated---$.	113,701.80
Surgical instruments----------	6,627.65
Hospital supplies----------	29,906.25
Stationery and office supplies----------	4,597.77
Motor vehicles supplies and repairs--------	42,442.70
Gasoline and oil----------	28,696.81
Miscellaneous----------	101,397.71
Books and publications----------	210.40
Laboratory supplies----------	1,303.85
X-Ray supplies----------	50.05
Tools, sanitation----------	7,815.35
Motor vehicles----------	14,191.55
Training School----------	520.10
Transportation American Red Cross Nurses---	2,283.90
Transferred to other titles----------	1,126.20
Balance on hand (Supplementary credit)-----	19,206.58
Total----------$.	374,078.07

Hospital Hinche:-

Credit:		¢. 111,133.65
Muslin and pillow tubing--¢.	7,162.10	
Dodge truck----------	9,825.00	
Hospital beds----------	12,326.05	
Mattresses & Pillows------	5,250.00	
Ambulance----------	13,750.00	
Hospital supplies---------	8,929.65	
Surgical instruments------	6,146.05	
Total.....¢.	63,388.85	63,388.85
Balance on hand.....Gdes.		47,744.80

EXPENDITURES 1923-1924

Place	Sanitation and Quarantine	Hospital	Administration	Training School	Charity
Port-au-Prince	414,794.35	105,349.30	297,186.15	26,409.00	4,600.00
Cap-Haitien*	105,930.20	60,600.00			
Port-de-Paix	23,325.00	12,700.00			
Gonaives	24,287.00	17,010.00			
Saint Marc	31,183.00	7,550.00			
Petit Goave**	36,390.00	17,400.00			
Jeremie	30,545.00	16,585.00			
Aux Cayes	40,250.00	27,700.00			
Jacmel	26,800.00	28,410.00			
Total	733,504.55	338,304.30	297,186.15	26,409.00	4,600.00

Grand total Budgetary . . . . . .Gdes: 1,400.004.00

*Includes Grande Riviere
**Includes Miragoane and Anse a Veau

Extraordinary Credits:-
Justinien Hospital, Cap-Haitien----Gdes. 25,000.00
Purchase of Sera---------- 15,000.00
Purchase of Drugs, material and Equipment, Hospital, Hinche------- 111,133.65

Supplementary Credit:
Purchase of Drugs for Hospitals--$ 50,000

BUDGET.

During the year attempts have been made to put the development of the service in the various districts on a more strict budgetary basis in order to insure as economical expenditure of funds as possible. A preliminary study is now being carried out in order to get information for comparative data regarding the accomplishments in the various districts based on money allotted, nature of work, size of territory and approximate number of inhabitants.

Every Public Health Officer will be di rected to submit a detailed budgetary estimate for the carrying out of the work planned for the coming year, including that for essential permanent improvements.

In this manner this Office expects to get some definite information whereby a proper division of funds between the various districts may be made.

EDUCATION.

Not much can be accomplished by the distribution of health literature owing to the illiteracy of the vast majority of the people. Picture posters have some value. The students of the Agricultural School are given a lecture on hygiene once a week and a practical demonstration on mosquito control every Saturday afternoon. It is hoped to extend this method of education to other schools or at least impart some knowledge of hygiene to school teachers who may in turn pass the information on to the coming generations. A short course of instruction in mosquito control, etc., is being given to all new sanitary inspectors in Port-au-Prince. A few inspectors from other districts have been brought in to receive this course and it has been given to a few Gendarmerie Hospital Corpsmen who are acting as Sanitary Inspectors in outlying posts. A few laboratory technicians are being given practical training at the laboratory of the International Health Board. Dressers for rural clinics are given

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a short course of practical instruction in hospitals prior to assignment to duty. Instruction of nurses will be mentioned under heading Training School for Haitian Nurses. Owing to a shortage of personnel it has not as yet been considered feasible to suggest any changes in the existing methods of education at the National Medical School. It is hoped that a few qualified graduates of this School may at a later date be selected for Fellowships. The entire system of medical education in Haiti leaves much to be desired.

LAWS AND REGULATIONS.

The Narcotic Law of July 16th, 1923, has been in operation for one year. As far as can be determined there is no illegal trafficing in narcotic drugs.

A law authorizing the President to commission Haitian physician in the Public Health Service was enacted on December 5th, 1924, and published in the Moniteur of December 18th, 1924. It is proposed that no physician shall be recommended for a commission until he has served satisfactorily for at least one year in one of the larger hospitals of the Service. Experience has shown that in general only young men who have graduated recently are capable of being trained to fit them for work with this Service.

A national law requiring the registration of all dogs has been drafted and proposed for enactment.

Prostitution should be made illegal or else regulated by law. The charge made for the registration of births and deaths should be abolished and in lieu thereof a law authorizing the payment of a small sum for the registration of each birth or death. A pure-food law would be desirable.

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LAWS AND REGULATIONS.

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MEDICAL SCHOOL.

Owing to a shortage of personnel no attention has been paid to the National Medical School other than to place at its disposal the facilities of the Haitian General Hospital for clinical purposes.

This School is badly in need of reorganization, many changes being necessary to make it serve the Republic.

TRAINING SCHOOL FOR HAITIAN NURSES.

I. Personnel.

American Red Cross Nurses----------4

II. Graduate Haitian Nurses.

Total number graduated to date---------45
Graduated during fiscal year----------10
Permanently employed--------------------14
Married during fiscal year--------------2
Employed at Haitian General Hospital----9

In March, 1924, graduated exercises for the class of 1924 were held at the Nurses'home. As usual great interest was shown in the School both by Americans and Haitians, but regret was felt by all, that illness prevented His Excellency the President of Haiti from attending the exercises and presenting the diplomas. The ceremony opened by the reading of a congratulatory address of Dr. Haynes, Sanitary Engineer, by the Supervisor, Miss Doane. The Secretary of the Interior then read a message from the President and presented the diplomas to the ten graduates, Miss Doane pinning on their badges. The exercises ended by a benediction to the class and the audience by the Archbishop of Haiti. The Palace band furnished music and dancing and the serving of refreshments afforded an opportunity for the members of the class to entertain their friends.

Mlle. Prepetit, class 1924, is at present in

GRADUATING EXERCICES, TRAINING SCHOOL FOR HAITIAN NURSES, PORT-AU-PRINCE.
THE BUILDING, THE NURSES HOME, WAS DONATED BY THE AMERICAN RED CROSS.

charge of the operating room in this hospital replacing an American Red Cross Nurse who generally supervises that work. She has shown encouraging ability in this work.

III. Applicants - Pupil Nurses.

Applied during fiscal year	35
Entered	9
Dismissed	2
Total under instruction	24

Classes in obstetrics, gynecology, bandaging, medical diseases, ethics, materia medica, dietetics, pediatrics, anatomy, physiology, practical nursing, surgical nursing and massage were conducted by the Haitian physicians and American nurses, and the examinations passed satisfactorily with few exceptions. The younger pupils show a marked improvement in their theoretical work and it is encouraging to note an increased interest shown in it.

CONFERENCES.

During the past year Haiti was represented at two important conferences. Lieutenant-Commander Paul W. Wilson, (MC) U. S. Navy, the Public Health Officer of Jacmel, was an unofficial delegate to the Medical Conference conducted by the United Fruit Company at Kingston, Jamaica, in July. He later gave the Officers of this Service a resumé of the proceedings.

Dr. Charles Mathon of Port-au-Prince represented Haiti officially at the 7th Pan-American Sanitary Conference held in Havana, Cuba, November 5-15, 1924. He will give an account of this before the monthly conference of Medical Officers to be held at Haitian General Hospital January 7th, 1925.

CHARITIES, WELFARE AND RELIEF.

It is pleasant to relate that in contrast to the year 1923, there have been necessary no special activities under this heading. Rainfall for the

GROUP OF NURSES GRADUATED BY THE TRAINING SCHOOL FOR HAITIAN NURSES.

past year has been ample and well distributed in most parts of the Republic. There have been no instances of famine, but on the contrary bumper crops of corn, petit mil and garden produce. There have been no serious disasters from fire. Cayes was visited by a flood in November and damage to property resulted amounting to several thousand dollars but no organized relief was necessary.

ROCKEFELLER FOUNDATION.

The following reports are from the Director of the Haiti Survey. This Survey is now being made by the International Health Board of the Rockefeller Foundation:-

A. "Haiti Survey - Report for the Quarter ending September 30th, 1924.

Organization.

Following an invitation extended by the High Commissioner and by the President of the Republic of Haiti to the International Health Board of the Rockefeller Foundation to assist in a survey of causes of disability in the rural population of the Republic of Haiti funds for the purpose were provided and representatives of the International Health Board were sent to Haiti in June, 1924, to arrange for the organization of the survey. After conferences with General John H. Russell, High Commissioner, and Dr. C. S. Butler, Sanitary Engineer of the Republic of Haiti, Dr. H. H. Howard, Director for the West Indies of the International Health Board, arranged the organization along the following general lines:-

1. The Survey is conducted as a part of the Service d'Hygiène of the Republic of Haiti and is under the direction of the Sanitary Engineer in charge of that service.

2. Field operations are in direct charge of a representative of the International Health Board, who is also in direct control of the disbursement of those funds supplied by the International Health Board.

3. The Service d'Hygiène and the Medical

Department of the United States Navy are represented in the field operations by Dr. Edwin Peterson who serves as Liaison Officer.

4. The object of the survey is to determine as nearly as possible the most serious causes of disability in the rural population of Haiti and to make a numerical estimate of the incidence of these diseases. The purpose of this study is to aid the Service d'Hygiène in developing methods for the control of disease in the population of the rural areas of the country.

5. Briefly, the plan of operation is the selection and intensive study of a representative area through a period of one year with shorter and less intensive studies of areas presenting conditions different from those existing in the first area. These areas are called respectively, the principal area and the secondary areas. The study will include the examination of any available records of past disease as well as the diagnosis of current morbidity.

6. The International Health Board supplies an entomologist, Dr. Wm. A. Hoffman, whose duty is to make a survey of the insects of medical importance. His efforts are to be directed especially to the study of the malaria carrying mosquitoes.

Preliminary Reconnaissance.

In preparation for opening the survey and in order to obtain a superficial view of the Republic as a whole, the Sanitary Engineer, the Liaison Officer, and the Representative of the International Health Board visited all of the principal towns and cities of the Republic. The Medical Officers in these towns were interviewed in regard to the most prevalent diseases in regard to the living conditions of the people. Included in this preliminary reconnaissance there were conferences by the representative of the International Health Board with many of the leading Haitian physicians of Port-au-Prince.

The preliminary steps consumed the month of July, but the knowledge gained was of such a superficial nature that it would not add to the value of this report.

The outcome of the reconnaissance was the

selection of an area extending from the School of Agriculture at Thor to Petite Saline, west of Mariani, and from the sea to near the head of the Rivière Froide as the principal area. It was impracticable to establish headquarters within this area so an office and laboratory was located in Martissant, about two miles from the eastern border of the area. This office was first occupied on August 11, and the examination of specimens was begun during the following week.

Field and Laboratory Organization.

Owing to the limited amount of funds available for the survey, it was found impracticable to employ Haitian physicians as a part of the subordinate personnel either in the laboratory of in the field. The same handicap interfered with the employment of trained clerical help. A recent heavy demand for such help with unusual renumeration had seriously disturbed the supply of trained stenographers. It was found possible to obtain a well trained medical student as principal technical assistant and to obtain other assistants who were without special training but were capable of learning individual technical tasks.

Laboratory Technique. Examination for Intestinal Parasites.

The Molloy-Willis flotation method was selected as the standard technique for examination for intestinal parasites.

When fecal specimens are received in the laboratory they are first recorded on suitable forms and the record is certified by both the clerk and the field assistant by whom they were collected. Two microscopists then take each specimen and each examines one smear from it on a 2" x 33 microscopic slide. The first ova found of each species is verified by another microscopist before it is recorded. After the preliminary smears are examined a portion of the specimen is mixed with saturated solution of common salt on a 1/2 ounce tin container. The container is filled to the brim with the solution and a 2" x 3" glass slide is placed over it in contact with the solution. After from ten minutes to one-half hour the slide is removed, inverted, and the surface of the fluid on it is examined for floating ova. Each specimen receives more than

fifteen minutes of actual microscopical search. It is permitted however, that when ova of all of the three most common kinds, ascaris, trichuris, and ankylostome have been found in a single specimen the specimen can be considered completed. The occurence of other parasites has been found so unusual that discarding these specimens does not affect the records of the rarer parasites.

On many of the specimens positive for hookworm ova the Stool egg-count method has been used. This consists in emulsifying a weighed amount of feces in a measured amount of normal sodium hydroxide. The amount used depends on the amount of feces available. For one gram of feces, fifteen mils of sodium hydroxide solution is used. Of this emulsion 0.15 mils is transferred with a serological pipette to a slide and is covered with a 22 mm x 40 mm cover glass. The entire area under this glass is examined and all of the ankylostome ova are counted. This represents the number of ova in a centigram of feces. Averages of these results are useful in comparing the hookworm infestation of different communities.

Examination for intestinal protozoa.

The method used in the search for intestinal protozoa presents no features which are peculiar or different from those used in similar recent surveys. It is not practicable to obtain more than one specimen from each patient so the results are to be interpreted on the basis of the examination of a single specimen. Two solutions are used simultaneously as stains for the smears. One of these is a saturated solution of iodine in a 5% aqueous solution of potassium iodide. The other is a one per cent aqueous solution of eosin. Smears are covered with glasses 22 mm square. A single smear is examined from each case. In cases where cysts of trophic forms demand additional study the material is fixed in Schaudin's solution and stained with iron-haematoxylin.

Blood examination for malaria parasites.

Duplicate smears are taken 1" x 3" microscopical slides. They are fixed in methyl alcohol and stained with Giemsa's solution immediately after being received in the laboratory. The minimum standard for a negative examination of 150 microscopic fields. No systematic

work on the malaria parasite index was done during the period covered by this report.

Field Procedure.

The first step in the study of each new portion of the principal area was a census with coincident examination of the people for intestinal parasites. The next stop, a house to house search for diseases of the eyes by Dr. Hooker of the Haitian General Hospital. Up to the end of the period considered no further steps had been taken in the principal area. This work will be followed by a house to house canvas for disabling illness of all kinds and a record of all such illness and of deaths and births will be kept throughout the area.

Examination of Prisoners for Intestinal Parasites.

Before beginning this survey it was realized that the methods of field work would have to be developed as the work progressed. It was regarded as desirable that the staff should be trained in some of the fundamental procedures of laboratory work before any work in the principal area was attempted. In order to obtain material for this training and at the same time to obtain information that would be of value for the purpose of the survey, it was decided to undertake the examination of the inmates of some of the prisons of the Republic. The examination for intestinal parasites was the work chosen for the training of the staff and this was done during the period under consideration in the prisons of Port-au-Prince, Petit-Goave, Léogane, and Saint-Marc. Excellent assistance in this work was given by Dr. Boland, Chief of the Medical Service of the Gendarmerie and by the Officers of the prisons. The results of these examinations will be found in the statistics attached to this report and a full analysis of the results will be submitted with a future report.

During the month of September we were asked to examine the students in the recently reorganized school of agriculture for intestinal parasites. This gave an opportunity to determine the incidence of these parasites in a group of persons from a different social class from those who comprise most of our subjects for

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Examination of Prisoners for Intestinal Parasites.

Before beginning this survey it was realized that the methods of field work would have to be developed as the work progressed. It was regarded as desirable that the staff should be trained in some of the fundamental procedures of laboratory work before any work in the principal area was attempted. In order to obtain material for this training and at the same time to obtain information that would be of value for the purpose of the survey, it was decided to undertake the examination of the inmates of some of the prisons of the Republic. The examination for intestinal parasites was the work chosen for the training of the staff and this was done during the period under consideration in the prisons of Fort-au-Prince, Petit-Goave, Logane, and Saint-Marc. Excellent assistance in this work was given by Dr. Boland, Chief of the Medical Service of the Gendarmerie and by the officers of the prisons. The results of these examinations will be found in the statistics attached to this report and a full analysis of the results will be submitted with a future report.

During the month of September we were asked to examine the students in the recently reorganized school of agriculture for intestinal parasites. This gave an opportunity to determine the incidence of these parasites in a group of persons from a different social class from those who comprise most of our subjects for

examination. The results of the examination of this group of students will be found in the statistical report.

Progress in the Principal Area.

Work was begun in the principal area, which will be designated as the Carrefour area, on September 11th. The beginning of the work had been previously announced by the priest and actual work was preceded by a short demonstration which dealt with hookworms and other intestinal parasites. It has been impossible to continue to give demonstrations in all parts of the area because of lack of personnel.

During the month of September the work was confined entirely to that part of Carrefour and Mariani which lies west of the Rivière Froide. This region was divided into two districts. District "1" is that part of Carrefour lying north of the main road, while District "2" contains all of Mariani and a part of Carrefour south of the main road.

The co-operation of the people during the month of September was all that could be desired. The chief difficulty which was encountered was in finding the people at home. In a few cases this was due to suspicion and to fear. It was supposed by some that the survey was a surreptitious way of collecting the internal revenue. In most cases it was possible to win the confidence of those who were afraid. The persons most difficult to find were those who went to their gardens early and returned very late. A large number of these were found by Sunday visits. It has not yet been determined what the final accuracy of the census will be but it is probably fair to assume that it will be greater than ninety per cent.

In those districts in which work had been begun during the month of September only the examination for the intestinal parasites had been organized and put into operation before September 30th. The results of these examinations will be found in the statistical reports appended. It will be noted that the infection with ankylostomes is much less than that in the prisons. This is probably due to difference in local conditions such as excreta in a sanitary manner in the district studied.

In order to maintain the interest of the people

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During the month of September the work was confined entirely to that part of Carrefour and Marigot which lies west of the Rivière Froide. This region was divided into two districts. District "I" is that part of Carrefour lying north of the main road, while District "S" contains all of Marigot and a part of Carrefour south of the main road.

The co-operation of the people during the month of September was all that could be desired. The chief difficulty which was encountered was in finding the people at home. In a few cases this was due to suspicion and to fear. It was supposed by some that the survey was a surreptitious way of collecting the internal revenue. In most cases it was possible to win the confidence of those who were afraid. The persons most difficult to find were those who went to church gardens early and returned very late. A large number of these were found by Sunday visits. It has not yet been determined what the final accuracy of the census will be but it is probably fair to assume that it will be greater than ninety per cent.

In those districts in which work had been begun during the month of September only the examination for the intestinal parasites had been organized and put into operation before September 30th. The results of these examinations will be found in the statistical reports rendered. It will be noted that the infection with anklyostomes is much less than that in the prisons. This is probably due to differences in local conditions such as exists in a sanitary manner in the district studied.

In order to maintain the interest of the people

of the area in the survey and in order to obtain from them help and information which is necessary for accurate results it was found necessary to offer treatment for some of the illness found. This was done through the courtesy of Dr. H. H. Lane of the Haitian General Hospital who assigned one of the internes, Dr. Valmé, to assist in treatment on one morning each week. It was decided to confine the offer of treatment solely to the intestinal parasites and malaria. This is not an effort to control any of these diseases and to try to continue treatment to the cure of our patients would involve much expense to the Government and to the International Health Board. Treatment for the conditions named is not refused to any of our patients as long as they remain infected and continue to apply for treatment but experience shows that one or two doses of medicines is all that the majority of the patients desire.

Entomological Work.

The delay in receiving a motor car for the entomologist seriously interfered with his field work for this quarter. His work during the months of August and September consisted in forming an acquaintance with the breeding places of anophelines in the region of Port-au-Prince and near the shore line of Carrefour area. His observations during this period will be included in subsequent reports."

"Statistical Report for Quarter Ending September 30.
Examination of Prisoners for Intestinal Parasites.

PRISON.

	Port-au-Prince	Petit-Goave	Léogane	St. Marc	Total.
Number examined	211	100	26	97	434
Positive for Ankylostomes	97	75	19	14	205
" " Ascaris	79	56	11	22	168
" " Trichiuris	145	78	19	22	264
" " Strongyloides	2	1	0	0	3
" " Enterobius	1	2	0	1	4
" " Hymenolepis	2	0	0	2	4

Examination of Students of l'Ecole d'Agriculture for Intestinal Parasites.

Number examined----------34
Positive for Ankylostomes-------7
" " Ascaris----------10
" " Trichuris---------19

Work in Carrefour Area.

	District 1	District 2	Total
Census	125	204	329
Number examined	103	67	170
Positive for Ankylostomes	42	13	55
Number of homes	74	74	148
Number of homes with latrines	1	0	1 "

"Statistical Report for Quarter Ending September 30.
Examination of Prisoners for Intestinal Parasites.

PRISON.

	Port-au-Prince	Petit-Goave	Léo-gane	St. Marc	Total.
Number examined	211	100	26	97	434
Positive for Ankylostomes	97	73	19	14	203
" " Ascaris	79	56	11	22	168
" " Trichiuris	145	78	19	22	264
" " Strongyloides	2	1	0	0	3
" " Enterobius	1	2	0	1	4
" " Hymenolepis	2	0	0	2	4

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Cenaus	District 1	District 2	Total
	125	204	329
Number examined	103	67	170
Positive for Ankylostomes	43	13	56
Number of homes	74	74	148
Number of homes with Infections	1	0	1 "

B. "Haiti Survey, Report of work completed to October 31st, 1924.

The broad outlines of the reorganization of the survey have been given in the report of the third quarter and some of the plans for the month of October have also been indicated in that report. The complete realization of the objects contemplated in those plans has been hindered by three factors, the illness of the entomologist, the necessity for breaking in an untrained staff in clerical and statistical work for time-consuming checking and correction of their work, and the failure of the people in one region of the principal area, to co-operate in the whole hearted manner which characterized the districts previously worked.

Extension of census and the examination for worm parasites.

In the westward direction census taking was extended through Mariani to Petite Saline. Eastward this work was completed to Mon Repos on the north side of the main road and to the Gendarmerie station of Carrefour on the south side. In general the collection of specimens for examination was not difficult but in that portion of Carrefour south of the main road nearly half of the people failed to co-operate with us. Some left their houses when they knew that the census-takers were coming, some flatly refused to give their names, other accepted containers for specimens but refused to return them. The difficulty in this region is probably entirely due to the opposition of one man and it is not anticipated that his influence will extend far.

A great variation in the percentage of infestation with the worm parasites has been found in different regions of the area studied. Not sufficient work has yet been done to justify an attempt to classify the difference and to interpret them.

Examination for Intestinal Protozoa.

The results of the examination for the intestinal protozoa will be found tabulated with the statistical portion of this report. In the totals there is nothing shown which was not anticipated from

B. "Health Survey", Report of work completed to October 31st, 1923.

The broad outlines of the reorganization of the survey have been given in the report of the third quarter and some of the plans for the month of October have also been indicated in that report. The complete realization of the objects contemplated in those plans has been hindered by three factors, the illness of the entomologist, the necessity for spending in an untrained staff in clerical and secretarial work for time-consuming checking and correction of their work, and the failure of the people in one region of the principal area, to co-operate in the whole hearted manner which characterized the districts previously worked.

Examination of cornus and the examination for worm parasites.

In the westward direction cornus testing was extended through Barranquitas to Aibito Salino. Eastward this work was completed to Don Pedro on the north side of the main road and to the Cordamonte station of Carrefour on the south side. In general the collection of specimens for examination was not difficult but in that portion of Carrefour-south of the main road nearly half of the people failed to co-operate with us. Some left their houses when they knew that the cornus-takers were coming, some flatly refused to give their names, others accepted capitanos for specimens but refused to return them. The difficulty in this region is probably entirely due to the opposition of one man and it is not anticipated that his influence will extend far.

A great variation in the percentage of infection with the worm parasites has been found in different regions of the area studied. Not sufficient work has yet been done to justify an attempt to classify the difference and to interpret them.

Examination for Intestinal Protozoa.

The results of the examination for the intestinal protozoa will be found tabulated with the statistical portion of this report. In the totals there is nothing shown which was not anticipated from

similar work in other countries. During the examinations it was noted that there was a tendency for certain localities to be more heavily infested with the intestinal protozoa than others. The numbers examined are too small to warrant any discussion of this apparent finding. In connection with the very small number of people giving a history of acute or chronic dysentery the prevalence of infection with cysts of Entameba histolytica is rather remarkable.

Studies of Malaria Incidence.

During the month of October the studies of the incidence of malaria were in the stage of organization. Two methods of obtaining information were in the course of trial. In both methods the same information was obtained and in both cases the gathering of malaria information was associated with the collection of evidence in regard to other diseases. In the one case the workers passed from house to house in the order in which the census was taken regardless of the presence of illness. Each member of each family was questioned in regard to malaria, syphilis, pian, dysentery, typhoid fever, and many other conditions which might be indicated. Blood was taken for smears from each person and the hemoglobin was measured immediately with a Dare hemoglobinometer. The spleens of all children under the age of fifteen were examined and a record of their size was made. Under the other method the workers visited houses where illness had been reported and went through the same procedure. The first method has all of the scientific advantages of random sampling. The second method has the very distinct advantage that the visit of the physician is welcome, information is given more freely and more truthfully, and there is not the tendency toward disappearance of many members of the household when the workers approach. It is probable that both methods will be used during the course of the survey and that the information obtained by the two will be treated as of equal value.

The results of the examinations of blood smears for malaria will be found with the other statistics. Not a sufficient number of spleens have been examined to justify a report on the findings.

Records of Current Mortality, Morbidity, and Births.

Since there are no records of vital statistics and illness in Haiti which have any semblance of completeness, effort will be made to have a current record of events of this nature in the principal area studied. For this purpose a field assistant bagan systematic visiting of the entire area during the last week of October. It will probably take a month or more to organize this work so that the information obtained will be resonably complete as regards deaths and births. The morbidity records will probably leave much to be desired because of the little notice which is taken by the country people of such illness as fever and diarrhea. Such cases of illness as are reported will be seen by a physician and every effort will be made to arrive at a correct diagnosis.

Discussion of Results of Examinations.

The results of the examination of prisoners analysed in this report are those which were obtained in the following prisons:- Port-au-Prince, Petit-Goave, Léogane, Jérémie, and Saint-Marc. The crude results for the individual prisons have been included in previous reports. The purpose of making these examinations was to determine the parasites which were to be anticipated in the general population and to obtain some information as to their relative abundance and distribution. Previous experience has shown that such information is of distinct value but that there are often factors affecting the parasitism of prisoners which do not affect the general population and that infestation of prisoners cannot be accepted without reservation as a measure of infestation of the region.

In some countries institutions have been encountered which were centers of infestation with intestinal parasites. Inmates who entered the institutions free of parasites become infested during the first few months of their residence. There is no evidence that this is true in any of the prisons of Haiti which have yet been examined. Two hundred and sixty one (261) prisoners who had been in prison less than two months were examined. They may be taken as indicating the probable average of in-

Records of Current Mortality.

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infestation on admission. Reference to Table I will show that 136 or 56.6 per cent were infested with ankylostomes. There were examined 227 prisoners who had served more than two months and of these 104 or 45.8 per cent were infested with the same parasites. This indicates that there had not only been no increase in infestation during prison life. This is what would be expected in prisons which show much a high degree of cleanliness as those examined. The results quoted for the ankylostomes hold equally well for the ascarids and the trichurids.

The classification of the prisoners examined according to their usual residence before imprisonment is given in Table II. This shows the heaviest infestation in the prisoners from the northern side of the southern peninsula, namely Léogane, Petit-Goave, Anse-à-Veau, and Jérémie. There is a lower percentage of infestation in the prisoners from Jacmel and still lower in residents of regions north of Port-au-Prince along the coast. There have not been a sufficient number of persons examined from the interior and from points north of Saint-Marc to justify any computation of rates of infestation. The results shown in this table are in harmony with the previously reported rates of infestation in the prisons in the respective regions.

Table III shows the difference in the infestation of the two sexes of prisoners in different age groups. The chief point to be noted in these results is the fact that in the case of all three classes of parasites the percentage of infestation is greater in the female prisoners than in the males. In general this holds true in all of the age groups. This is contrary to the usual finding in other countries and is probably due to some combination of factors in the habits of life among the people from whom the prison population is drawn.

Table IV, showing the infestation of patients in the Jérémie Hospital with intestinal helminths, Table V, showing the results of examination for the intestinal protozoa in Carrefour Area, and Table VI, in which are set forth the results of the examinations for the intestinal worms in Carrefour Area, are self-explanatory.

The results of the examination for malaria parasites in the blood given in Table VIII are not remarkable from the fact that more than thirty per cent of the cases taken at random were positive but the number showing the parasites of quartan malaria, Plasmodium malariae, is certainly unusual. One half of the positive cases showed this parasite. Many cases which carried two species of parasites were seen and in one blood specimen all of the three species were present. The unusual prevalence of quartan parasites is probably purely local, since the concensus of opinion among previous workers is that this species is rare in Haiti."

TABLE I.

Duration of Prison Residence of Prisoners Examined for Helminths Parasitic in the Intestine.

Duration of Prison Residence	Number Examined.	Positive for Ankylostomes.	P.C.	Positive for Ascarids	P.C.	Positive for Trichiurids	P.C.
Less than two months	261	136	56.6	118	44.8	177	67.2
2-5 "	150	71	47.3	66	44.0	83	55.4
6-12 "	55	22	40.0	14	25.4	32	58.2
More than 12 months	22	11	50.0	4	18.2	18	81.8
Total	488	240	49.2	202	41.3	310	63.4

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Duration of Prison Residence of Prisoners Examined for Helminths Parasitic in the Intestine.

Duration of Prison Residence	Number Examined.	Positive for Ankylostomes.	P.C.	Positive for Ascarides	P.C.	Positive for Trichocephalus	P.C.
Less than two months	261	136	56.6	118	44.8	177	67.2
2-5 "	150	71	47.3	66	44.0	83	55.4
6-12 "	56	22	40.0	14	25.4	32	58.2
More than 12 months	22	11	50.0	4	18.2	18	81.8
Total	489	240	49.2	202	41.3	310	63.4

TABLE II.

Usual residence of Prisoners Examined for Helmiths Parasitic in the Intestine.

Usual Residence	Number Examined	Positive for Ankilostomes.	P.C.	Positive for Ascarids	P.C.	Positive for trichiurids	P.C.
Port-au-Prince	51	18	35.3	16	31.4	34	66.6
Plaine du C.S.	15	3	20.0	6	40.0	10	66.7
Léogâne	48	43	64.2	32	47.7	44	44.9
Petit-Goâve	99	68	68.7	52	52.5	79	79.8
Anse-à-Veau	21	15	71.3	7	33.3	14	66.7
Jérémie	69	44	63.7	39	56.5	59	85.5
Cayes	4	2		1		4	
Aquin	4	2		0		0	
Jacmel	29	14	48.3	13	44.8	20	69.0
St. Marc	95	18	19.0	22	23.2	29	30.5
Gonaïves	13	2	15.4	3	23.1	5	38.4
Plaisance	1	1		0		1	
St. Michel	2	2		1		0	
Gde. Rivière	0	0		0		0	
Hinche	8	2		4		4	
Cap-Haitien	6	4		5		5	
Port Margot	1	1		0		1	
Port-de-Paix	1	0		1		0	
Môle St.Nicolas	0	0		0		0	
Residence unknown	2	1		0		1	
Total	488	240	49.2	202	41.3	310	63.4

TABLE II.

Usual residence of Prisoners Examined for Helminths Parasitic in the Intestine.

Usual Residence	Number Examined	Positive for Ankylostomes.	P.C.	Positive for Ascarids	P.C.	Positive for Trichocephalus	P.C.
Port-au-Prince	53	19	35.8	16	31.4	34	66.6
Plaine du C.S.	15	3	20.0	6	40.0	10	66.7
Léogâne	48	45	64.2	32	47.7	44	44.8
Petit-Goâve	99	68	38.7	52	32.8	79	79.8
Anse-à-Veau	21	15	71.5	7	33.3	14	66.7
Jeremie	59	44	83.7	39	66.5	69	88.6
Cayes	4	2		1		4	
Aquin	4	2		0		0	
Jacmel	29	14	48.3	13	44.8	20	69.0
St. Marc	95	18	19.0	22	23.2	29	30.5
Gonaïves	15	2	13.4	3	23.1	8	38.4
Plaisance	1	1		0		1	
St. Michel	2	2		1		0	
Gde. Rivière	0	0		0		0	
Hinche	8	2		4		4	
Cap-Haitien	6	4		3		5	
Port Margot	1	1		0		1	
Port-de-Paix	1	0		1		0	
Môle St.Nicolas	0	0		0		0	
Residence unknown	2	1		0		1	
Total	488	240	49.2	202	41.3	340	69.4

TABLE III.

Age and Sex of Prisoners examined for Helminths Parasitic in the intestines.

Ankylostomes.

	Males			Females			Total		
	Examined.	Pos.	P.C.	Examined.	Pos.	P.C.	Examined.	Pos.	P.C.
10-14 years	8	6		1	0		9	6	
15-19 "	45	13	28.9	26	21	81	71	34	47.8
20-29 "	142	62	43.6	28	15	54	170	77	45.3
30-39 "	90	36	40.0	19	11	58	109	47	43.1
40-49 "	53	23	43.4	8	4	50	61	27	44.3
50-59 "	12	4	33.3	2	2		14	6	42.8
60 years & over	8	3		2	2		10	5	50.
Age unknown	41	36		3	2		44	38	
Total	399	183	45.8	89	57	64.0	488	240	

Ascarids

10-14 years	8	2		1	0		9	2	
15-19 "	45	12	26.6	26	11	42.3	71	23	32.4
20-29 "	142	54	38.0	28	19	67.8	170	73	42.9
30-39 "	90	40	44.5	19	7	36.8	109	47	43.1
40-49 "	53	16	30.2	8	4		61	20	32.8
50-59 "	12	5		2	1		14	6	42.8
60 yrs & over	8	4		2	2		10	6	
Age unknown	41	23		3	2		44	25	
Total	399	156	44.7	89	46	51.6	488	202	41.3

Trichiurids

10-14 years	8	7		1	1		9	8	
15-19 "	45	24	53.4	26	26	100.0	71	50	70.4
20-29 "	142	75	52.8	28	22	78.5	170	97	57.1
30-39 "	90	45	50.0	19	16	86.2	109	61	56.0
40-49 "	53	29	54.6	8	6		61	35	57.4
50-59 "	12	9		2	2		14	11	78.6
60 yrs & over	8	6		2	2		10	8	
Age unknown	41	39		3	1		44	40	
Total	399	234	67.1	89	76	85.4	488	310	63.4

TABLE III.

Age and Sex of Prisoners examined for Helminths
Parasitic in the Intestines. . .

Ankylostomes.

	Males			Females			Total		
	Exam-ined.	Pos.	P.C.	Exam-ined.	Pos.	P.C.	Exam-ined.	Pos.	P.C.
10-14 years	8	6		9	1		9	6	
15-19 "	45	15	28.9	26	23	85	71	34	47.8
20-29 "	142	82	43.6	28	16	54	170	77	45.3
30-39 "	90	36	40.0	19	11	58	109	47	43.1
40-49 "	53	23	43.4	8	4	50	61	27	44.3
50-59 "	12	4	33.3	2	2		14	6	42.8
60 years & over	8	3		2	2		10	5	50.
Age unknown	41	36		3	2		44	38	
Total	399	183	45.8	89	67	64.0	488	240	

Ascarids

10-14 years	8	2		1	0		9	2
15-19 "	45	12	26.6	26	11	42.3	71	23	32.4
20-29 "	142	54	38.0	28	13	57.8	170	67	42.9
30-39 "	90	40	44.5	19	7	36.8	109	47	43.1
40-49 "	53	16	30.2	8	4		61	20	32.8
50-59 "	12	5		2	1		14	6	42.8
60 yrs & over	8	4		2	2		10	6	
Age unknown	41	23		3	2		44	25	
Total	399	156	44.7	89	46	51.6	488	202	41.3

Trichiuridæ

10-14 years	8	7		1	1		9	8
15-19 "	45	24	53.4	26	26	100.0	71	50	70.4
20-29 "	142	75	52.8	28	22	78.5	170	97	57.1
30-39 "	90	45	50.0	19	16	84.2	109	61	56.0
40-49 "	53	29	54.6	8	6		61	35	57.4
50-59 "	12	9		2	2		14	11	78.6
60 yrs & over	8	6		2	2		10	8	
Age unknown	41	39		3	1		44	40	
Total	399	234	67.1	89	75	84.4	488	310	63.4

TABLE IV.

Results of Examination of Patients in the Jérémie Hospital for Helminths Parasitic in the Intestines.

No.	Total	Males	Females
Number examined	33	19	14
Positive for Ankylostomes	23	15	8
" " Ascarids	14	9	5
" " Trichurids	15	9	6

TABLE IV.

Results of Examination of Patients in the Térénie Hospital for Helminths Parasitic in the Intestines.

No.	Total	Males	Females
Number examined	33	19	14
Positive for Ankylostomes	23	13	8
" " Ascaridæ	14	9	8
" " Trichuridæ	15	9	6

TABLE V.

Examinations for Intestinal Protozoa in Carrefour Area, October, 1924.

Number of patients examined:		164
Positive for	Entameba histolytica	27
" "	Entameba coli	71
" "	Endolimax nana	6
" "	Iodameba Williamsi	5
" "	Giardia lamblia	14
" "	Chilomastix mesnili	9
" "	Balantidium coli	1

TABLE V.

Examinations for Intestinal Protozoa in Farmerstown Area, October, 1924.

Number of patients examined: ---------- 154

Positive for Endamoeba histolytica---------- 27

" " Endamoeba coli---------- 71

" " Endolimax nana---------- 6

" " Iodamoeba Williamsi---------- 5

" " Giardia lamblia---------- 14

" " Chilomastix mesnili---------- 9

" " Balantidium coli---------- 1

TABLE VI.

Examinations for Intestinal Helminths

in the Carrefour Area to

October 31st, 1924.

	Dist. 1	Dist. 2	Dist. 3	Total
Number examined	225	300	61	586
Pos. for Ankylostomes	52	90	3	145
" " Ascarids	25	58	6	89
" " Trichurids	79	46	12	137

TABLE VI.

Examinations for Intestinal Helminths

in the Quetelour Area to

October 31st, 1924.

	Dist. 1	Dist. 2	Dist. 3	Total
Number examined	235	300	61	586
Pos. for Ankylostomes	52	90	3	145
" " Ascarids	25	58	6	89
" " Trichuris	29	46	12	127

TABLE VII.

Results of the examination of blood smears for malaria parasites in Carrefour Area during October, 1924.

Number examined	79
Number positive	24
Plasmodium vivax	9
Plasmodium falciparum	18
Plasmodium malariae	12

TABLE VII.

Results of the examination of blood smears for malaria parasites in Cerro de Pasco Area during October, 1924.

Number examined	79
Number positive	24
Plasmodium vivax	9
Plasmodium falciparum	18
Plasmodium malariae	12

TABLE VIII

Results of the examination of the students of l'Ecole d'Agriculture for ova of intestinal worms.

Residence	Number examined	Positive for ankylostomes.	Positive for Ascarids	Positive for Trichiurids
Port-au-Prince	56	7	10	22
Léogâne	2	1	0	1
Cayes	3	1	0	1
Jacmel	10	0	0	4
Saint Marc	1	0	0	0
Cape Haitien	1	0	0	0
Total	73	9	10	29

TABLE VIII

Results of the examination of the students of L'Ecole d'Agriculture for Boys at Thiesville.

Residence	Tried	Positive Results.	Number Positive for Asc- aris Lumbricoides
Port-au-Prince	56	3	10
Leogane	2	1	0
Cayes	3	1	0
Jacmel	10	0	0
Saint Marc	1	0	0
Cape Haitien	1	0	0
Total	73	5	10

C. " Report of the Medical Entomologist.

1. In connection with the survey of disease conditions in Haiti with a view to preventing those of the greatest importance it is obvious that a knowledge of the prevalence of the insects which may act as vectors for these diseases is essential. This is particularly true in that it is already known that malaria is exceedingly prevalent, that filariasis exists, and that dengue is common among the foreign population of the capital city. A medical entomologist, Dr. William A. Hoffman, has therefore been provided by the International Health Board of the Rockefeller Foundation for the purpose of studying those insects which are known to transmit disease. His report follows:-

2. The object of the medical entomologist to study those factors in the epidemiology of disease in Haiti which have to do with the insect vectors and their environment and habits. Attention is to be especially directed to those factors which may have a bearing on future control operations.

3. The entomologist arrived in Haiti on July 19th, 1924, but a delay in the receipt of an automobile for his use delayed the initiation of effective work until about September 1st. In addition to an automobile, the entomologist is provided with a field laboratory and equipment for collection, breeding out, and dissecting mosquttoes and similar insects. He is provided with one assistant who is a Haitian without previous training and with only a primary education. This assistant has been trained to recognize and to differentiate mosquito larvae and to collect them as well as to assist in the technical procedures of the laboratory. It is expected that the work of the entomologist will follow in a general way the outline of the remainder of the survey, studying the same principal area and correlating the findings as regards insects with those of actual disease conditions.

4. During the interval between the arrival of the entomologist and the receipt of his automobile for independent transportation he devoted his time to a preliminary reconnaissance of the conditions of life and especially to conditions affecting insect life in the country. The mosquito breed-

6. " Report of the Medical Entomologist.

breeding conditions and their control were studied in Port-au-Prince and vicinity with Dr. Edwin Peterson and with the Health Officer of the city, Mr. Crain. Mosquito larvae and their environment were observed in a locality on the Plaine du Cul de Sac which has since been chosen as a secondary area for the study of anopheline breeding. The entomologist also accompanied the director on mapping expeditions and became familiar with water courses, water deposits, and cultivation in advance of the opportunity for doing independent work.

Studies in the principal area.

5. Studies in the principal area may be regarded as having begun on September 1st. They were greatly retarded during the month of October by the illness of the entomologist. During the period under consideration they have been confined to studies of mosquitoes and biting gnats. The greatest effort has been expended on the anophelines. The study of the anophelines is to be extended through a period of one year. Its chief purposes are:

1. To determine the chief breeding places of anophelines.

2. To determine the influence of anopheline density of the following factors.

   a. Season, including rainfall and condition of streams.

   b. Flora, from the standpoint of food, shade, protection from enemies, and possible injurious qualities.

   c. Fauna, predatory larvae and fish.

Procedure.

6. In order to attain the objects outlined above each portion of the area is carefully studied to locate all water deposits which might serve as breeding places for mosquitoes. Representatives of each class of water deposit are chosen as stations for study at regular intervals during the year. The intervals may be weekly,

breeding conditions and their control were studied in Portsmouth-Dayton and vicinity with Dr. Edwin Peterson and with the Health Officer of the city, Dr. Crain. Mosquito larvae and their environment were observed in a locality on the Plaine du Cul de Sac which has since been chosen as a secondary area for the study of anopheline breeding. The entomologist also accompanied the director on mapping expeditions and became familiar with water courses, water deposits, and cultivation in advance of the opportunity for doing independent work.

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1. To determine the chief breeding places of anophelines.

2. To determine the influence of anopheline density of the following factors.

a. Season, including rainfall and condition of streams.

b. Flora, from the standpoint of food, shade, protection from enemies, and possible injurious qualities.

c. Fauna, predatory larvae and fish.

Procedure.

6. In order to obtain the objects outlined above each portion of the area is carefully studied to locate all water deposits which might serve as breeding places for mosquitoes. Representatives of each class of water deposit are chosen as stations for study at regular intervals during the year. The intervals may be weekly,

bi-weekly, or monthly. In many cases the intervals will vary with the season or with the necessities of the survey. At the end of October all of important breeding places of anophelines in the region known as Mariani were known and the regions of Carrefour, Thor, Mahotière, Montfleury and Trois Rigoles were being studied.

7. Sections for study have been selected representing the following classes of water deposits:

Rice fields	Mariani	2	stations
	Carrefour	1	"
	Thor	1	"
	Mahotière	1	"
	Région de Thor	1	"
Irrigation Ditches	-Mariani	1	"
Temporary deposits in new cultivation:	Mariani	1	"
	Thor	1	"
Springs	Mariani	2	Stations
	Phare	1	"
Tree Holes	Mariani	2	"

8. During the period under consideration the stream flow was at its highest, the irrigation ditches were full nearly every day and in general had a rapid flow. The rice fields were almost continuously flooded and usually showed abundant breeding of anophelines while the finding of larvae in the streams, even in back water pools was rare. The larvae obtained from the rice invariably developed into A. albimanus. A few larvae of a different type were obtained from an irrigation ditch and from a temporary deposit in a sweet potato field and two individuals of

A. grabhami were bred out from them. It is believed that is the first recorded collection of this mosquito in Haiti.

9. The determination of relative anopheline density by catching of adult mosquitoes has given considerable difficulty. Efforts to find the hiding place of the adults in the daytime have been futile. Searches in houses during the day have at all times been negative. The earliest catches were made by catching the mosquitoes which attacked a single individual who was used as a bait. Later a group of persons was used with success and it was found that excellent catches could be made between the hours of seven and midnight in the railway station of Mariani which is also a sort of informal hotel. This did not solve the problem of obtaining comparative figures for different regions in the area. During the last week of October, upon the suggestion of Dr. H. H. Howard, a horse was used as bait and a series of four representative stations were selected in that portion of the area now under study. Catches are made in all of the four stations on the same evening, the catchers remaining a half-hour in each station.

10. The determination of the percentage of mosquitoes infected with malaria parasites in a given region is also of importance. Little has been accomplished as yet in this regard. The total numbers of mosquitoes caught have been small and it has been found difficult to keep them alive in the laboratory for a sufficient number of days to permit an accurate dissection.

Studies in secondary areas.

11. One secondary area for the purpose of mosquito study has been selected in the Plaine du Cul de Sac because of certain very favorable features presented. It is located on the Saint-Marc road between the Grande Rivière du Cul de Sac and Bon Repos. It consists of a well-shaded spring and the stream leading from it. It is selected on account of the presence of Potomogeton and ceratophyllum which apparently protect the anopheline larvae and permit abundant breeding in spite of a large number of fish which are present.

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Studies at this place were begun in August and the varying conditions of breeding have been traced since then.

Studies on Insects other than Mosquitoes.

12. There are numerous causes of myiasis of wounds in Haiti and there are occasional cases of intestinal myiasis reported, An effort is being made to collect and identify the larvae from these cases. Thus far the larvae received for the purpose have been too young for a complete identification.

13. It has been reported from Santo Domingo that at certain seasons there is prevalent a conjunctivitis which is believed to be caused by an oscinid fly. Much has been heard of a similar condition in Haiti. Efforts to find definite cases or outbreaks have thus far been unsuccessful.

14. Adult mosquitoes and immature stages are being collected and preserved for future identification. It is hoped that is this way a record of the mosquito fauna of Haiti can be made."

ACCOMPLISHMENTS FOR THE YEAR.

Routine sanitation and treatment of the sick and injured have been continued as far as limited funds would permit and quarantine has been carried out as usual in all large seaport towns.

Special accomplishments are as follows:

PORT-AU-PRINCE.

A. Sanitation.

1. Course of instruction for Sanitary Inspectors and Laboratory technicians.

2. Intensive survey of Anopheles breeding places followed by a continuous control over these areas. All ravines have been graded and are kept free of rubbish and vegetation, permitting the water to flow freely in well defined streams, filling and drainage of swampy tracts along shoreline.

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This campaign is resulting in a steady decrease in the incidence of malaria.

3. Extension of Sanitation to several communes in the district of Port-au-Prince.

B. Hospital.

1. At the Asile Communal a chapel has been erected at a cost of $2,000.oo and several minor additions made.

2. Haitian General Hospital -

(a) Daily average patients increased from 211 in 1923, to 248 in 1924.

(b) Main structures repaired and painted and some out buildings rebuilt. Also a considerable amount of work done on roads, walks and lawns.

(c) New outpatient clinical building completed.

(d) Ten (10) Nurses graduated.

CAPE HAITIAN.

A. Sanitation.

1. Improvements to market and water supply and in mosquito control.

2. Progress in enforcing the building of proper latrines.

B. Hospital.

1. Rural clinics conducted in 17 places with from 200 to 400 consultations per month and 1,000 to 2,000 dressings per month. Also salvarsan clinics at four rural centers.

2. Transfer of Justinien Hospital to Government ownership.

3. Garage improved.

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3. Garage improved.

4. Outpatient building completed.

5. Operating building completed.

6. Private ward completed.

7. Old hospital buildings reconstructed.

8. New outbuildings (kitchen, latrines, etc.)

9. Modern X-ray outfit installed.

10. Surgical ward started.

11. Well equipped laboratory established.

PORT-DE-PAIX.

A. Sanitation.

1. Enforcement of regulations relative to screening of foodstuffs for sale and the building of latrines.

2. Repairs to public markets and abattoir.

B. Hospital.

1. Establishment of a Rural Dispensary at Jean-Rabel and a Rural clinic at St. Louis du Nord.

2. Transfer of the uncompleted Hospice Immaculée Conception to this Service.

GONAIVES.

A. Sanitation.

1. Improvements to markets and abattoir.

B. Hospital.

1. Rural clinics held regularly in six (6) places.

2. Favorable progress being made toward transfer of hospital to the Government.

4. Outpatient building completed.

5. Operating building completed.

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SAINT-MARC.

A. Sanitation.

1. An assistant Public Health Officer stationed on La Gonave.

B. Hospital.

1. Rural clinics held regularly in 5 places.

2. Hospital repaired and altered to slightly increase its capacity.

HINCHE.

A. Sanitation.

1. Sanitation started in Hinche and in a few of the towns in this district.

B. Hospital.

1. A 100 bed hospital about 90 per cent completed.

PETIT-GOAVE.

A. Sanitation.

1. Extension of sanitary activities to the towns of Grand-Goave, Miragoane, Anse-à-Veau and Baradères.

B. Hospital.

1. Usual routine care of the sick.

JEREMIE.

A. Sanitation.

1. Market remodeled.

2. Continued campaign to enforce the building of latrines, 95 having been constructed during the year.

SAINT-MARO.

A. Sanitation.

1. An assistant Public Health Officer stationed on La Goyave.

B. Hospital.

1. Rural clinics held regularly in 5 places.

2. Hospital repaired and altered to slightly increase its capacity.

HINCHE.

A. Sanitation.

1. Sanitation started in Hinche and in a few of the towns in this district.

B. Hospital.

1. A 200 bed hospital about 80 per cent completed.

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A. Sanitation.

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B. Hospital.

1. Usual routine care of the sick.

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A. Sanitation.

1. Market remodeled.

2. Continued campaign to enforce the building of latrines, 95 having been constructed during the year.

B. Hospital.

1. Completion of 3 isolation wards.

2. Construction of a chapel commenced.

LES CAYES.

A. Sanitation.

1. Usual routine.

B. Hospital.

1. Rural clinics opened in 8 places.

2. New outpatient building nearly completed.

3. Negotiations completed for purchase of a portion of the grounds of the present hospital and plans completed for the erection of a 150 bed hospital.

JACMEL.

A. Sanitation.

1. The existing water supply has been improved.

B. Hospital.

1. Rural clinics are held regularly in seven (7) places and hundreds of yaws cases are being treated.

2. Yaws survey of this district.

3. Title to the hospital and additional land acquired.

GENERAL.

1. Enough additional U. S. Naval personnel secured to place at least one medical officer and one hospital corpsman in each district with the exception of Petit-Goave.

B. Hospital.

1. Construction of 3 isolation wards.

2. Construction of a chapel commenced.

LES CAYES.

A. Sanitation.

1. Usual routine.

B. Hospital.

1. Rural clinics opened in 3 places.

2. New outpatient building nearly completed.

3. Negotiations completed for purchase of a portion of the grounds of the Sisters Hospital and plans completed for the erection of a 150 bed hospital.

JACMEL.

A. Sanitation.

1. The existing water supply has been improved.

B. Hospital.

1. Rural clinics are held regularly in seven places and hundreds of cases are seen and treated.

2. Yaws survey of this district.

3. Title to the hospital and adjacent land acquired.

GENERAL.

1. Seven additional U. S. Naval personnel secured to place at least one medical officer and one hospital corpsman in each district with the exception of Petit-Goave.

2. Central office reorganized.

3. Passage of a personnel law authorizing the President of Haiti to commission Haitian Physicians in the Public Health Service.

4. Establishment of a budget system.

5. A system of more frequent and extensive inspections of all parts of the Republic.

6. Continued progress toward ownership of all hospitals, dispensaries and Public Health Offices.

7. An Officer from the U.S.Public Health Service in the capacity of adviser in all matters pertaining to Federal Quarantine.

8. Establishment of monthly morbidity statistical reports.

9. Establishment of a 10th Public Health District, that of Hinche.

10. The International Health Board of the Rockefeller Foundation is making a medical survey of a representative section of the country.

11. Vaccination of all unprotected school children.

12. Trial of oral administration of typhoid vaccine at Port-au-Prince and Cape Haitian.

13.Land acquired for erection of Hospital for the Insane.

14. A monthly conference of Public Health Officers instituted.

PLANS FOR THE FUTURE.

A program of expansion has been drafted covering the period of the next three years and is shown in the following table:

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A program of expansion has been drafted covering the period of the next three years and is shown in the following tables:

LIST OF CREDITS FOR THE DEVELOPMENT AND OPERATION OF THIS SERVICE THROUGH THE FISCAL YEAR 1927-28

No.	Item.	Extraordinary Credits 1924-25	1925-26	1926-27	1927-28	Total.
1.	Twenty five (25) Rural dispensaries	34,000.00	38,250.00	34,000.00	-	106,250.00
2.	General improvements in sanitation	71,000.00	300,000.00	400,000.00	479,000.00	1,250,000.00
4.	Insane Asylum (400 beds) Gressier	-.--	425,000.00	-.--	-.--	425,000.00
5.	Reservoir, Haitian General Hospital	14,000.00	-.--	-.--	-.--	14,000.00
6.	Sewage system, Haitian General Hospital	12,500.00	-.--	-.--	-.--	12,500.00
7.	Replacement & new wards, H. G. Hospital	145,000.00	-.--	35,000.00	-.--	180,000.00
8.	Isolation ward, Haitian General Hospital	-.--	40,000.00	-.--	-.--	40,000.00
9.	Garage & Storehouse, Haitian General Hospital	-.--	-.--	40,000.00	-.--	40,000.00
10.	X-ray outfit, Haitian General Hospital	-.--	15,000.00	-.--	-.--	15,000.00
11.	Chapel, Haitian General Hospital	22,500.00	-.--	-.--	-.--	22,500.00
12.	Quarantine Station, Port-au-Prince	-.--	-.--	-.--	250,000.00	250,000.00
13.	Isolation ward, Hospital at Hinche	-.--	-.--	40,000.00	-.--	40,000.00
14.	Chapel, Hospital at Hinche	-.--	10,000.00	-.--	-.--	10,000.00
15.	Isolation Ward, Hospital at Cape Haitian	40,000.00	-.--	-.--	-.--	40,000.00
16.	Completion of Hospital at Port-de-Paix	100,000.00	-.--	-.--	-.--	100,000.00
17.	Additions to Hospital at Gonaives	-.--	-.--	12,500.00	-.--	12,500.00
18.	Additions to Hospital at St. Marc	15,000.00	-.--	-.--	-.--	15,000.00
19.	New Hospital at Petit-Goave	-.--	-.--	75,000.00	-.--	75,000.00
20.	Additions to Hospital at Aux Cayes	200,000.00	-.--	200,000.00	-.--	400,000.00
21.	Dispensary at Jacmel	35,000.00	-.--	-.--	-.--	35,000.00
22.	Repairs & additions to Hospital at Jacmel	20,000.00	-.--	-.--	-.--	20,000.00
23.	Isolation ward at Jacmel	40,000.00	-.--	-.--	-.--	40,000.00
24.	Lazaretto (lepers) on La Gonave	-.--	-.--	-.--	400,000.00	400,000.00
25.	Supplies, medical & surgical	250,000.00	300,000.00	325,000.00	375,000.00	1,250,000.00
26.	Gasoline, oils & motor parts	-.--	35,000.00	40,000.00	50,000.00	125,000.00
27.	New equipment & replacement on motor trucks	25,000.00	40,000.00	60,000.00	75,000.00	200,000.00
28.	Oil, kerosene & apparatus for sanitation	15,000.00	15,000.00	20,000.00	-.--	50,000.00
29.	Wire screening for all hospitals	-.--	60,000.00	60,000.00	60,000.00	180,000.00
30.	Public Health Office at Cape Haitian	-.--	-.--	12,500.00	-.--	12,500.00
31.	Public Health Office at Port-de-Paix	-.--	-.--	7,500.00	-.--	7,500.00
32.	Public Health Office at Gonaives	-.--	7,500.00	-.--	-.--	7,500.00
33.	Public Health Office at Saint-Marc	-.--	-.--	7,500.00	-.--	7,500.00
34.	Public Health Office at Jeremie	-.--	-.--	7,500.00	-.--	7,500.00
35.	Public Health Office at Aux Cayes	-.--	12,500.00	-.--	-.--	12,500.00
	Grand Total	1,039,000.00	1,298,250.00	1,376,500.00	1,689,000.00	5,402,750.00
	Regular Budgetary Credits		2,363,000.00	2,922,000.00	3,365,000.00	8,650,000.00

List of Credits for the Development Program

Item	Credits
Grand Total	$11,039.00
Regular Budgetary Credits	

Item 1 of the above 3 year expansion program of the Public Health Service is for twenty-five rural dispensaries. These are to be simple structures. In them the doctor can keep the necessary medicines and instruments for treating the rural communities when making his regular trips. Practically every place marked with a red circle on the appended district map of Haiti is without a physician, and there are thousands of people in these communities who go through life without ever seeing a physician. The Haitian physician will not settle in these communities because he would starve trying to earn a living. Many of these communities are visited periodically by doctors of Service d'Hygiène who hold clinics. It is thought that in many of these places it would eventually be possible to place a Haitian physician who with his Government salary, combined with what little he could earn outside, would find it worth while to make the community his permanent home. It is recommended that these dispensaries be built at the rate of 8 or 9 each year until the entire system is completed. This dispensary system would seem to be the best, and, in fact, the only logical way of getting medical attention to the great mass of people of the Republic. At present we have two dispensaries with Haitian physicians in charge. These are at Mirebalais and Grande-Rivière du Nord. It is estimated that these buildings exclusive of the land would cost about 4,000.oo gourdes each.

Item 2. Permanent sanitary improvements.- After a careful survey as to the breeding places of anopheles mosquitoes in Port-au-Prince, it has been found that the principal offensive areas in Port-au-Prince proper are the gullies traversing the town from the hillsides, and the shore line extending from Bizoton to the dock.

To the northeast of the city in the vicinity of the Aviation Field and Rifle Range there is another area peculiarly suited for the breeding of anopheline mosquitoes.

Temporary measures for the control of mosquito breeding are being carried out right along with distinct signs of success.

In order, however to insure permanent results it is essential that permanent improvements

be instituted. This holds particularly true with regard to Port-au-Prince proper. The Public Health Service is rapidly filling up all low lying areas with city refuse, and draining the swampy sections until filling can be accomplished. Gutters, ditches and drains are kept open and oiled regularly. These latter demand the greatest attention during the rainy season as every heavy shower ruins the work that has been done.

In order to insure permanent results it is apparent that an efficient method of surface draining should be instituted over the entire city. This is of particularly marked importance in sections where anopheline mosquitoes are breeding. Hence it is believed to be sound policy to begin the improvements of surface drains along the shore line between the south end of town and the dock.

The estimate submitted by Public Works Department for this first step in permanent improvements amounts to 71,000.oo gourdes. It is earnestly requested that this sum be allotted during the ensuing fiscal year.

It is believed that during the three year period under consideration steps should be taken to institute permanent improvements of this nature in as many towns as possible especially in Port-au-Prince, Cape Haitian, Aux Cayes, Jacmel, Jérémie and Petit-Goave. The sum of 1,250,000.oo gourdes is asked for to be distributed amongst the above towns according to their needs.

Item 3 of the original draft has recently been omitted.

Item 4. Insane Asylum is urgently needed. There is no justification for putting these unfortunate people into prison. The only reason in sight is that the Republic has not had the necessary funds to build and maintain an institution which will take care of them. The Government has the necessary land for this institution at Gressier, and the Sanitary Engineer earnestly requests that this land be turned over to Service d'Hygiène at once, and the necessary funds be provided to build and maintain such a plant as

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The estimate submitted by Public Works Department for this first step in permanent improvements amounts to $1,000.00 gourdes. It is earnestly requested that this sum be allotted during the ensuing fiscal year.

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it is necessary to decently care for the insane. The prisons of Haiti are among the cleanest and best institutions of their kind in the world, but they are not places to house and treat insane people. No other civilized State in the world keeps its insane in with prisoners. Now the actual number of insane is far and away greater than the actual number in the prisons. The Medical Director, Gendarmerie d'Haiti, is quoted as follows:-

"On August 31st, 1924, there were ninety three (93) insane persons confined in the prisons of Haiti. The average complement of insane for the first eleven months of the fiscal year 1924 was 86. These, however, include only those who are a menace to the public safety. Owing to the crowded condition of the prisons only those cases which are a menace to the public safety can be admitted.

In regard to the probable number of insane in Haiti, that, of course, can only be approximated. Roughly speaking I would estimate the present number of insane in the prisons as not more than ten per cent of the total insane in the Republic; this would give a total of 930, which is far below the number obtained by comparison with the insane in New York State.

A more accurate estimate can possibly ba made by comparison with the figures given by the State Hospital Commission of the State of New York for the fiscal year ending of 30 June 1920. (This is the last report available). The estimated population of Haiti is 2,500,000.

In 1889, New York had 261.8 insane persons for each 100,000 of population; in 1920, she had 392.7 insane persons for each 100,000 of population; the increase from 1889 to 1920 was gradual, the yearly increase being rather uniform. In 1904, she had 339.7 insane per 100,000 of population.

Based on the 1889 figures there would be 4,545 insane in Haiti; based on the 1920 figures there would be 9,817.5; and based on an intermediate year, say 1904, there would be 8,492.5."

We are asking for 425,000.oo gourdes which is thought sufficient to erect buildings which would care for 400 inmates. This one institution

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In 1889, New York had 281.8 insane persons for each 100,000 of population; in 1920, she had 392.7 insane persons for each 100,000 of population; the increase from 1889 to 1920 was gradual, the yearly increase being rather uniform. In 1904, she had 339.7 insane per 100,000 of population.

Based on the 1889 figures there would be 7,343 insane in Haiti; based on the 1920 figures there would be 9,817.5; and based on an intermediate year, say 1904, there would be 8,482.5."

We are asking for 125,000.00 pounds which is thought sufficient to erect buildings which would care for 500 inmates. This one institution

should be planned so as to care for all the insane of Haiti. The farm should therefore be large (at least 150 acres), it should be well fenced in order to decrease the chance of escape. Some types of insanity are best treated by certain forms of labor and this is why a farm is asked for upon which to build the asylum. An insane asylum costs a lot of money to maintain. I should think, when 400 patients are housed in the institution that for food, staff and attendents each inmate would cost 1.25 gourde per day which would mean 182,500 gourdes per year.

Item 5 and 6 should be provided for the Haitian General Hospital for the following reasons. A reservoir would make the institution independent of the varying water pressures in the Port-au-Prince system, it would be economical of water, and it could be used to operate the sewage system requested in item 6. For such a large number of people as are gathered together at the Haitian General Hospital, it is impossible to successfully operate a pit-privy or one of the septic tanks. The city's hospital should be the show place of the Republic as far as sanitation is concerned. With the present arrangement this Hospital is not a place we would care to brag about as regards its nightsoil removal system. We have there the insanitary combination of unscreened privies and unscreened wards and mess halls, dysenteric and typhoid patients and the ever present fly as inoculator. Such a state of affairs would be remedied by a water carriage sewage system. The Republic's best hospital should have this, and if needs be a sewer should be laid to the harbor in order to take care of it.

Item 7. A new structure of two stories (for economy's sake) should be erected to replace the building across the Quadrangle from the Executive building. This old building is in a horrible state of repair and should be replaced by a modern hospital building. The building is now in danger of collapsing but is needed to house patients and hence can not be abandoned. The erection of this building would necessitate the removal of the hospital chapel to another place in the grounds. The Chapel (Item 11) is not only in a bad state of repair but is situated on ground which should be occupied by wards.

Hence it is desirable to tear it down and build a new one further over to the east of the hospital grounds. It is thought that increasing demands upon this hospital will require the addition of at least two new wards during the coming three years, thus providing for 500 patients. It is thought that 180,000.oo gourdes will cover the items mentioned under 7.

Items 8, 13, 15 and 23 call for isolation wards at the hospitals, (Haitian General, Cape Haitian, Hinche and Jacmel). Every Haitian hospital should have an isolation building for contagious cases. None of our hospitals have facilities for isolation of such cases as Smallpox, measles, or leprosy. They usually handle such cases by means of tents and shacks which method is not at all satisfactory.

Item 9. Garage, Haitian General Hospital. Present accomodations for autos which are rapidly replacing animal drawn vehicles dates back many years, consist of a lean-to of corrugated roofing resting on poles and the hospital enclosure wall. There is no storage place for coffins, oils, certain heavy tools, etc. except in the old horse stalls adjacent to the shelter used for motor vehicles.

Item 10. Present equipment loaned through courtesy of Secretary of Navy Denby consists of portable bedside set which is efficient for ordinary fracture, dental and sinus work, etc. With the construction of new clinic building, adequate space is available for an X-ray outfit suitable for treatment purposes flouroscopic, and abdominal and thoracic work.

Such an outfit should be installed as soon as funds are available.

Item 12. Quarantine Station, Port-au-Prince. The estimate for this construction was made by a former Sanitary Engineer. We have thought best to let this figure stand until the U.S.Public Health Service Quarantine Officer can determine the needs of Haiti as regards Federal Quarantine for the entire Republic. Port-au-Prince would of course be the logical location of a detention station and disinfection dock. However the

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a new one further over to the east of the hos-
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matter of disinfection of ships has recently been greatly simplified and it is advisable that an expert in ship's Quarantine pass upon the needs of Haiti as a whole in this matter as well as in the matter of revising the Quarantine laws.

Item 14. Service d'Hygiène depends upon the Catholic sisters for service in all its hospitals. They render service of a unique and valuable order. It is advisable that each of our Public Health Hospitals be provided with a Chapel for the use of the Hospital Community. As Hinche is an isolated place it is felt that a chapel should be an early addition to this inland hospital.

Item 16. There is a miserable little shack at Port-de-Paix which passes for a hospital. It is no suitable place to keep patients nor to ask sisters to serve in. The place is but little better than nothing at all. Some time ago, some of the more public spirited citizens of Port-de-Paix attempted to erect a hospital. They finished the four walls of the structure and put a roof on it. They also did a considerable amount of excavation and erected an entrance way consisting of cement steps. They were unable to complete the structure. The recent earthquake did some damage to the building and entrance way which will have to be repaired. We are hoping to secure the transfer of this building and grounds to the Government. It would serve our purpose very well but would require to have water brought in, the building completed, earthquake damage repaired and toilets provided for. It is estimated that it would cost at least 100,000.oo gourdes to get this plant in working order after it is transferred. It would seem to be worth while however, as there is no hospital in this whole isolated district and the entire Public Health district of Port-de-Paix is in a sad state of unorganization as regards the care of the sick.

Item 17. The Hospital at Gonaives while owned by the Commune is administered by Service d'Hygiène. This is a good little hospital, but owing to the fact that the Public Health Service has not been able, up to the present time to place a Medical Officer there, the hospital has not worked to a high degree of efficiency. A Medical Officer

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is now being placed at Gonaives as Public Health Officer and it is certain that this hospital will be operated to very much better effect. Service d'Hygiène hopes to take over this hospital within the next two or three years and we have listed an item of 12,500.oo gourdes for an addition at that time. This hospital among other improvements needs an isolation ward.

Item 18. The Hospital at St. Marc is just now being transferred to Service d'Hygiène. It is in need of several additions, one being an operating building and another a dispensary.

Item 19. New Hospital, Petit-Goave. This district should have a small hospital. At present there is a small place where a number of unfortunates are kept. These migrate to this hospital usually as physical wrecks and in order to find a place to pass out. A small dispensary is in operation and there should also be a small hospital for acute cases.

Item 20. This is for the purchase of land now the property of the Church and for the erection of a hospital of 150 beds. The Hospital at Cayes has been administered by Service d'Hygiène for a long time. The question has recently come up of the Government's furnishing money to make improvements in the hospital building and complete a dispensary already started at this hospital. As it is not the Government's policy to finance private or church enterprises of this kind, it was thought advisable to purchase enough land in the present holdings of the Church at Cayes to erect a Government hospital upon, this to include the uncompleted dispensary. The Bishop of Cayes has agreed to submit a price for a suitable part of the present hospital grounds and it is thought that 400,000.oo gourdes will cover the cost of this land and the erection of necessary buildings.

Item 21. Dispensary Jacmel. This is a necessary addition to the Jacmel Hospital. Just as the Haitian General and Cape Haitian and Cayes plants have found the dispensary necessary to relieve hospital of out-patients, so it is necessary at Jacmel. Item 22, repairs and additions Hospital, Jacmel, are:

1. Improvements of sister's quarters.

2. Improvements of Hospital proper.

3. Improvements of operating room.

4. Improvements of kitchen.

5. Improvements of sewage disposal system.

Item 24. There is an old law of 1906 providing for the establishment of a lazaretto. It is thought that up to now this law was disregarded because of insufficient funds to put it into effect. There are in the Republic a considerable number of lepers. Some few of these are taken care of in hospitals, and the records of the hospitals will show a considerable number who have, from time to time received treatment. It is proper for Haiti to exercise a certain control over confirmed lepers, for the disease is contagious. Most other Governments have found it best to have a leper colony upon some convenient island where the cases may be isolated and the disease studied and treated. In the opinion of the Sanitary Engineer, Haiti has an excellent place for such a colony at Anse-à-Galets, on Gonave Island. When the medical survey of Haiti is completed it will be possible we think, to give an estimate of the probable number of lepers. We should, at that time take steps to enact a commitment law for lepers, and set aside the funds necessary to provide the machinery for putting the law into effect. Four Hundred Thousand gourdes (400,000.oo) is a low estimate for making the necessary improvements for the establishment of such a colony. It would involve the construction of a suitable pier, the erection of at least four buildings and provision for an adequate water supply. It is thought that this work might best be delayed to the fiscal year 1926-27 or 1927-28.

Item 25. Supplies, medical and Surgical. 1,250,000.oo gourdes. For the purchase of surgical and medical supplies and salaries for increase in personnel, etc. The expenditure for the above purpose during the past three years was 626,317.70 gourdes. It is understood that approximately the latter amount will still be available from

1. Improvements of master's quarters.

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3. Improvements of operating room.

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budgetary funds during the next three years, which would approximately treble the funds available under the above heading.

Item 26. Gasoline, Oil and miscellaneous. 125,000.oo gourdes. For purchase of gasoline, oil, spare parts and other expenses in connection with the upkeep of the garage and motor vehicles. The above is not to be supplemented by budgetary funds.

Item 27. New equipment and replacement on motor vehicles. There are at present twenty six (26) motor vehicles in the Service. Under the proposed expansion more new motor vehicles will be required and as a number of the Ford trucks have been in use for a number of years it will be nescessary in the interest of economy to replace them.

Item 28. Larvicidal measures. The natural conditions found in Haiti, coupled with the tremendous downpour of rain during certain seasons render it absolutely necessary to be at all times prepared for the control of mosquito breeding areas by the use of such temporary measures as kerosene and crude oil. The estimate of Fifty thousand (50,000.) gourdes for the three year period in question it is thought will cover the needs of the various towns of the Republic.

Item 29. Every Public Health Hospital should be properly screened. At present there is no screening in any hospital in Haiti. Many of the diseases with which we deal here are insect borne. It is possible for our hospitals to actually act as sources of infection, for they treat fly borne and mosquito borne diseases in wards which are unscreened and along with these patients, these capable of infection by the first mentioned insect-transmitted diseases. It is thought that 180,000.oo gourdes would provide for the screening of all hospitals and its upkeep for 3 years.

Items 30, 31, 32, 33, 34 and 35 are for Public Health Offices at Cape Haitian, Port-de-Paix, Gonaives, Saint-Marc, Jérémie and Aux Cayes.

At present the Government is renting space in each of these towns and also in Port-au-Prince for its Public Health Offices. In the near future, we hope to have space enough at Headquarters of Service d'Hygiène for the Port-au-Prince city office. If the Government plans to erect buildings in the several towns mentioned for housing all federal offices, the Public Health Officer could be taken care of in that building but if such is not the case, it would seem wise to build our own offices for this purpose and save the expense of rental.

Lastly, to summarize, plans for the future contemplate the following:-

1. The improvement of all existing hospitals.

2. The building and operation of Twenty-five (25) dispensaries.

3. The development of an extensive system of rural clinics, mobile laboratory - dispensaries to be used where roads will permit.

4. Continued cooperation with the International Health Board.

5. The establishment of a division of sanitation with extension of sanitation to the smaller towns as fast as funds will permit.

6. The training of Haitian Physicians for the Public Health Service.

7. Improvement of Federal Quarantine and establishment of one or more quarantine stations.

8. Inspection of schools.

9. Construction of a 400 bed hospital for the Insane.

10. Segregation of Lepers.

RECOMMENDATIONS.

1. That the provisions of the three year program of expansion as outlined above under "Plans for the Future" be made accomplished facts.

2. That the Budget for the next fiscal year carry as a minimum $472,600.00 for maintenance of this Service.

C. S. Butler,

C. S. Butler,
Commander (MC), U. S. Navy,
Sanitary Engineer of Haiti.

RECOMMENDATIONS.

1. That the provisions of the three year program of expansion as outlined above under "Plans for the Future" be made accomplished facts.

2. That the Budget for the next fiscal year carry as a minimum $172,800.00 for maintenance of this Service.

C. S. Butler,

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Commander (MC), U. S. Navy,
Sanitary Engineer of Haiti.

RÉPUBLIQUE D'HAITI
SERVICE NATIONAL D'HYGIÈNE PUBLIQUE
Carte des Districts - 1er Octobre 1924
LÉGENDE:
DIVISION DES DISTRICTS
BUREAU PRINCIPAL
DISPENSAIRES
ROUTES
Port-au-Prince au Cap-Haïtien
Kilomètres
P.-au-P. 45 Arcahaie 98 53 St. Marc 172 127 74 Gonaïves 201 156 103 29 Ennery 228 183 130 56 27 Plaisance 249 204 151 77 48 21 Limbé 275 230 177 103 74 47 26 Cap-Haïtien 304 259 206 132 103 76 55 29 Le Trou 312 267 214 140 111 84 63 37 8 Terrier Rouge 346 301 248 174 145 117 96 71 42 34 Ouanaminthe
Port-au-Prince aux Cayes à l'Anse à Veau à Trouin
Kilomètres
P.-au-P. 32 Léogane 71 39 Petit-Goâve 93 61 22 Miragoane 103 71 32 10 St Michel 140 108 77 47 37 St Aquin 201 169 130 108 98 61 Cayes 127 95 56 34 24 Anse à Veau 151 119 80 56 Petit Trou 48 16 Cf. Fauché 71 34 22 Trouin
Port-au-Prince à Hinche à Port-de-Paix
Kilomètres
P.-au-P. 172 Gonaïves 201 29 Ennery 230 58 29 St Michel 252 90 61 32 Maïssade 278 106 77 48 16 Hinche 206 34 50 Gros Morne 256 84 Port-de-Paix
Port-au-Prince à Belladère à Hinche
Kilomètres
P.-au-P. 18 Pt. Beudet 53 35 Mirebalais 82 64 29 Las Cahobas 112 94 59 30 Thomonde 130 112 77 48 18 Hinche 110 92 57 28 5 Belladère 115 97 62 33 Front. Dominic. 365 367 332 303 275 270 Sto. Domingo
APPROUVE
C.S. Butler.
INGÉNIEUR CHARGÉ DU SERVICE NATIONAL D'HYGIÈNE PUBLIQUE
PTE. OUEST
PHARE EN CONSTRUCTION
ILE DE LA TORTUE
PTE. EST.
PHARE MOLE ST. NICOLAS
JEAN RABEL
PORT DE PAIX
ST LOUIS DU NORD
LE MOLE
BOMBARDOPOLIS
BAIE DE HENNE
ANSE ROUGE
TERRE NEUVE
BORGNE
SAYEUX
PORT MARGOT
LIMBE
CAP HAITIEN
PHARE PT. PICOLET
MONTE CHRISTI
DONDON
PILATE
L'ACUL
MILOT
CITADEL
GRANDE RIVIERE
ACUL SAMEDI
LASSALE
DAJABON
GONAIVES
ST. MICHEL
ST. RAPHAEL
VALLIERE
RANQUITE
SAVANETTE
PIGNON
CARICE
DESSALINES
MARTA ERMITA
PETITE RIVIERE
MAISSADE
HINCHE
CERCA CARVAJAL
LA MIEL
CERCA LA SOURCE
ST. MARC
VERETTES
SAVANE A ROCHES
CAP ST. HAITI
CHAPELLE
THOMONDE
THOMASIQUE
BANICA
MONT ROUIS
MORNE D'HAITI
PTE. OUEST
LES ETROITS
ILE DE LA GONAVE
ANSE-A-GALET
PT. A RAQUETTE
PHARE
BANC DES ARCADINS
ARCAHAIE
MIREBALAIS
LAS CAHOBAS
BELLADERE
COMENDADOR
CABARET
TERRE ROUGE
PHARE DU CAP DE DAME MARIE
ABRICOTS
DAME MARIE
JEREMIE
ANSE D'HAINAULT
Sources Chaudes
CORAIL
FESTEL
PLYMOUTH
PHARE BANC DE ROCHELOIS
PHARE PT. ISLET
PORT BEUDET
CROIX DES BOUQUETS
PORT AU PRINCE
GANTHIER
LAS LAJAS
PETION VILLE
FD. PARISIEN
JIMANI
LAC ENRIQUILLO
KERSKOFF
FURCY
FDS VERRETTE
TIBURON
CANAGUANE
LES ANGLAIS
CHARDONNIERES
PORT A PIMENT
COTEAUX
CAYES
CAMP PERRIN
CORAILLON
ST LOUIS
AQUIN
MIRAGOANE
ST. MICHEL
PETIT GOAVE
GRAND GOAVE
CARREFOUR FAUCHE
TROUIN
St. Jacques
BAINET
JACMEL
MARIGOT
CAP JACMEL PHARE
BAINET
COTES DE FER
BALTROU
Colline des Cèdres
GRAND GOSIER
ANSE A PITRE
LA VACHE
PHARE
PTE. ABACOU
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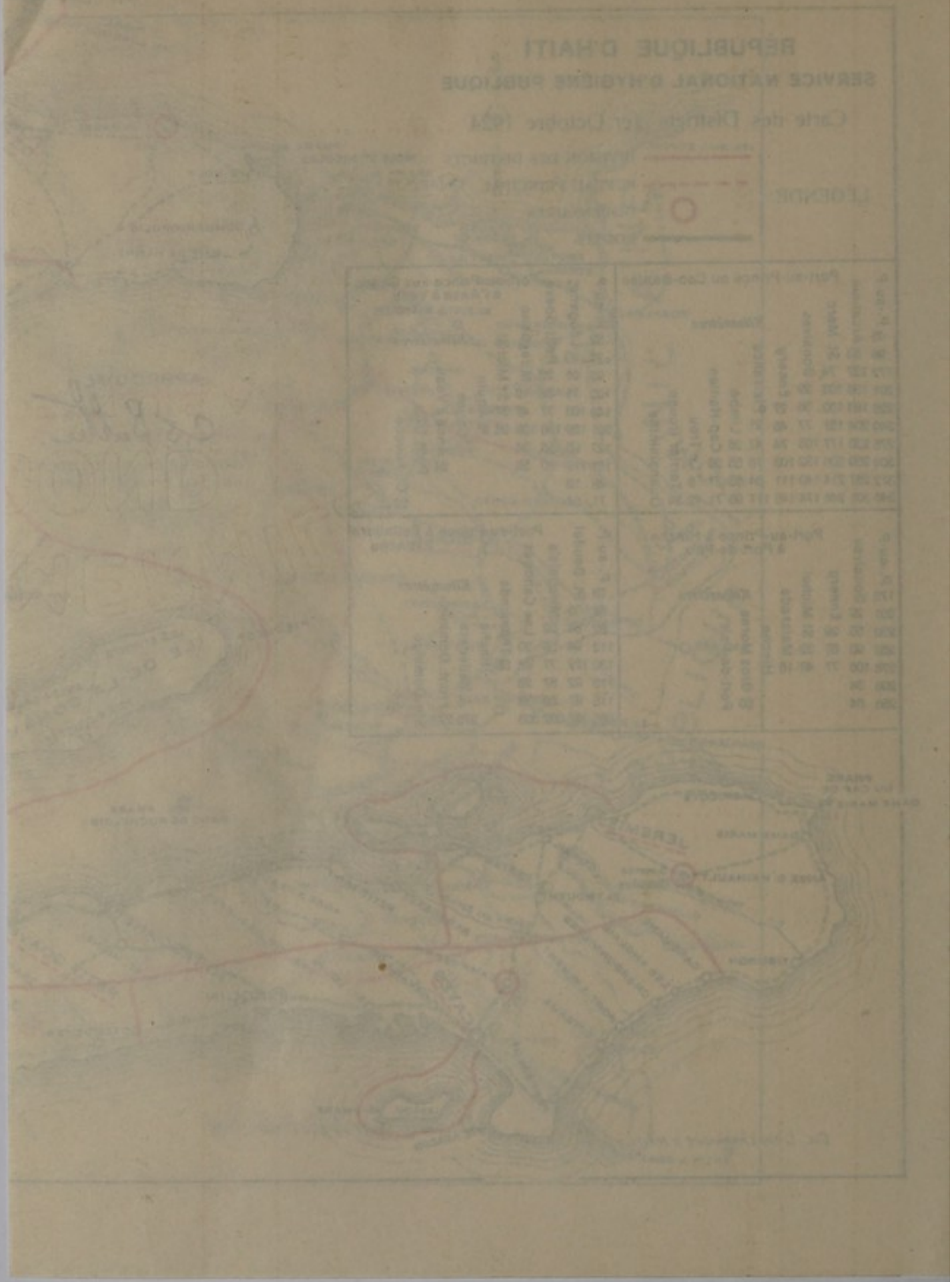
Lith. Lithographique d'Haiti.



	Admitted to Hospitals	Discharged dead	Daily Average Out-Patients	Major Operations	Minor Operations	Salvarsan	Mercury
H. G. Hospital	3,243	620	149	160	1,587	4,742	6,209
Hospice Communal	104	29					
Cape Haitian	1,183	104	142	369	712	4,568	2,035
Port-de-Paix	159	21	104	1	67	15	1,530
Gonaives	293	40	35	7	82	518	878
Saint-Marc	384	37	60	0	53	280	2,156
Petit-Goave	548	46	21	0	65	509	541
Jeremie	133	5	21	1	250	70	49
Les Cayes	294	41	97	16	95	7,755	1,165
Jacmel	391	32	78	14	25	8,167	1,705
TOTALS	6,734	1,015	707	568	2,936	26,624	16,268

| | | |

VITAL STATISTICS.

Summary for the whole Republic
From October 1, 1923, to September 30, 1924.

TOTAL BIRTHS.				TOTAL DEATHS.		
Male	Female	No Sex	Total	Male	Female	Total
28,335	28,835	192	57,362	7,151	7,333	14,484

BIRTHS BY MONTH

	Male	Female	No Sex	Total
October 1923	2,216	2,291	-	4,507
November "	2,500	2,365	-	4,865
December "	2,821	3,046	25	5,892
January 1924	2,193	2,207	-	4,400
February "	3,584	3,665	122	7,321
March "	2,395	2,438	45	4,878
April "	1,964	2,057	-	4,021
May "	2,647	2,620	-	5,267
June "	1,761	1,854	-	3,615
July "	2,032	2,104	-	4,136
August "	1,980	1,949	-	3,929
September "	2,242	2,239	-	4,481
TOTAL	28,335	28,835	192	57,362

DEATHS BY MONTH

October 1923	533	557	-	1,090
November "	694	716	-	1,410
December "	733	728	-	1,461
January 1924	588	643	-	1,231
February "	682	635	-	1,317
March "	658	667	-	1,325
April "	571	561	-	1,132
May "	523	493	-	1,016
June "	473	565	-	1,038
July "	544	580	-	1,124
August "	592	563	-	1,155
September "	560	625	-	1,185
TOTAL	7,151	7,333		14,484

VITAL STATISTICS.

Summary for the whole Republic
From October 1, 1923, to September 30, 1924.

TOTAL BIRTHS.

Male	Female	No Sex	Total
28,355	28,855	192	57,402

TOTAL DEATHS.

Male	Female	Total
7,181	7,353	14,484

BIRTHS BY MONTH

	Male	Female	No Sex	Total
October 1923	2,216	2,291	-	4,507
November "	2,500	2,365	-	4,865
December "	2,821	3,046	25	5,892
January 1924	2,193	2,207	-	4,400
February "	2,584	3,265	122	7,321
March "	2,355	2,438	46	4,879
April "	1,964	2,057	-	4,021
May "	2,847	2,820	-	5,267
June "	1,781	1,854	-	3,635
July "	2,032	2,104	-	4,136
August "	1,980	1,949	-	3,929
September "	2,245	2,259	-	4,504
TOTAL	28,355	28,855	192	57,402

DEATHS BY MONTH

October 1923	553	557	-	1,090
November "	694	716	-	1,410
December "	753	708	-	1,461
January 1924	588	643	-	1,231
February "	682	655	-	1,317
March "	668	667	-	1,325
April "	571	651	-	1,222
May "	623	693	-	1,316
June "	673	685	-	1,358
July "	644	660	-	1,304
August "	592	565	-	1,157
September "	566	625	-	1,191
TOTAL	7,151	7,353		14,484

VITAL STATISTICS.

IMPORTANT CAUSES OF DEATH WHOLE REPUBLIC.

Fiscal Year 1923-24.

Apoplexy	36
Beri-beri	3
Cancer	34
Cerebral hemorrhage	30
Childbirth	61
Cirrhosis of liver	18
Disease of liver	31
Dysentery	658
#Fever	1,535
Heart disease	171
Intestinal parasites	96
Malaria	549
Malnutrition	268
Meningitis	6
Nephritis	143
Pneumonia	91
Senility	428
Starvation	4
Syphilis	325
Tetanus	11
Tuberculosis	675
Whooping cough	19
From other causes	9,292
Total	14,484

Annual death rate.....6.51 per 1000.

#Reported as such; many cases probably malaria; not diagnosed by competent physician.

VITAL STATISTICS.

IMPORTANT CAUSES OF DEATH THIS REPUBLIC.

Fiscal Year 1923-24.

Apoplexy	36
Bright's	3
Cancer	74
Cerebral hemorrhage	30
Childbirth	61
Cirrhosis of liver	18
Disease of liver	13
Dysentery	838
Fever	235
Heart disease	71
Intestinal parasites	98
Malaria	619
Malnutrition	598
Meningitis	6
Nephritis	413
Pneumonia	91
Senility	38
Starvation	4
Syphilis	309
Tetanus	11
Tuberculosis	675
Whooping cough	1
From other causes	832
Total	3,184

Annual death rate.....9.83 per 1000.

Reported as awful many cases probably malaria
not diagnosed by competent physician.

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RÉPUBLIQUE D'HAITI

SERVICE NATIONAL D'HYGIÈNE PUBLIQUE

ANNUAL REPORT

OF

THE SANITARY ENGINEER

1924 - 1925

PORT-AU-PRINCE

DECEMBER, 1925

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REPUBLIQUE D'HAITI

SERVICE NATIONAL D'HYGIENE PUBLIQUE

ANNUAL REPORT

of

THE SANITARY ENGINEER.

-oOo-

Port-au-Prince,
December, 1925.

REPUBLIQUE D'HAITI

SERVICE NATIONAL D'HYGIENE PUBLIQUE

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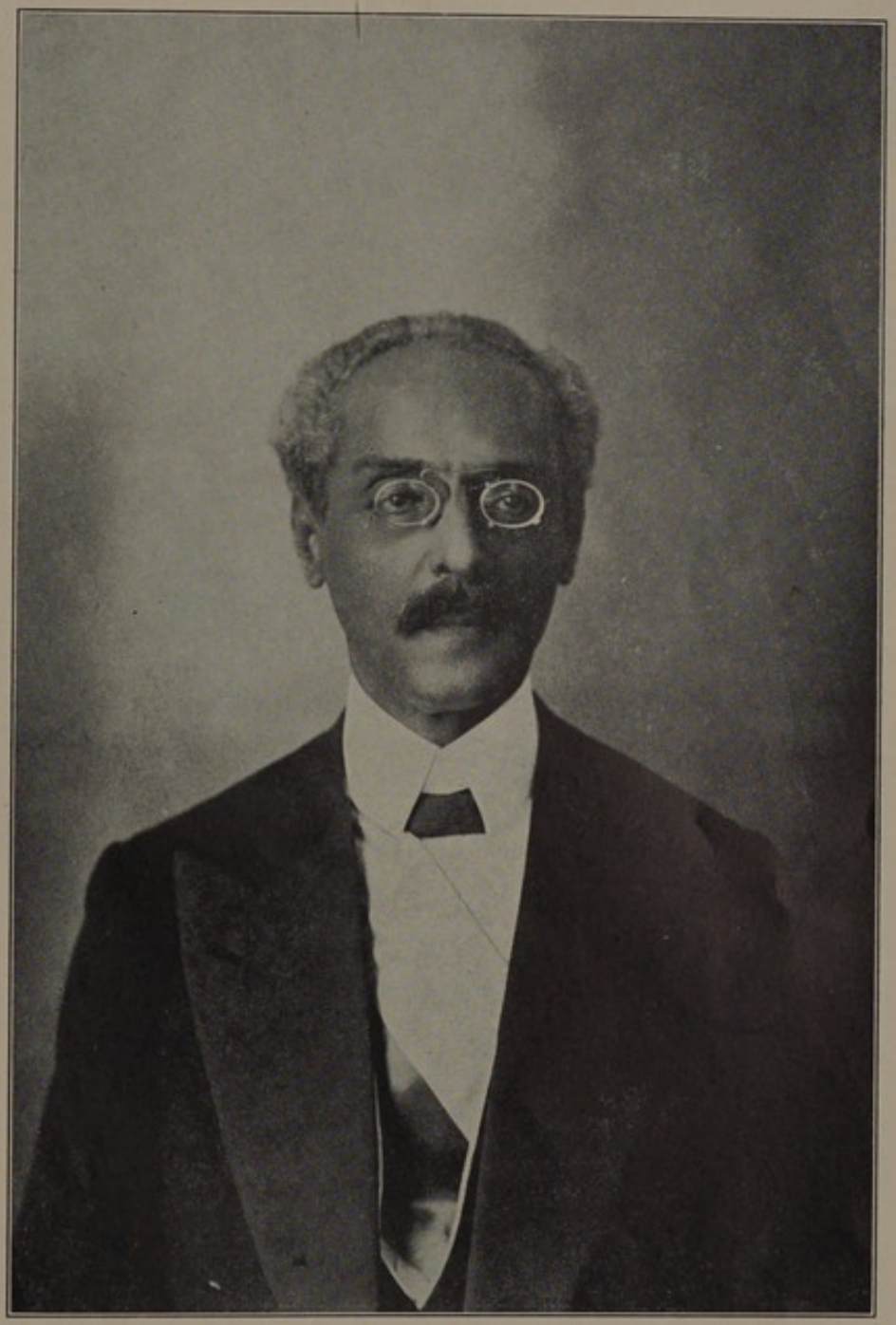
-oOo-

Port-au-Prince.
December, 1928.



His Excellency Mr. Louis Borno,
President of Haiti.

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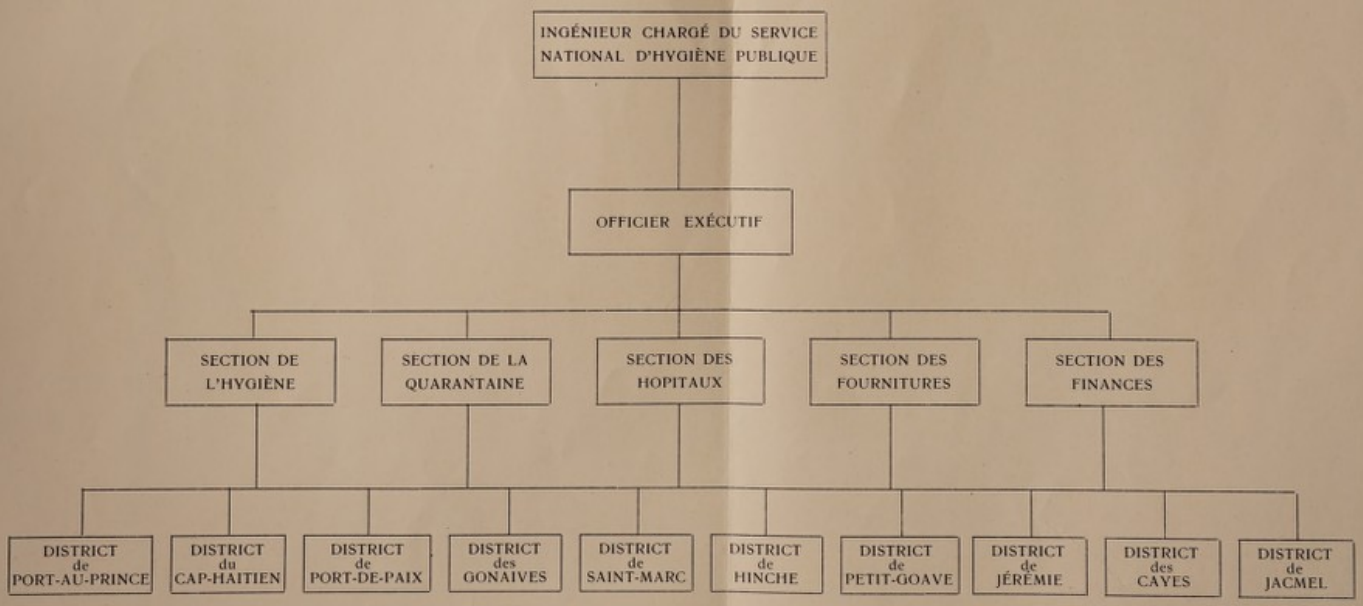
SERVICE NATIONAL D'HYGIÈNE PUBLIQUE



REPORT OF THE SANITARY ENGINEER OF HAITI

FOR THE YEAR ENDING DECEMBER 31st, 1925.

ORGANIZATION.

The organization of the activities of this Service under five divisions as outlined in the Annual Report of last year has been continued (see chart on opposite page). The five divisions are administered by the following personnel:

Division	Officer in charge.
Sanitation	Lieut. Ed. Peterson, (MC) USN.
Quarantine	Comdr. C.S.Butler, (MC) USN.
Hospitals	Lieut.Comdr. W.L.Irvine, (MC) USN.
Supplies	Chief Pharm. H.C.Roe, USN.
Finance	Chief Pharm. E.C.Eastman, USN.

Division of Sanitation. Sufficient additional U.S.Naval personnel was secured during the year to make it possible to place a hospital corpsman in charge of sanitation in each district. Prior to assignment each of these men receives in Port-au-Prince a short intensive course in sanitation. Port-au-Prince acts also as a training center for sanitary inspectors serving in out-lying districts. Sanitary measures were extended to many of the smaller communes and extension along these lines will be effected as fast as funds will permit. An extraordinary credit of Gdes. 71,000.00 for general improvements in sanitation has made possible a beginning of permanent improvements in sanitation. This has taken the form of constructing concrete ditches, making filling, etc., in Port-au-Prince and vicinity. During the coming year it is hoped that the work of the sanitation service will be of a higher order than ever before.

Division of Quarantine. For six months of the past year this Service was so fortunate as to have the services of an officer of the United States Public Health Service. During this time a complete survey of the quarantine situation in Haiti was made, a new quarantine law drafted and plans for a quarantine station completed. It is planned to erect this station during the coming year.

Division of Hospitals and Dispensaries. The increase in personnel mentioned above made it possible to place a Medical Offider of the U.S.Navy in charge of the Public Health Hospital in each District. Supervision of activities at Rural Dispensaries and the conducting of rural clinics are also a part of the duties of these Officers.

During the year one new hospital was opened (Hinche) and several were enlarged, notably, the Haitian General Hospital, Port-au-Prince, the Justinien Hospital, Cape Haitian, the Hospital Immaculée Conception, Cayes, and the Saint-Michel Hospital, Jacmel. An unfinished hospital at Port-de-Paix was acquired and is rapidly nearing completion. Minor additions were made to other institutions. Nine rural dispensaries have been erected or are in process of erection with funds voted by extraordinary credit and many new rural clinics have been opened. Government ownership of all hospitals administered by the Public Health Service is now an accomplished fact.

Plans for next year contemplate the erection of a hospital for the insane, a leprosarium, a small hospital at Petit-Goave and additions to the Haitian General Hospital and to the hospitals at Saint-Marc and Cayes.

Division of Supplies. This department is directly in charge of a Chief Pharmacist, U.S.Navy, who is designated as the Supplies and Accounts Officer. The purchase of all supplies is, however, controlled by the Sanitary Engineer. The Supply Depot and the Central Garage located in the same group of buildings are in charge of the above mentioned Chief Pharmacist.

Division of Finance. During the past year an attempt has been made to put the development of the service in the various districts on a more strictly budgetary basis in order to ensure as economical expenditure of funds as possible. Each public Health Officers is required to submit a detailed budgetary estimate for all activities planned for the coming year, including that for essential permanent improvements. On this information is based the annual budget submitted to the Financial Adviser.

On December 1st, 1924, the filing system of the Sanitary Engineer's office was changed from the card index type to a self-indexing type, the relational type of plan being used for the arrangement of file titles.

PERSONNEL.

The personnel of Service d'Hygiène consists of the following:-

PERSONNEL.

The personnel of Service d'Hygiène consists of the follow-
ing:-

	Executive Office	Cap-Haitien	Cayes	Gonaives	Hinche	Jacmel	Jeremie	Petit-Goave	Port-au-Prince Public health Office	Haitian Gen.- Hosp.	Sup. Dep. & Garage	Port-de-Paix	Saint-Marc	Total
Medical Officers of the Naty	3	2	1	1	1	1	1			7		1	1	19
Chief Pharmacists	1								1		1			3
Chief Pharmacist's Mates		1	1	1	1	1	1	1		2	1		1	11
Pharmacist's Mates 1 cl.		1								1		1		3
German Physician		1												1
Com. Haitian Physicians		2	1		1	1			1	7				13
Non-Com. Haitian physicians		2	1		1	1	1			5				11
Dentists										1				1
Pharmacists		3				1				3				7
Chief Sanitary Inspectors		1	1				1	1	9					13
Sanitary Inspectors		7	3	3	1	5	5	7	26			3	5	65
U.S.Red Cross Nurses										4				4
Graduate Nurses		6				1	1			4				12
Nurses under training		3								7				10
Dressers		18			3					1			2	24
Ward attendants		22				1	2	1		32			2	60
Technicians		4				1				1				6
Chaplains										1				1
Sisters		10	8	5		5	2			14		2	3	49
Chief Clerks	1	1							1	1	1	1	1	7
Clerks		1		1	1	1	1		1		2			8
Stenographers	1													1
Chief Motor Mechanic		1									1			2
Motor Mechanics		2									3			5
App. Motor Mechanics											9			9
Other Mechanics		2									1			3
Chauffeurs		3	2		1				12	4	3		1	26
Watchmen		1			1	5		2		2	1			12
Chefs d'Equipe		13	7	5	2	5	2	3	30	3		2	5	77
Laborers		98	94	64	19	69	39	63	352	20	5	26	33	882
Cooks		1					1	2		6		1	2	13
Laundresses		4	1				1	1		3			2	12
Drivers (carts, etc.)		12								2				14
Seamstresses										1				1
Bakers		1								1				2
Carpenters		1	1		2		1	2		2	2			11
Painters										1	1			2
Masons					2			1		3			1	7
Messengers	1		1	1					1			1		5
Other employees	1	8			1	2	1	2	1		3	1	1	21
TOTAL	8	232	122	81	37	100	60	86	435	139	34	39	60	1433

Employees	Grb-Hattan	Cedar	Hiawatha Courtyard	Lenox Terrace	Polk-Gouverneur	Public Health Service Hospital	Sea View Hospital	Seward Park Extension	Total
Medical Officers of the Navy	8	1	1	1	1	1	1	1	15
Chief Pharmacist	1								1
Chief Pharmacist's Mates		1	1	1	1		2	1	7
Pharmacist's Mates 1 cl.		1						1	2
German Physician		1							1
Com. Muslim Physicians	2	1	1	1		1	1		7
Non-Com. Muslim physicians	2	1	1	1			5		10
Dentists							1		1
Pharmacists	3			1			3		7
Chief Sanitary Inspectors	1	1			1	1	3		12
Sanitary Inspectors	7	3	1	8	5	7	3	8	65
U.S.Red Cross Nurses							4		4
Graduate Nurses	6			1	1		4		12
Nurses under training	3						7		10
Dressers	18		3				1	2	24
Ward attendants	23			1	2	1	32	2	60
Technicians	4			1			1		6
Chaplains							1		1
Sisters	10	8	8	8	2		14	2	48
Chief Clerks	1	1				1	1	1	7
Clerks	1	1	1	1	1	1	2		8
Stenographers	1								1
Chief Motor Mechanic	1						1		2
Motor Mechanics	2						3		5
Asp. Motor Mechanics							2		2
Other Mechanics	3						1		4
Chauffeurs	3	2	1			1	4	1	12
Watchmen	1	1		6		2	2	1	13
Chefs d'Equipe	18	7	8	2	8	80	3	2	77
Laborers	98	84	64	19	69	39	68	382	20
Cooks	1						1		2
Launderesses	4	1			1	1	3		12
Drivers (carts, etc.)	13						2		14
Seamstresses							1		1
Bakers	1						1		2
Carpenters	1	1	2		1		2		11
Painters							1	1	2
Masons			2			1	3		7
Messengers	1	1	1				1		5
Other employees	1	8		1	1	2	3	1	21
TOTAL	8	238	122	81	37	100	60	86	435

Sufficient U.S.Naval personnel has been secured to make it possible to place at least one commissioned officer and one enlisted man in each of the ten Public Health Districts. In addition to these certain specialties are provided, viz., one medical officer for eye, ear, nose and throat work, five medical officers and two enlisted men for laboratory work and two enlisted men for X-ray work. This is an increase of seven over the twenty-nine U.S. Navy personnel on duty with this service last year.

The total number of Americans employed in the Public Health Service is 36, as compared with a total of 1,433 Haitians similarly employed, or a ratio of approximately one American to every 38 Haitians. Of these 36 Americans 19 are graduate physicians as compared to 24 Haitian physicians employed by this Service. It is also of interest to compare the two sources of salary of the previously mentioned American personnel. On a monthly basis the Haitian Government pays these American employees a total of Gdes. 21,250.oo as compared to Gdes. 51,118.10 paid by the Government of the United States. Briefly stated the American Government presents this Government, in the form of salary, 2.43 gourdes to every gourde similarly paid by the Haitian Government.

On December 15, 1924, there was enacted a law authorizing the President to commission in the Public Health Service Haitian physicians in the following classes:-

(a)	Public Health Officers of 1st class..	Gdes.	875.oo	to	1,000.oo
(b)	Public Health Officers of 2nd class..	"	750.oo	"	850.oo
(c)	Public Health Officers of 3rd class..	"	625.oo	"	725.oo
(d)	Public Health Officers of 4th class..	"	500.oo	"	600.oo
(e)	Public Health Officers of 5th class..	"	400.oo	"	475.oo
(f)	Public Health Officers of 6th class..	"	300.oo	"	375.oo

Only physicians who hold diplomas from recognized medical schools and who have served satisfactorily for at least one year in certain hospitals of this service are being recommended for commissions. The following Public Health Officers hold commissions as follows:

Dr. Moise, Léon	Public Health Officer of 2nd class
Dr. Léon, Rulx	Public Health Officer of 3rd class
Dr. Périgord, Marcel	Public Health Officer of 3rd class
Dr. Perrier, Joseph	Public Health Officer of 4th class
Dr. Bourand, Martial	Public Health Officer of 4th class
Dr. Buteau, Joseph	Public Health Officer of 4th class
Dr. Carries, Abelard	Public Health Officer of 4th class
Dr. Fontus, Charles	Public Health Officer of 5th class
Dr. Théard, William	Public Health Officer of 5th class
Dr. Jourdan, Louis	Public Health Officer of 5th class
Dr. Holly, Théodore	Public Health Officer of 5th class
Dr. Hyppolite, Louis	Public Health Officer of 6th class
Dr. Valmé, Cicéron	Public Health Officer of 6th class

Two years ago the employment of internes in the larger hospitals was instituted. Recent graduates of the National Medical School are employed for one year at a moderate salary and given a comprehensive course of practical training, at the end of which period, providing their services have been satisfactory, they are recommended for regular commissions. Three such internes have finished this one year period and have been regularly commissioned. Three new internes were secured from the last graduating class.

PUBLIC HEALTH EMPLOYEES

District of Port-au-Prince.

(a) Executive Office.

Name	Date of Employment	Duty
Comdr. C.S.Butler, (MC) USN.	6-1-24	Sanitary Engineer
Lieut.Comdr.W.L.Irvine,(MC)USN.	1-15-23	Executive Assistant to San. Engineer.
Lieut. Ed.Peterson, (MC) USN.	6-14-24	Asst. San. Engineer
Ch.Ph. E.C.Eastman, USN.	12-11-24	Asst. San. Engineer
Ch.Ph. H.C.Roe, USN	6-20-23	S. & A. Officer.

(b) Haitian General Hospital

Lieut.Comdr. L.M.Schmidt,(MC)USN.	9-15-25	Administrator H.G.H.
Lieut. W.F.Kennedy, (MC) USN.	1-21-25	Asst. to Administrator
Lieut. E.C.Ebert, (MC) USN.	11-13-25	" " "
C.Ph.M. B.E.Kirwan, USN.	2-2-24	" " "
C.Ph.M. Peter Angel, Jr., USN.	9-14-25	" " "
Lt. (jg) E.J.Cure, (MC) USN.	10-2-25	" " "
Lt. (jg) H.W.Gillen, (MC) USN.	10-2-25	" " "
Lt. (jg) C.D.Middlestadt, (MC) USN.	10-2-25	" " "
Lt. (jg) G.C.Thomas, (MC) USN.	10-2-25	" " "
C.Ph.M. H.C.Wilcockson, USN.	10-13-24	La Gonave Island
Dr. Moise, L.	11-3-15	Asst. to Administrator
Dr. Perrier, J.	2-12-23	" " "
Dr. Buteau, J.	7-30-23	" " "
Dr. Bourand, M.	9-18-23	" " "
Dr. Jourdan, L.	11-1-24	" " "
Dr. Anglade, D.	6-1-25	" " "
Dr. Valmé, C.	9-1-23	" " "
Dr. Hyppolite, L.	9-1-23	" " "
Dr. Craig, E.	5-20-25	" " "
Dr. Pétrus, E. H.	11-15-25	" " "
Dr. Bellevue, V.	10-1-25	Interne
Dr. Telson, W.	10-1-25	Interne

Two years ago the employment of interns in the larger hospitals was instituted. Recent graduates of the National Medical School are employed for one year at a moderate salary and given a comprehensive course of practical training, at the end of which period, providing their services have been satisfactory, they are recommended for regular commissions. Three such interns have finished this one year period and have been regularly commissioned. Three new interns were secured from the last graduating class.

PUBLIC HEALTH SERVICE

District of Port-au-Prince.

(a) Executive Office.

Name	Date of Employment	Duty
Comdr. C.S.Butler, (MC) USN.	6-1-24	Sanitary Engineer
Lieut.Comdr.W.L.Irvine,(MC)USN.	1-15-25	Executive Assistant to San. Engineer.
Lieut. Cd.Peterson, (MC) USN.	6-14-24	Asst. San. Engineer
Ch.Ph. R.C.Eggleston, USN.	12-11-24	Asst. San. Engineer
Ch.Ph. R.C.Bee, USN	5-20-25	S. & A. Officer.

(b) Haitian General Hospital

Lieut.Comdr. L.M.Schmidt,(MC)USN.	9-15-25	Administrator H.G.H.
Lieut. W.T.Kennedy, (MC) USN.	1-21-25	Asst. to Administrator.
Lieut. R.C.Rupert, (MC) USN.	11-15-25	" " " "
C.Ph.M. B.E.Kirven, USN.	2-2-24	" " " "
C.Ph.M. Peter Angel, Jr. USN.	9-14-25	" " " "
Lt. (jg) R.L.Cure, (MC) USN.	10-2-25	" " " "
Lt. (jg) R.W.Gillen, (MC) USN.	10-2-25	" " " "
Lt. (jg) C.D.Whitehead, (MC) USN.	10-2-25	" " " "
Lt. (jg) C.C.Thomas, (MC) USN.	10-2-25	" " " "
C.Ph.M. H.C.Wilcoxson, USN.	10-13-24	In Gonave Island.
Dr. Moise, E.	11-3-25	Asst. to Administrator
Dr. Perrier, L.	2-12-25	" " " "
Dr. Bateau, L.	7-30-25	" " " "
Dr. Bourand, M.	9-18-25	" " " "
Dr. Jourdan, L.	11-1-24	" " " "
Dr. Angibde, D.	6-1-25	" " " "
Dr. Vejin, C.	9-1-25	" " " "
Dr. Hyppolite, L.	9-1-25	" " " "
Dr. Creig, E.	6-20-25	" " " "
Dr. Petrie, E. H.	11-15-25	" " " "
Dr. Bellevue, V.	10-1-25	Interne
Dr. Tolbon, W.	10-1-25	Interne

Name	Date of Employment	Duty
Miss Buchanan, A., A.R.C.N.	5-20-24	Directress School for Nurses.
Miss Moser, E., "	6-20-24	Training School for Nurses.
Miss Alberti, T. de "	6-10-25	" " "
Miss Authier, C. E. "	8-25-25	" " "

(c) Public Health Office

C.Ph. G. F. Lyon, USN	1-14-25	Public Health Officer
Dr. Périgord, M.	11-1-21	Assistant Public Health Officer.

District of Cap-Haitien.

Lt.Comdr. R.H.Laning,(MC) USN.	6-15-22	Public Health Officer
Lt. (jg) G.F.Cooper, (MC) USN.	3-1-25	Asst. P. H. Officer.
C.Ph.M. H.Rydeen, USN.	1-1-24	" " " "
Ph.M. 1 cl. J.M.Foster, USN.	10-13-24	" " " "
Dr. Léon, Rulx	12-14-22	" " " "
Dr. Ethéart M.	7-1-24	" " " "
Dr. Holly, Th.	10-1-23	" " " "
Dr. Desmangles, P.	1-16-25	" " " "
Dr. Schutt, M.	10-1-24	" " " "

District of Cayes

Lt. J.G.Powell, (MC) USN.	5-15-23	Public Health Officer
C.Ph.M. J.T.Eads, USN.	10-13-24	Asst. P. H. Officer
Dr. Théard, W.	12-15-22	" " " "
Dr. Medan, Edg.	1-1-25	" " " "

District of Gonaives.

Lt.Comdr. R.R.Gasser, (MC) USN.	10-22-24	Public Health Officer
Ch.Ph.M. J.L.Inge, USN.	10-13-24	Asst. P. H. Officer

District of Hinche

Lt. F.C.Hill, (MC) USN	7-30-25	Public Health Officer
C.Ph.M. W.E.Burnham, USN	10-13-24	Asst. P. H. Officer
Dr. Fontus, Ch.	9-22-22	" " " "
Dr. Cole, P.	6-2-22	Dispensary, Mirebalais

Name	Date of Employment	Duty
Miss Mathonnin, A., A.N.C.M.	5-20-24	Nursing School for Nurses.
Miss Moser, E., "	6-20-24	" " " "
Miss Albertl, T. de "	6-10-25	" " " "
Miss Authier, C.M., "	8-25-25	" " " "

(c) Public Health Officers

C.Ph. G. F. Lyon, USN	1-14-25	Public Health Officer
Dr. Fehlgard, M.	11-1-21	Assistant Public Health Officer.

District of Cap-Haitien.

Lt.Comdr. E.H.Laning,(MC) USN.	6-15-22	Public Health Officer
Lt. (jg) C.F.Coyle, " USN.	3-1-25	" " "
C.Ph.M. H.Bydeen, USN.	1-1-24	" " "
Ph.M. 1 cl. J.E.Foster, USN.	10-13-24	" " "
Dr. Leon, Max	12-14-22	" " "
Dr. Etheart, M.	7-1-24	" " "
Dr. Holly, Th.	10-1-23	" " "
Dr. Desmangles, P.	1-16-25	" " "
Dr. Sohnte, M.	10-1-24	" " "

District of Cayes.

Lt. J.C.Powell, (MC) USN.	5-15-23	Public Health Officer
C.Ph.M. J.T.Hobbs, USN.	10-13-24	Asst. P. H. Officer
Dr. Theard, M.	12-15-22	" " "
Dr. Sedan, Edg.	1-1-25	" " "

District of Gonaives.

Lt.Comdr. R.B.Casser, (MC) USN.	10-22-24	Public Health Officer
C.Ph.M. J.L.Lyle, USN.	10-13-24	Asst. P. H. Officer

District of Hinche

Lt. P.C.Hill, (MC) USN	7-30-25	Public Health Officer
C.Ph.M. V.E.Buchanan, USN	10-13-24	Asst. P. H. Officer
Dr. Pontus, Ch.	9-22-22	" " "
Dr. Cole, P.	6-3-22	Dispensary, Mirebalais

District of Jacmel

Name		
Lt. R.P.Parsons, (MC) USN.	5-14-25	Public Health Officer
C.Ph.M. E.E.Dungan, USN.	10-13-24	Asst. P. H. Officer
Dr. Carries, A.	3-4-23	" " " "
Dr. Roc, E.	10-1-25	Interne.

District of Jérémie

Lt. B.M.Summers, (MC) USN.	1-21-25	Public Health Officer
C.Ph.M. E.E.Miller, USN	10-13-24	Asst. P. H. Officer
Papillon, Dr. J.	11-1-25	" " " "

District of Petit-Goave

C.Ph.M. R.J.Isreall, USN.	5-5-25	Public Health Officer

District of Port-de-Paix

Lt. R.E.S.Kelly, (MC) USN	10-27-24	Public Health Officer
Ph.M. 1 cl. H.A.Barrett, USN.	3-12-25	Asst. P. H. Officer

District of St. Marc.

Lt. E.J. Lanois, (MC) USN.	12-12-24	Public Health Officer
C.Ph.M. W.D.A.Robichau, USN.	3-1-25	Asst. P. H. Officer

CHANGES IN PERSONNEL DURING YEAR.

Name.	Date of Employment.	Date of Detachment.
C.Ph. N.L.Saunders, USN	3-16-24	10-3-24
Dr. Eugène Audain	8-9-22	10-31-24
C.Ph. G.L.Crain, USN.	12-19-21	2-19-25
C.Ph.M. J.R.Campbell, USN.	3-29-22	2-21-25
C.Ph.M. R.J.Casey, USN.	9-15-22	2-23-25
Dr. L. Rosemond	5-15-22	3-3-25
Dr. George Mevs	2-1-25	5-14-25
Lt.Comdr. P.W.Wilson, (MC) USN.	7-1-22	5-15-25
C.Ph.M. W.R.Parsons, USN.	2-2-24	5-17-25
Miss A.M.Doane, RedCross Nurse	10-20-22	5-30-25
Lt. J.F.Mahoney, U.S.P.H.S.	11-15-24	6-27-25
Lt.Comdr. J.T.Bennett, (MC) USN.	6-15-22	8-9-25
C.Ph.M. P.S.Gault, USN.	2-21-24	9-15-25
Lt. J.F.Hooker, (MC) USN.	1-1-23	9-15-25
Lt.Comdr. H.H.Lane, (MC) USN.	9-7-22	9-15-25
Miss I.E.Cummins, Red Cross Nurse	9-28-24	9-30-25

District of Jacmel

Name		
Lt. D.S.Parsons, (MC) USN.	5-14-25	Public Health Officer
C.Ph.M. R.E.Duncan, USN.	10-15-24	Asst. P. H. Officer
Dr. Darrigo, M.	5-6-25	" " "
Dr. Roo, E.	10-1-25	Interne.

District of Jérémie

Lt. E.M.Summers, (MC) USN.	1-21-25	Public Health Officer
C.Ph.M. E.E.Miller, USN	10-15-24	Asst. P. H. Officer
Papillon, Dr. J.	11-1-25	" " "

District of Petit-Goave

C.Ph.M. R.J.Isreall, USN.	5-5-25	Public Health Officer

District of Port-de-Paix

Lt. R.E.S.Kelly, (MC) USN	10-27-24	Public Health Officer
Ph.M. [illegible] Barrett, USN.	3-15-25	Asst. P. H. Officer

District of St. Marc

Lt. R.J. Lamoia, (MC) USN.	12-13-24	Public Health Officer
C.Ph.M. W.C.A.Robinson, USN.	3-1-25	Asst. P. H. Officer

CHANGES IN PERSONNEL DURING YEAR.

Name.	Date of Employment.	Date of Detachment.
C.Ph. M.L.Saunders, USN	3-16-24	10-3-24
Dr. [illegible]	8-9-25	10-31-24
C.Ph. C.B.Green, USN.	12-19-24	2-19-25
C.Ph.M. J.J.[illegible], USN.	3-24-25	2-21-25
C.Ph.M. R.J.Cross, USN.	9-15-25	8-23-25
Dr. Ivy Robertson	5-15-25	3-3-25
Dr. George Neva	2-1-25	5-14-25
Lt.Comdr. P.W.Wilson, (MC) USN.	7-1-25	5-15-25
C.Ph.M. W.B.Purviance, USN.	2-2-24	5-17-25
Miss A.M. [illegible] Red Cross Nurse.	10-20-25	5-30-25
Lt. J.P.McCarthy, U.S.M.C.	11-15-24	6-27-25
Lt.Comdr. L.C.Bennett, (MC) USN.	6-15-25	8[illegible]-25
C.Ph.M. C.S.Saul, USN.	2-21-25	9-15-25
Lt. J.R.Hobson, (MC) USN.	1-1-25	9-15-25
Lt.Comdr. H.M.Lane, (MC) USN.	9-7-25	9-15-25
Miss [illegible] Red Cross Nurse.	9-20-24	9-30-25

Name	Date of Employment.	Place of Employment.
Dr. M. Schutt	10-1-24	Cap-Haitien
C.Ph.M. H.C.Wilcockson, USN.	10-13-24	La Gonave
Ph.M. 1 cl. J.M.Foster, USN.	10-13-24	Cap-Haitien
C.Ph.M. W.E.Burnham, USN.	10-13-24	Hinche
C.Ph.M. E.E.Miller, USN.	10-13-24	Jérémie
C.Ph.M. J.T.Eads, USN.	10-13-24	Cayes
C.Ph.M. E.E.Dungan, USN.	10-13-24	Jacmel
Lt.Comdr. R.R.Gasser, (MC) USN.	10-22-24	Gonaives
Dr. Louis Jourdan	11-1-24	Port-au-Prince
Lt. R.E.S.Kelly, (MC) USN.	13-3-24	Port-de-Paix
C.Ph. E.C.Eastman, USN.	12-11-24	Port au Prince
Lt. E.J.Lanois, (MC) USN.	12-12-24	Saint-Marc
Dr. Ed. Ledan	1-1-25	Cayes
C.Ph. G.F.Lyon, USN.	1-14-25	Port-au-Prince
Dr. C. Desmangles	1-16-25	Cap-Haitien
Lt. W.F.Kennedy, (MC) USN.	1-21-25	Port-au-Prince
Lt. (jg) B.M.Summers, (MC) USN.	1-21-25	Jérémie
Lt. (jg) G.F.Cooper, (MC) USN.	3-1-25	Cap-Haitien
C.Ph.M. W.D.A.Robichau, USN.	3-1-25	Saint-Marc
Ph.M. 1 cl. H.C.Barrett, USN.	3-12-25	Port-de-Paix
C.Ph.M. R.J.Israall, USN.	5-5-25	Petit-Goave
Lt. R.P.Parsons, (MC) USN.	5-14-25	Jacmel
Dr. E. Craig	5-20-25	Port-au-Prince
Dr. D. Anglade	6-1-25	Port-au-Prince
Lt. F.C.Hill, (MC) USN.	7-30-25	Hinche
C.Ph.M. Peter Angel Jr., USN.	9-14-25	Port-au-Prince
Lt.Comdr. L.M.Schmidt, (MC) USN.	9-15-25	Port-au-Prince
C.Ph.M. J.L.Inge, USN.	10-2-25	Gonaives
Miss T. de Alberti, Red Cross Nurse	6-10-25	Port-au-Prince
Miss C. E. Authier, " " "	8-25-25	Port au Prince

LAWS AND REGULATIONS.

A law authorizing the President of the Republic to commission Haitian physicians in the Public Health Service was enacted December 5, 1924. No physician is being recommended for a commission until he has served satisfactorily for at least one year in one of the larger hospitals of the Service. Experience has shown that young men who have recently graduated are the best material for duty with this Service. For this reason it is desirable to fix by a law an intern year requirement for graduation from the National Medical School.

A national law requiring the registration of all dogs has been drafted and presented for enactment. While heretofore the disposi-

Name	Date of Employment.	Place of Employment.
[illegible]	10-1-24	Cap-Haitien
[illegible]	10-13-24	La Gonave
[illegible]	10-13-24	Cap-Haitien
[illegible]	10-13-24	Hinche
[illegible]	10-13-24	Jérémie
[illegible]	10-13-24	Cayes
[illegible]	10-13-24	Jacmel
[illegible]	10-23-24	Gonaives
[illegible]	11-1-24	Port-au-Prince
[illegible]	[illegible]	Port-de-Paix
[illegible]	12-11-24	Port au Prince
[illegible]	12-13-24	Saint-Marc
[illegible]	1-1-25	Cayes
[illegible]	1-11-25	Port-au-Prince
[illegible]	1-10-25	Cap-Haitien
[illegible]	1-21-25	Port-au-Prince
[illegible]	1-21-25	Jérémie
[illegible]	3-1-25	Cap-Haitien
[illegible]	3-1-25	Saint-Marc
[illegible]	3-12-25	Port-de-Paix
[illegible]	5-5-25	Petit-Goave
[illegible]	5-14-25	Jacmel
[illegible]	5-20-25	Port-au-Prince
[illegible]	[illegible]	Port-au-Prince
[illegible]	[illegible]	Hinche
[illegible]	[illegible]	Port-au-Prince
[illegible]	8-18-25	Port-au-Prince
[illegible]	10-9-25	Gonaives
Miss C. E. Authier " " "	9-29-25	Port au Prince

[illegible]

A law authorizing the President of the Republic to commission Haitian physicians in the Public Health Service was enacted December 5, 1924. No physician is being recommended for a commission until he has served satisfactorily for at least one year in one of the larger hospitals of the Service. Experience has shown that young men who have recently graduated are the best material for duty with this Service. For this reason it is desirable to fix by law an intern year requirement for graduation from the National Medical School.

A National law requiring the registration of all dogs has been drafted and presented for enactment. While beneficial [illegible]

tion of ownerless dogs has been taken care of by this Service it is obviously a duty which should devolve upon the department of police. It is therefore hoped that this law will be enacted soon.

As stated under "Quarantine", a complete revision of the maritime quarantine law has been made and submitted for enactment.

That portion of the law of the Public Health Service relating to reportable diseases has been revised and submitted for enactment. When exacted it is proposed to start a system of reporting these disease weekly by letter.

A new immigration law has been submitted for exactment.

Prostitution should be made illegal or else regulated by law. The charge made for the registration of births and deaths should be abolished and in lieu thereof a law authorizing the payment of a small sum for the registration of each birth and death. A pure-food law would be desirable.

EDUCATION.

Little can be accomplished in the way of education owing to the illiteracy of a large percentage of the people, demonstration and example being the only practical methods. Definite progress is being made in enforcing the construction of private latrines in the cities and towns, 719 new latrines having been added during the past year. Nearly all the members of the occupation and few of the more intelligent Haitians boil their drinking water. The medical inspection of school children has a distinct educational value. A short course of instruction in mosquito control, etc., is being given to all new sanitary inspectors in Port-au-Prince. A few inspectors from other districts have been brought in to receive this course and it has been given to a few Gendarmerie Hospital Corpsmen who are acting as sanitary inspectors in outlying posts. A few laboratory technicians are being given practical training at the laboratory of the International Health Board. Dressers for rural clinics are given a short course of practical instruction in hospitals prior to assignment to duty. Instruction of nurses will be mentioned under heading Training School for Haitian Nurses. The National Medical School is taken up in another chapter.

DIVISION OF SANITATION.

The general remarks that preceded this chapter of our report of last year still hold true. During the year substantial progress has been made in sanitation throughout the Republic. The problem of sanitation is primarily one of education and the teachers of the people are the sanitary inspectors. The increase in personnel at the end of last year made it possible to place a Chief Pharmacist's Mate of the U. S. Navy as an assistant to each Medical Officer in charge of a district. He was made primarily responsible for sanitation. As a consequence more attention has been paid to this particular branch of the service during the past year than at any time previously. The various sanitary inspectors have received more intensive training and are doing better work right along. As far as circumstances permit sanitary inspectors from all over the Republic receive a two weeks course of training in Port-au-Prince.

Malaria in Haiti. During the past year an extensive malarial survey has been made throughout the Republic. In some sections the most appalling conditions have been found. The examination of school children showed that in some places nearly 100% of the population was infected with malaria. A survey of the surrounding country showed the reason; many towns being built right in extensive swampy sections.

The town of Petit-Trou in the District of Petit-Goave is a typical example. The site of this little town is a big swamp, anopheline larvae are every where abundant, Petite-Rivière of the same section is in the same class and also Baradères. Saint-Louis du Sud on the southern shore and Fort-Liberté on the northern are other examples. In Aux Cayes, Léogane, Petit-Goave school children showed splenic indices (*) varying between 40 and 50. In these towns some progress is being made in the draining and filling of swamps. In Port-au-Prince, the splenic index of the children was about 2.5. In this city as well as in Cap-Haitien a good indication is given by the incidence of infection amongst the large groups of non-infected people represented by the U. S. Marines. In the city of Cap-Haitien there appeared suddenly an epidemic of malaria amongst the Marine Forces, during the month of November 1924. This continued until March, 1925. A critical survey of the situation revealed the fact that just below the Marine Camp a large series of springs had made their appearance following a rather heavy rainy season. These springs had produced an extensive area of swampy land in which anopheline mosquitoes were breeding

(*). The term splenic index means the proportion of children between certain ages showing enlarged spleens . It indicates the degree of malarial infection of any community.

DIVISION OF SANITATION

The general remarks that preceded this chapter of our report of last year still hold true. During the year substantial progress has been made in sanitation throughout the Republic. The problem of sanitation is primarily one of education and the teachers of the people are the sanitary inspectors. The increase in personnel at the end of last year made it possible to place a Chief Inspector's State of the U. S. Navy as an assistant to each Medical Officer in charge of a district. He was made primarily responsible for sanitation. To a consequence more attention has been paid to this particular branch of the service during the past year than at any time previously. The various sanitary inspectors have received more intensive training and are doing better work right along. As far as circumstances permit sanitary inspectors from all over the Republic receive a two weeks course of training in Port-au-Prince.

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The town of Petit-Trou in the District of Petit-Goave is a typical example. The site of this little town is a big swamp. Anopheline larvae are every where abundant. Petite-Riviere of the same section is in the same class and also Bresdères. Saint-Louis du Sud on the southern shore and Port-Liberté on the northern are other examples. In Aux Cayes, Jeremie, Petit-Goave school children showed splenic indices (*) varying between 40 and 80%. In these towns some progress is being made in the draining and filling of swamps. In Port-au-Prince, the splenic index of the children was about 2.5%. In this city as well as in Cap-Haitien a good indication is given by the incidence of infection amongst the large groups of non-infected people represented by the U. S. Marines. In the city of Cap-Haitien there appeared suddenly an epidemic of malaria amongst the Marine Forces, during the month of November 1924. This continued until March, 1925. A critical survey of the situation revealed the fact that just below the Marine Camp a large series of springs had made their appearance following a rather heavy rainy season. These springs had produced an extensive area of swampy land in which anopheline mosquitoes were breeding

(*). The term splenic index means the proportion of children between certain ages showing enlarged spleens. It indicates the degree of malarial infection of any community.

abundantly. Thorough treatment with oil mixture removed the immediate danger. Filling and drainage of the entire section was accomplished during the year with consequent marked reduction in the malarial rate.

During the fiscal year the situation in Port-au-Prince was very good with the exception of the months of August and September when a flare-up occurred in the town proper. Nine cases developed in each of these months in troops stationed in Port-au-Prince proper. In addition three cases occurred during each of these months amongst troops stationed in the Hasco Region. The control in this latter region is as good as can be expected at the present time. The northeast and the southwest sections of Port-au-Prince however are still in need of a large amount of permanent sanitary work. The large number of crude dirt ditches over vast flat areas with very little fall, render mosquito control a difficult problem. During the coming year however funds will be made available to make a definite impression upon this situation. During the present year nearly the entire shore front has been improved by filling, draining and by the introduction of a system of surface gutters.

Nightsoil disposal. Nightsoil disposal is something that is not understood by the Haitian country people. The large mass of people scattered over the various hills, mountains, valleys and plains of this country answer the call of nature wharever the urgency comes upon them. Latrines are almost unknown throughout the rural districts. Some cities, towns and larger villages are now beginning to realize the importance of this sanitary measure and the construction and repair of privies in these places is progressing.

The remarks in last year's report upon the importance of water carriage sewage systems in the larger towns still hold true. The Sanitary Engineer is pleased to report, however, that a sewer for the central section of the city of Port-au-Prince is nearing completion. The Department of Public Works has succeeded in increasing the water supply for this particular section, thus making it possible to give the Palace, the Gendarmerie Barracks, the Marine Barracks, the Haitian General Hospital and the newly finished Palais des Finances a modern system of sewage disposal.

Markets and Abattoirs. During the year a general improvement has taken place in various markets throughout the Republic. Several new abattoirs have been built, making it possible to kill cattle in a more or less sanitary manner. In addition it may be noted that a very satisfactory butchershop with cool room, etc., has opened up in Port-au-Prince.

Dogs. Less activity is reported under this heading than formerly for the reason that this Service is of the opinion that the disposal of stray and ownerless dogs is a matter for the police.

A dog law has been drafted accordingly. The following dogs were destroyed during the past year:

Cap-Haitien	137
Cayes	4
Gonaives	80
Hinche	20
Jacmel	236
Jérémie	76
Petit-Goave	146
Port-au-Prince	0
Port-de-Paix	172
Saint-Marc	230
Total	1,101

Municipal engineering. Municipal engineering in Haiti is for all practical purposes the final expression of permanent sanitary improvements. For this reason this office has the most intense interest in the successful solution of these problems. Amongst others they are:

1. Proper and sufficient water supply.
2. Water carriage sewage system.
3. Surface drainage.
4. Public markets.

It is unnecessary to bring forth arguments from a sanitary point of view to show the importance of these improvements. The question arises why is there not more general interest shown in attempts to bring about changes in these deplorable conditions. The cause is that there is so much work to be done in Haiti that the various Government departments have their hands full to carry on as it is.

This office believes that the only way to solve this problem is to create a committee, if you please, of municipal sanitary engineering whose particular duty it would be to consider facts and figures as to the relative importance of these various projects and the best means to accomplish them.

There are three factors that play their individual parts in the development of this scheme: namely finance, engineering and sanitation. Proper sanitation demands that these improvements be instituted. The Engineers are willing to do them provided funds be made available.

The city of Port-au-Prince is probably next to Havana, Cuba, the most important city in the West Indies, and as such it

A dog law has been drafted accordingly. The following dogs were destroyed during the past year:

Cap-Haitien	132
Cayes	4
Gonaives	80
Hinche	20
Jacmel	236
Jérémie	76
Petit-Goave	146
Port-au-Prince	0
Port-de-Paix	172
Saint-Marc	290
Total	1,004

Municipal engineering. Municipal engineering in Haiti is for all practical purposes the final expression of permanent sanitary improvements. For this reason this office has the most intense interest in the successful solution of these problems. Amongst others they are:

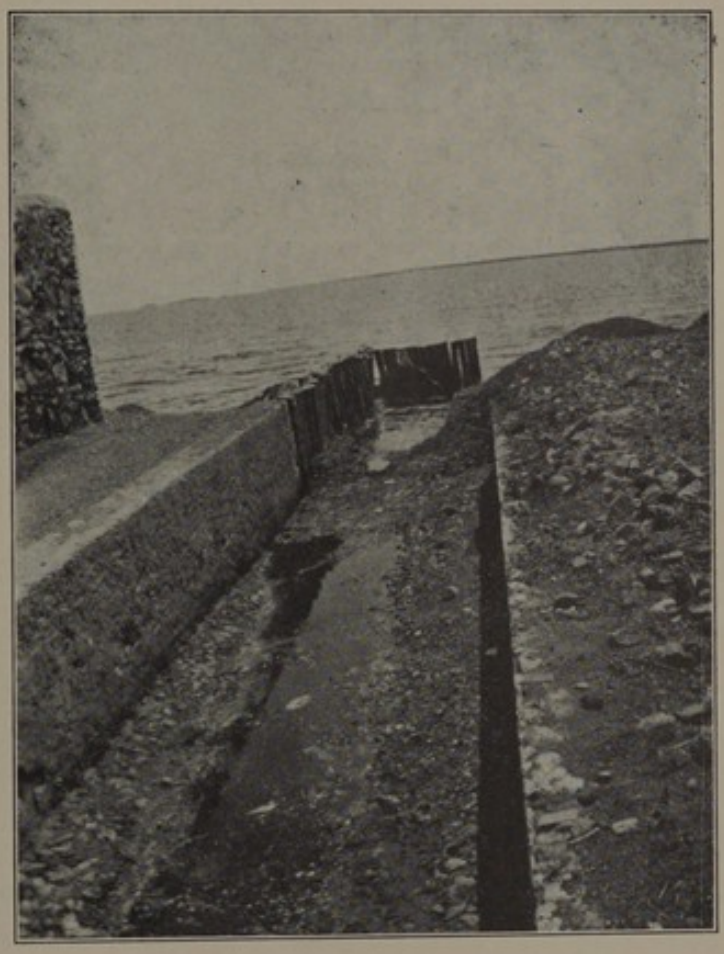
1. Proper and sufficient water supply.
2. Water carriage sewage system.
3. Surface drainage.
4. Public markets.

It is unnecessary to bring forth arguments from a sanitary point of view to show the importance of these improvements. The question arises why is there not more general interest shown in attempts to bring about changes in these deplorable conditions. The cause is that there is so much work to be done in Haiti that the various Government departments have their hands full to carry on as it is.

This office believes that the only way to solve this problem is to create a committee, if you please, of municipal sanitary engineering whose particular duty it would be to consider facts and figures as to the relative importance of these various projects and the best means to accomplish them.

There are three factors that play their individual parts in the development of this scheme: namely finance, engineering and sanitation. Proper sanitation demands that these improvements be instituted. The Engineers are willing to do them provided funds be made available.

The city of Port-au-Prince is probably next to Havana, Cuba, the most important city in the West Indies, and as such it



Jetty to prevent infiltration of sand into canal emptying into sea.

should stand out as an example of a perfectly sanitated city, to which tourists are glad to come feeling assured that infectious diseases are reduced to a minimum.

A healthful water supply and a water carriage sewage system would have a tremendous bearing on the incidence of intestinal infections, proper surface drainage on that of mosquito-borne diseases and sanitary public markets -- not only for fruits and vegetables but also for meat, milk and fish -- on that of diseases transmitted through food.

In a city like Aux Cayes the problem is of course surface drainage, a question that should receive the proper consideration from the Government at the earliest opportunity.

Cap-Haitien has felt the want of water, a condition that never should be allowed to exist again. The same holds true of Jérémie.

CAP-HAITIEN. Market has been improved by a portion of the iron work being scaled and painted and concrete bases put on each pier. It is expected that the entire market will be re-screened in the near future. The public latrine is functioning properly at the market. Water supply remains the same as last year, with exception of new wells in Le Trou and several of the small towns. There has been no supervision of building of latrines as practically no new ones have been constructed. No new public latrines have been built. No active campaign against rats has been started because of the fact that all ships anchor in the harbor and not at dock, even the sail boats being compelled to stay off shore on account of shallow water. Very few rats are seen in Cap-Haitien.

During the year 4678 notices were sent out. Forty five persons were sent to court and of these 38 were fined. From December to February the U.S. Marine Corps furnished 1,900 gallons of kerosene and 300 gallons of crude oil for use in mosquito control. Since that time 756 gallons kerosene have been obtained from this source and 800 gallons of crude oil from Port-au-Prince.

No. of laborers used in cleaning streets	112
No. of trucks	2
No. of mule carts	12
No. of horse carts	1
Total number of loads handled	48,128

Nothing has been done to control prostitution owing to the lack of law regulating same.

Total money received from Commune	Gdes.	5,060.38
Total money received " " (Hospital)		2,400.00

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No. of laborers used in cleaning streets----------112
No. of trucks----------2
No. of mule carts----------12
No. of horse carts----------1
Total number of loads handled----------48,139

Nothing has been done to control prostitution owing to the lack of law regulating same.

Total money received from Commune----------Gdes. 5,060.38
Total money received " " (Hospital) 2,400.00

The incidence of malaria among U. S. Marines stationed in Cap-Haitien during the past twenty-one months has been as follows:

1924	Comp.	No. of cases	Annual rate per 1000	Rainfall (mm)
January	311	35	1350.48	3.7
February	356	12	404.49	155.5
March	442	8	217.19	21.8
April	465	6	154.84	91.7
May	396	2	60.61	96.1
June	401	2	59.85	31.9
July	392	10	306.12	25
August	388	1	30.93	34.6
September	427	4	112.41	199.3
October	427	4	112.41	134.3
November	421	24	684.08	510.9
December	506	32	758.89	81.7
1925				
January	429	103	2881.02	13
February	437	37	1016.12	76.7
March	407	13	383.29	177.9
April	384	5	156.29	177.5
May	329	4	145.89	122.8
June	297	2	80.81	79.
July	299	5	200.67	68.9
August	288	1	41.66	15
September	195	3	184.61	82.5

CAYES. The sanitary condition of this town has been much improved during the past year. An increase of funds allotted has enabled the Public Health Officer to employ more laborers and thus to get better results than heretofore. while the general overhead expense has not been increased except for the salary of the Chief Pharmacist's Mate detailed to this district. All work under "Sanitation" is closely supervised by this Assistant Public Health Officer. The fact that he sees that the work is properly done, that all the men are working, and that the payrolls are not encumbered with the unfit and lazy fully justified the expenses of his salary.

The number of employees carried on the "Sanitation" payrolls are as follows:

One Chief Pharmacist's Mate.
One Port Doctor, Haitian.
One Chief Sanitary Inspector,
(Acts also as clerk and interpreter).
Two Sanitary Inspectors.
One Market Inspector.
Five Chefs d'Equipe.
Street cleaners, mostly women, average number 55.
Laborers, average number 45.
One Chauffeur.
A mechanic is employed when necessary.

The sanitary inspection of the town is made by two inspectors trained at Port-au-Prince, under the direction of the chief sanitary inspector. The same is controlled by the Chief Pharmacist's Mate. During the past year 8,735 houses or properties were inspected. One thousand three hundred and thirty nine (1,339) forms 5 and 6 were sent out. Four hundred and nine (409) persons were sent to court. Of this number 299 were fined. None were acquitted but 110 remain in whose cases no action has been taken. This matter has been taken up with the Gendarmerie and the Judge who has promised to issue mandates for their arrest. During the past year a sustained effort has been made to have latrines built on every occupied property. Much difficulty has been encountered in this work. Notwithstanding this 468 latrines have been built. One hundred and fifty five (155) latrines have been repaired. Some of the new latrines are real curiosities being built of many odds and ends material. It is the policy to be not too severe as to requirements in latrine building. A good latrine will cost from twenty-five to fifty dollars. A man cannot be made to spend this amount if he does not have it. Some people who did not wish to build latrines have done so after several interviews with the judge, but have also carefully locked them and refuse to use them.

Street cleaning. As in past years all street sweeping has been done by women, aided by a certain number of men with wheel-

barrows. It is impossible to obtain men to do this work. The women however appear to be as good if not better workers than the men and are willing to work for seven gourdes per week. The present number employed are considered sufficient for the needs of the town, at least until more streets are repaired.

Garbage collection and disposal. For the first five months of the past fiscal year refuse was collected by mule carts as in the past. The work was never finished at the end of the day. In April a Dodge truck was purchased and has been in use since that time. It has been able to care for all garbage at a saving of approximately sixty dollars per month over the mule carts. This truck was purchased for the most part by funds given by the local Commune. All refuse is used in filling swamp land around the town. During the past year 2,300 mule cart loads and 535 truck loads were removed from the town.

Laborers. The labor problem continues to be a very acute one in this district. It has been necessary to increase wages to one and a half gourdes per day, in order to obtain any men at all. Even with the increased wages we have only old men and boys under twenty. The former are too old and the latter too young to perform a good day's labor. As long as emigration to the Cuban sugar fields continues the problem of getting men will continue and they can be secured only by increasing wages.

Public Latrines. At the present time there is only one public latrine in the town. All others have been abolished as the necessity for them has largely disappeared since the building of so many private latrines. It is the intention however to build two others, one at the wharf and another available for the market people, when funds will permit of building suitable structures.

Markets. The market of this town is in a very fair condition. A new butchershop was completed at the beginning of the last fiscal year, inside the large steel market. This is well screened but it is found to be very difficult to keep the doors closed, as each butcher will open the door nearest to him to attract trade. They have been arrested and fined but nevertheless the practice continues. The amount of produce brought to market has greatly decreased during the past two years due to decrease of cultivation on account of labor shortage.

Water supply. The water supply of Cayes continues to be plentiful and of a good quality. It is derived from an underground stream which was reached by a well, from which it is pumped by steam. It is now proposed to drill a well in the hope of securing a flowing water supply. A chlorinator has recently been bought and will be installed soon.

Dogs poisoned. Only four dogs have been poisoned during the past year. This town has the usual number of dogs but most of them appear to have owners. One case of rabies was reported at Camp-Perrin but the diagnosis was not verified. In fact it was not reported until the supposed victim had been buried several months.

Abattoir. The old building continues to be used. It is a very crude affair but no funds are at hand to secure a better one. It is inspected frequently and kept as clean as possible.

Epidemics. No epidemics have been reported during the past year. There have been about 20 cases of black water fever that have come to the attention of the Public Health Officer. Pneumonia seems to have been more prevalent than usual, according to conversation with the local practitioners.

Vaccination. During the past year as many schools as possible were visited and approximately 4,500 persons vaccinated. This is about 5,500 less than the preceeding year. No accurate control has been made of the number of successful vaccinations. As in preceeding years it was noticed that the number very sharply decreases after the supply of ice is exhausted.

Prostitution. Aux Cayes has its full quota of prostitutes. Many of them emigrate to Cuba with the laborers. They seem to be the most prosperous of these who return. Many come to the hospital for treatment. It is planned to set aside one room in the new dispensary for treatment of those venereally infected.

Mosquito control. This is the largest problem we have to meet in Cayes owing to its unfortunate location amid stagnant rivers and swamps. During the past year one of the old drainage ditches, with a width of ten feet and a length of 14 city blocks was opened and thoroughly cleaned. The result was a considerable reduction of the level of the ground water in the vicinity. Numerous laterals were dug from it. One can now walk dry shod over a large area of what was formerly impassable swamp land. This work will be continued during the present year. The River Renaud continues to give much trouble. No permanent work can be done on this project until the floods which inundate the town are controlled. It is planned however to stake the banks along the worst sections and fill in behind the stakes with rocks. This will prevent the rank growth of vegetation and can be done at a moderate cost which will be borne by the Commune. Cement curbs and gutters were laid over eight city squares by the Department of Public Works, and the streets filled and graveled. The allotment of the Public Works Department is not sufficient to accomplish the work that is necessary. An appropriation should be secured to complete the sanitating of all streets of the town. Estimates of the cost of this work have been previously submitted.

Many breeding places have been filled during the past year, some have been drained and others kept oiled. Many shallow wells have been filled, some covered, while others have been stocked with fish. The worst breeding places are the gutters, which constantly contain water and are filled with vegetation. It is useless to clean them as there is a new growth of vegetation in ten days to two weeks.

Communal funds. During the past year the Service d'Hygiène has received Gdes. 4,200.oo from the local Commune. Most of this was used in the purchase of two trucks. The Communal Council has voted Gdes. 6,000.oo for the use of the Sanitary Service during the coming year. The Service will then be receiving about 10% of the Communal revenues.

Office. The Public Health Service has taken possession of the property formerly occupied by the Public Works Department. This property belongs to the Government but is under lease to a private individual. The rental is Gdes. 100.oo per month. It is necessary for the Service to make all repairs, under the terms of the lease. A new wire fence has been constructed. It will be necessary to make minor repairs to the floors, otherwise the building is in very fair condition. It is hoped that possession can be obtained of the present Gendarmerie Barracks when the property is vacated on completion of the new barracks. This property is also government property and adjoins that of Public Works Department. With suitable repairs it would give the service very convenient offices, storerooms and ample space for garage.

Charities, Welfare and Relief. A local welfare organization generally known as the "Red Cross" is still in existence. The members collect funds and purchase clothing for the unfortunate who are known to be deserving. Its purpose is to prevent begging within the town limits. The organization is doing good work and is receiving the support of the townspeople, especially of the business people whose establishments were formerly frequented by beggars.

Future Plans. Plans for the future may be outlined as follows:-

1. Continuation of drainage of swamp land.
2. River of flood control.
3. New office building.
4. Cement curbing and gutters for all drainage streets.
5. Construction of two new public latrines.
6. Continuation of private latrine building.
7. Staking of banks of river Renaud.

"Annual" flood, City of Cayes.

"Annual" flood, City of Cayes.

The work of draining additional swamp land can be done with the present personnel. A new office building as before stated depends upon the vacating of the present barracks by the Gendarmerie. Additional public latrines and staking of riverbanks can be taken care of from communal funds. Flood control and cementing of gutters are dependent upon State appropriations.

The yearly flooding of this town is really a great menace to life and property. The Ravine du Sud is each year digging a deeper channel at the point of overflow. Should it change its course suddenly while in flood it will certainly destroy a huge amount of property, endanger many lives, and will no doubt destroy the cemetery which lies near its channel and which occupies the former bed of the Ravine as shown by maps of the period of the French occupation.

GONAIVES. Improvements in Markets. During the year screening has been repaired in the meat market. The beef cutting and selling rooms have been rearranged by blocking off the outside selling windows thereby forcing all persons to enter the main building. The small screened boxes in the main building have been done away with. These boxes rather than protecting the meat acted as good fly traps. Now the tables are bare and are easily cleaned. The proposition of food protection and fly eradication is most unsatisfactory as there is no cooperation on the part of the people and methods or devices used are usually quickly stolen or broken. Boxes in the fish market where salt fish are sold are no longer being repaired because of constant breakage and stealing and also because of difficulty in keeping the boxes clean. The water supply is inadequate for all purposes, being available in most places only during a short period in the 24 hours. This necessitates the use of a great number of shallow wells.

Mosquito control. Many wells have been filled and the attempt has been made to keep all others stocked with fish. Considerable low land has been partially filled. Some 8,750 meters of new ditching has been constructed, most of this through the low lands along the North and North East parts of the town. Swamps heretofore undrained along the Dattes have been drained as far as possible. Complete drainage is impossible because of insufficient fall and the presence of innumerable springs. Breakwaters or catch basins have been built at the mouth of three of the main gutters.

Prostitution. Prostitution has not been controlled. In September veneral diseases became very prevalent and were the only diseases affecting the gendarmes. Examination of prostitutes was again started. Those found suffering from these diseases are retained in prison for treatment.

Money received from Commune for year.

Sanitation

Received from Commune of Gonaives---------Gdes. 2,353.70

Hospital

Received	from	Commune	of	Gonaives--------- "	1,500.00
"	"	"	"	Gros-Morne------- "	45.00
"	"	"	"	Saint-Michel----- "	140.00

The sanitary problems of the town are many and to make any great permanent improvement will necessitate the combined efforts of the Commune, and the Public Works and Public Health Services. So far those handling the Commune funds have not been well disposed toward any sanitary improvements. Drainage and filling are the two great needs. During the year the Service d'Hygiène has dug many new and opened up some old drainage ditches, and although this work is not complete, water is now drained away in a day or less which formerly required several days to drain. With each rise of the tide the north and south parts of the town are flooded for several blocks. To the south this is not a menace except for the presence of the water, because the land is fairly free of brush and very few mosquitoes are found. To the north conditions are different. The low land is much greater in extent and is the water shed for the land to the north and north east and with high tide and heavy rains the water is backed up beyond the Dattes. Much of this land is covered with brush and is a hot bed for mosquitoes. Much new ditching has been made through this area but it is with great difficulty that the ditches are kept open through the soft mud of the mangrove flats. It is desired to wall the ditches through this area, cut the brush and build a breakwater as a preliminary to extensive filling which will eventually have to be carried out here. The dismantling of the railroad is leaving much old material which can be used for this work.

The number of men employed on street cleaning and canals is about at the minimum necessary to do the work. The canals need constant attention and as the canal distances increase the work of keeping them open will also increase. New ditching, breakwaters, etc., will require more men. For some time one boss and ten men have been employed for this work and it is necessary to continue their services if new work is to go on.

Six push carts are used for hauling rubbish. These carts are heavy and fitted with high, narrow boxes which are difficult to fill and empty. Due to their weight two men are required to push them and in consequence the load they carry is small. All these carts are old and are a continuous expense for repairs. A truck is urgently needed.

Money received from Commune for year.

Sanitation

Received from Commune of Comlvos----------Chas. 2,353.70

Hospital

Received from Commune of Comalvos---------- " 1,800.00
" " " " Orge-Morne------- " 45.00
" " " " Saint-Michel----- " 160.00

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The water supply of the town is inadequate and therefore wells are a necessity. Most of these are of the shallow type and abound in mosquitoes. Where wells are not in use many have been filled and others oiled. The attempt has been made to keep fish in all wells but this has been most difficult. The attempt was made to have all wells tightly covered but this was not wholly successful as many of the people were too poor to buy lumber. The building of latrines is one of the ideas for the coming year but from past experiences will be a slow process.

Courts. Notices to property owners to correct unsanitary conditions were sent out to 378 persons. In only 20 instances was it necessary to summon such persons before the Juge de Paix and in each case a fine was imposed.

Street cleaning. An average of 47 laborers were employed daily during the year and approximately 14,136 hand cart loads of refuse were hauled. One mule cart was hired during October and December and disposed of 86 loads of rubbish.

The total rainfall for the year in Gonaives was 673-1 millimeters.

HINCHE. Sanitation activities in the town of Hinche proper are accomplished by one sanitary inspector and an average number of six laborers.

The work consists of cleaning the streets, the market, drains and ditches, the filling in of marsh land with rubbish from the streets and a weekly inspection of private residences.

One thousand four hundred and eighty (1,480) inspections have been made in Hinche since a sanitary inspector was employed February 1st, 1925. One hundred and sixty five (165) notices have been served for the cleaning of yards, and the building of latrines. There has been no case of the property owner being sent to the Juge de Paix as the notices have sufficed. Four cases were sent to Court for selling meat unfit for human consumption, and six for keeping hogs within the town limits. Every case sent before the court was fined. Twenty eight (28) stray dogs have been killed in the immediate vicinity of Hinche; no rabid dogs have been detected.

A campaign for the building of latrines in the town of Hinche has been carried on and has progressed very satisfactorily. Approximately fifty new latrines have been constructed in the last six months. A public latrine was built in the market place. Ground has been procured near the town square for the erection of another public latrine, which is very essential for people in the near vicinity who have not enough space in their yards to construct latrines.

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Tabulation of activities is as follows:

Sanitary inspector's inspections	1,480
New latrines built by property owners	50
Public latrines built	1
Notices to clean yards	165
Sent before Court for sale of meat unfit for consumption	4
Sent before Court for keeping hogs in town	6
Total number of cases fined	10

Very little has been done in regard to sanitation outside of Hinche, as the 5% of communal funds has not been sufficient to make any permanent, and therefore worthwhile sanitary improvements.

The water supply for the town of Hinche comes from the Guayamuco and Hinquitte rivers; it is not considered potable by the Public Health Officer of this district. The matter of sinking a deep well to supply water for the public health hospital, Gendarmerie activities, and the town should be studied.

Mosquito control near the town of Hinche is very difficult during the rainy season, as there is so much low land, for which, drainage is almost impossible. There are no ditches in the town to take care of the heavy rainfall which lasts six months of the year. The Public Health Service is working on a ditch which will take care of the drainage of almost half of the town. All marsh land near the town is oiled once a week, thereby, keeping the mosquitoes down to a minimum. Nine barrels of crude oil were used during the last fiscal year.

One small mule cart and a mule was furnished by the Commune of Hinche, for hauling rubbish. The cart was soon worn out and another was rented. The second cart was soon broken beyond repair, and for two months rubbish has been handled in wheelbarrows.

Communal subventions from five communes of this district since 1st December, 1925 are as follows:

Mirebalais	Gdes.	1,934.51
Lascahobas	"	226.83
Belladère	"	291.21
Maissade	"	250.28
Hinche	"	822.68

Prostitution is very prevalent in this district. However there is no way of checking up to find out to what extent it exists. Many women as well as men, come to our clinics for

Tabulation of activities is as follows:

Sanitary inspections made	1,680
New latrines built by property owners	50
Public latrines built	1
Notices to clean yards	165
Sent before Court for sale of meat unfit for consumption	4
Sent before Court for keeping dogs in town	6
Total number of cases fined	10

Very little has been done in regard to sanitation outside of Nhambo as the lack of communal funds has not been sufficient to make any permanent and therefore worthwhile sanitary improvements.

The water supply for the towns of Nhambo comes from the Chayamoco and Ninguette rivers but it is not considered potable by the Public Health Officer of this district. The matter of sinking a deep well to supply water for the public health hospital, Condeixa-a-Velha activities, and the town should be studied.

Mosquito control near the town of Nhambo is very difficult during the rainy season, as there is so much low land for which drainage is almost impossible. There are no ditches in the town to take care of the heavy rainfall which lasts six months of the year. The Public Health Service is working on a ditch which will take care of the drainage of almost half of the town. All mosquito land near the town is oiled once a week, thereby keeping the mosquitoes down to a minimum. Nine barrels of crude oil were used during the last fiscal year.

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Communal subventions from five communes of this district since 1st December, 1935 are as follows:

Mutemdala	Cdes. 1,934.81
Lacambola	" 226.83
Bailadére	" 291.21
Maisando	" 250.29
Mendo	" 822.68

Prostitution is very prevalent in this district. However there is no way of checking up to find out to what extent it exists. Many women as well as men, come to our clinics for

treatment; the majority of them are found to be suffering from syphilis and gonorrhea.

In spite of sanitation measures, during the rainy season which is six months of every year, malaria is very prevalent in this district.

JACMEL. The Sanitation statistics are as follows:

Total No. of dogs poisoned (no cases of rabies seen or reported)	236
Total no. of mule carts in use	4
Total no. of loads handled	8,736
Total sum received from Commune---------Gdes.	3,552.47
Amount of crude oil used in mosquito control-----bbls.	12
No. laborers used in street cleaning	77
No. of notices of unsanitary conditions sent out	6,454

The offender has practically always complied with the order of the notices, but few cases having been sent to the Juge de Paix as result of non-compliance. Conviction has been the rule where such an offender has been sent to court.

Prostitution. No supervision or regulation.

Water supply. During the past year there has been more than the usual annual amount of construction and repair work done on the water supply system. As is noted below more than twice the previous annual sum received from the central government was received during the past year for such improvements. Beginning with this fiscal year, all profits made from installations and repairs on private premises will be retained for expenditure on the maintenance and improvements of this system. Of course it is not known at present how much this will amount to, but certainly it should be of material benefit to the local system. "I cannot agree with the last annual report to the effect that sufface water contamination occurs as a result of leaks in main line pipes. The attached photograph gives one an idea of the great pressure in these pipes, with the result that in case of leaks the flow can only be outward and away from the pipe. In the case photographied the water was shooting upward about 20 feet".

There are few if any leaks at present due to the extensive repair work which has been completed during the past year. The aqueduct which feeds from one of the four springs is of masonry and there is doubtless some surface water contamination at that point. During the past year the water has been shut off about 3 or 4 hours a week but it is planned to have it shut off now only about one hour every two weeks. There is much waste of water here due to people leaving hydrants open in their houses but legal

measures are being started to decrease this form of waste which tends to cause low pressure and is a serious matter in case of fire. Six new modern fire plugs are being installed in the town.

Jacmel is the only town in this district with a water system. Bainet and Côtes-de-Fer with populations each of about one thousand, draw water from rivers near-by, but the people of other towns are obliged to walk from one to two hours from these towns for fresh water that is free enough from salts for drinking purposes. This condition is undoubtedly responsible for the lack of development and sparse population of the section between Saltrou and Anse-à-Pitre.

Mosquito Control. This work remains very inadequate, due entirely to lack of funds. Three small marshes within the town limits have been filled in since the last annual report. There is a large marsh, several feet deep about one half mile outside the town limits which is too large to be filled and should be drained. This is said to have been drained about ten years ago and remained drained about one year, after which the ditches became defective and the marsh refilled. It is estimated that this marsh can be again effectively drained at a cost of about Gdes. 3,500.00.

Twelve drums of oil have been used on poorly draining ditches during the past year. Much can be done in town in the way of building cement gutters if funds were available. Rock gutters are unsatisfactory and much is being spent on labor to keep these free from grass. About 911.58 meters of cement gutters were constructed since the last report.

Latrines. There is only one public latrine in town, this being near the abattoir. One should be constructed near the large town market and another near a smaller open market. Less than one half of the houses in town are equipped with latrines. During the past year 68 latrines have been constructed for private houses as a result of notices sent out by the local Bureau of Service d'Hygiène.

Recommendations. 1. That sufficient money (approximately Gdes. 3,500.00) be appropriated to reopen ditches draining the large marsh east of the city described above.

2. That a public latrine be constructed at or near the public market.

JERÉMIE. The Public Health district of Jérémie comprising the whole of the Northwestern end of the Southern peninsula of Haiti, with nine towns and seventeen villages along the seacoast is under

the control of one Public Health Officer and one Assistant Public Health Officer. There are very few villages in the interior.

Number of dogs poisoned during the year 76. No cases of rabies have been reported.

The markets were kept in a permanent sanitary condition by one inspector aided by one gendarme. There are no mosquito breeding places in the town proper and the few mosquitoes that are found are bred in neglected barrels and containers. These cases were handled by the house inspectors who explain to the people the danger of breeding mosquitoes on their premises. One oil spray was kept in use at all times. The water supply of the town of Jérémie is as usual of excellent quality although lacking in quantity. Pestel depends entirely upon rains for drinking water and in several instances fresh water is brought by boat from the river at Corail. The Public Works Department has prepared plans for the better distribution of water at Corail. Funds for the execution of these plans have been turned over to the Public Works Officer and the work is underway. At Anse d'Hainault the old public fountain still exists and the water has been of very good quality, piped from a spring about a mile from the town. All other towns of this district obtain their water from rivers and springs.

Very few houses in Jérémie are without latrines and only in the sections of the poorer classes has there been a lack of them. In these sections are to be found seven public latrines.

The number of notices sent out in the cases of unsanitary conditions were 301. Of this number 11 cases were taken to the courts and were punished either by a fine of five gourdes or thirty days in prison.

There were seventy five (75) gallons of crude oil used during the year.

There has been no control over prostitution in this district.

The total amount of money received from the Commune during the year was Gdes. 1,662.21 which was five percent of the total amount collected by the Commune.

The rainfall in the town proper was far below the average although in the rural districts it has been normal. During the months of October and November, 1924, the rainfall was exceedingly heavy in the hills.

the control of one Public Health Officer and one Assistant Public Health Officer. There were very few violations in the interior.

Number of dogs poisoned during the year 76. No cases of rabies have been reported.

The markets were kept in a commendable sanitary condition by one inspector aided by one constable. Dirty carts and careless butchers in the town proper and the less congested part are found are fined in accordance with ordinances. These cases were handled by the house inspectors who explain to the people the danger of breeding mosquitoes on their premises. One well sprayed was kept in use at all times. The water supply of the town of Jérémie is as usual of excellent quality although lacking in quantity. Postal deposits entirely upon rains for drinking water, and in several instances fresh water is brought by boat from the river at Corail. The Public Works Department has prepared plans for the better distribution of water at Corail. Funds for the execution of these plans have been turned over to the Public Works Officer and the work is underway. In June the Chief old public fountain still exists and the water has been of very good quality, piped from a spring about a mile from the town. All other towns of this district obtain their water from rivers and springs.

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There were seventy five (75) gallons of crude oil used during the year.

There has been no control over prostitution in this district.

The total amount of money received from the Commune during the year was Gdes. 1,652.81 which was five percent of the total amount collected by the Commune.

The rainfall in the town proper was far below the average although in the rural districts it has been normal. During the months of October and November, 1934, the rainfall was exceedingly heavy in the Mitan.

Recommendations. 1. Relocation of the sanitary office and reorganization of the sanitation of the district by the assistant Public Health Officer.

2. An attempt to aid in the sanitation of the communes of Dame-Marie and Anse d'Hainault.

3. A thorough study of the mosquito breeding at Pestel with an attempt at control.

4. Securing of a motor boat for use of the Service d'Hygiène in this district.

5. Replacement of the present carts and mules by a motor truck. At the present cost of hauling, the operation of a truck would save money and be more efficient. In addition much material could be utilized for filling at the hospital which now is carted to the beach because of inability to get the carts up the hill.

6. Erection of two public latrines at Corail.

PETIT-GOAVE. The personnel of the Public Health Service at Petit-Goave consists of the following:

1 Public Health Officer
1 Chief Inspector
3 Sanitary Inspectors
5 Chefs d'Equipe
1 Watchman
1 Cook
42 Laborers.

Miragoane

1 Inspector
9 Laborers

Anse-à-Veau

1 Inspector
5 Laborers

Grand-Goave

1 Inspector
5 Laborers

Baradères

1 Inspector
7 Laborers

One hundred and forty six (146) dogs were poisoned and disposed of in this district during the past year.

Petit-Goave. Market is held daily in this town with the exception of Sunday. All meats are sold in a screened enclosure. All fish, bread, etc., is sold from screened containers. The market is closely supervised and failure to comply with requirements usually results in the offender being brought before the Justice of the Peace and fined.

A new slaughter house, constructed by the Commune, was opened during the year. It is constructed entirely of brick, has a cement floor and is well supplied with drains for carrying the refuse to the sea. Beef is slaughtered five days each week and a man is maintained by the lessee to keep the place in a satisfactory sanitary condition.

The water supply is as previously reported. All drinking water is brought on burros and mules from a spring about a mile from town. Plans are underway for improving this condition by piping good water to the town proper. There are many wells in the town the water from which is used only for bathing and washing.

House to house inspections are made by the inspectors daily for the enforcement of sanitary measures, destruction of mosquito larvae and the construction of proper latrines. Containers found harboring mosquito larvae are destroyed, swampy land is filled in as fast as possible with the refuse from the streets and later covered with gravel and sand collected from the beaches. Oil for mosquito control has been used freely especially after heavy rains. Small streams and drainage ditches have been staked off and the bottoms and sides kept free from grass and weeds. The streams are well supplied with fish of various species which tend to free them of larvae.

Forty one inhabitants were required to construct latrines during the past six months. We hope soon to construct four large public latrines.

During the year the old slaughter house was converted into a public latrine for transients.

Miragoane. The market in this town is very poor. The present meat market is about four feet long by six feet wide, is well screened but entirely inadequate for the purpose intended. An unsuccessful attempt was made to collect sufficient funds for the erection of a market suitable for all needs.

The water supply in Miragoane is adequate but not always potable especially during and after heavy rains.

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The water supply in Miragoane is adequate but not always potable especially during and after heavy rains.

Due to poor drainage it is difficult to keep the town in the desired condition nevertheless work along sanitary lines has gone forward steadily. Oil has been used freely where needed and the filling of swampy ground has continued when possible.

Grand-Goave. A market place for the vending of meats, fish, etc., was constructed during the year.

The water supply is both adequate and potable.

Sanitation work has gone forward steadily but improvement could be made by the addition of more laborers.

Plans are underway for the construction of an office and clinic for use of the Public Health Service.

Anse-à-Veau. Market is held twice weekly in this town. The market place is in poor condition but is kept as clean as possible.

The water supply of Anse-à-Veau is believed to be the best in the district and no complaints have been found.

The inspector has been keeping the town in a sanitary condition but as in the other towns is handicapped by lack of labor.

Baradères. This town is in very poor condition from any standpoint. With the appointment of a new sanitary inspector during the past month it is believed this condition may be remedied.

Market is held twice weekly. Meats, fish, bread, etc., are sold from screened containers.

Oil is used freely for mosquito control but is inadequate due to the location of the town.

Petit-Trou. One laborer has been placed in this town under the supervision of the inspector at Anse-à-Veau for maintaining the market place in good condition.

The water supply of this town is very poor and is unfit for use without filtering or treatment.

The town is almost entirely surrounded by a marsh and mosquitoes are always prevalent. No labor or funds are available for overcoming this condition.

The towns of Trouin, Petite-Rivière, Grand-Boucan, Asile and Vialet are visited at regular intervals but with the exception of Vialet, no sanitary measures are being effected.

Due to poor drainage it is difficult to keep the town in the desired condition. Sweeping and scraping have done fairly well. Oil has been used freely where needed and the filling of swampy ground has continued when possible.

Grand-Goave. A market place for the vending of meats, fish, etc., was constructed during the year.

The water supply is both adequate and potable.

Sanitation work has gone forward steadily but improvement could be made by the addition of more laborers.

Plans are underway for the construction of an office and clinic for use of the Public Health Service.

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The water supply of this town is very poor and is unfit for use without filtering or treatment.

The town is almost entirely surrounded by marsh and mosquitoes are always prevalent. No labor or funds are available for overcoming this condition.

The towns of Tronin, Petite-Rivière, Grand-Boucan, Jasmin and Violet are visited at regular intervals but with the exception of Violet, sanitary measures are being effected.

Courts. During the year, 1,239 notices were sent out; of this number, 226 were brought before the court and fined.

Eleven hundred gallons of oil was used for mosquito control in this district throughout the year.

In Petit-Goave 42 laborers were employed on the streets daily during the year and 4 carts. There were 21,712 loads of refuse hauled during the year.

No houses of prostitution are known to exist in the district but street-walkers are rampant in practically all the towns.

During the year a total of Gdes. 4,195.01 were received from the various communes in the district.

No means are available in this district for the determination of the amount of rainfall. While rain is present during the entire year the natives concede the heaviest rainfall to the months of March, April, May, September, October and November.

The following was accomplished during the year:

Petit-Goave. 1. A public latrine was built on the site of the old slaughter house which extends out over the sea for a distance of fifteen feet and is fourteen feet wide with accomodations for eight people.

2. A concrete drainage ditch 166 feet long by 2 feet wide was constructed during the year. It extends from the rear of the Gendarme Prison to the sea.

3. A driveway of cement was constructed through the premises of the Public Health Service.

4. The reservoir of the Usine Centrale was drained four times during the year. The bottom and sides were thoroughly cleaned and the edges staked to prevent the grass growing in again.

5. Minor repairs to masonry, etc., was made to all buildings of the Public Health Service requiring such attention.

6. Construction has been started on a garage on the premises of the Public Health Service in anticipation of trucks replacing the carts now in use at some future date.

Grand-Goave. A market place was completed during the year in this town. It is 50 feet long by 20 feet wide, constructed of heavy timber with a galvanized iron roof. It is ready for occupation with the exception of cementing the floor.

Courts. During the year, 1,239 notices were sent out of this number, 254 were brought before the courts and fined.

Eleven hundred gallons of oil was used for mosquito control in this district throughout the year.

In Petit-Goave 42 laborers were employed on the streets daily during the year and 4 carts. There were 21,312 loads of refuse hauled during the year.

No houses of prostitution are known to exist in the district but street-walkers are rampant in practically all the towns.

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Grand-Goave. A market place was completed during the year in this town. It is 50 feet long by 20 feet wide, constructed of heavy timber with a galvanized iron roof. It is ready for occupation with the exception of cementing the floor.

This swamp has been filled with city refuse. Port-au-Prince.

Future Plans. The following construction is planned for the coming year:

1. Completion of the garage previously mentioned.

2. The construction of four public latrines in the town of Petit-Goave and one in the town of Grand-Goave.

3. Construction of a concrete drain in the town of Anse-à-Veau extending from the center of the town to the sea.

Recommendations. 1. That two Ford trucks be furnished for use in the town of Petit-Goave to replace the carts now hired from private individuals.

2. That the towns of Grand-Goave, Miragoane, Anse-à-Veau and Baradères be furnished with a mule cart each.

3. That an inspector and four laborers be placed in the towns of Petit-Trou in an attempt to remedy present insanitary conditions.

POINT-AU-PRINCE. Inspection Service. The past year saw marked changes in this branch of our activities. The more detailed inspection of various properties required more inspectors for the city proper and the inclusion of smaller towns and rural sections of the district within the regular inspection area necessitated more personnel. At the present time the city of Port-au-Prince is divided into 15 sections, each one being in charge of a sanitary inspector who attempts to cover same at least once a week. In addition there are four controllers and one Chief Sanitary Inspector to check up on the work and to follow up the abatement of nuisances.

The rural districts are in charge of a Chief Sanitary Inspector. Local sanitary inspectors are assigned to Léogane, Pétion-Ville, Croix-des-Bouquets, Thomazeau and Arcahaie. In addition four rural sanitary inspectors are employed in the country districts surrounding Carrefour, Croix-des-Missions, Croix-des-Bouquets, and Pont-Beudet.

Every inspector has received a more or less intensive training under experienced men before they are sent out on independent duty. By the introduction of this more or less trained sanitary personnel into the rural districts it is hoped to awaken the hygienic conscience of the people. Coupled with the rural clinical service this work is bound to have salutary effect upon the great morbidity and poor sanitation which prevails in many parts of the Republic.

Future Plans. The following construction is planned for the coming year.

1. Completion of the sewage previously mentioned.

2. The construction of four public latrines in the town of Petit-Cosne and one in the town of Grand-Cosne.

3. Construction of a complete drain in the town of Beauvoisin extending from the center of the town to the sea.

Recommendations. 1. That two Ford trucks be furnished for use in the town of Petit-Cosne to replace the carts now hired from private individuals.

2. That the towns of Grand-Cosne, Miregoane, Beauvoisin and Barnières be furnished with a pale ecrit each.

3. That an inspector and four laborers be placed in the towns of Petit-Trôa in an attempt to remedy present insanitary conditions.

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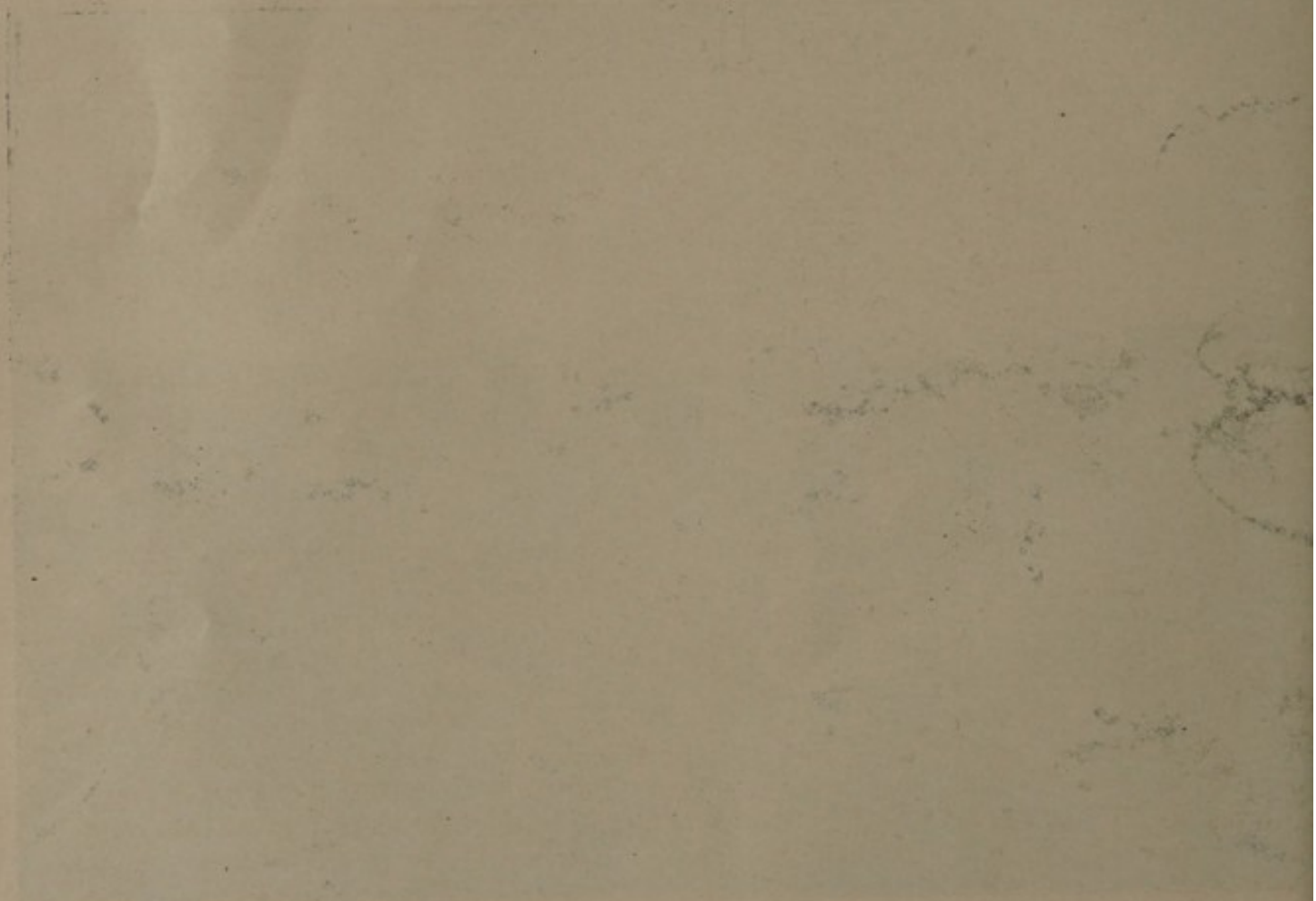
A swampy section Just outside the city limits, Port-au-Prince.

A swampy area within the city limits, Port-au-Prince, controlled by drainage ditches and oiling



During the year 16,694 notices were sent out to property owners in Port-au-Prince with instruction to abate various nuisances. Of this number the requests were complied with in 9,599 cases without further question. The remainder, 1,095, were referred to the courts. Of the referred cases 1,058 were cancelled as the work requested was finally completed satisfactorily, the remainder, 37, were ordered by the court to execute the work and were also assessed a fine. The co-operation of the Police Department is very good in following up cases that are referred to court.

Control of mosquito breeding. Control of mosquito breeding continues to be one of the most important phases of our work. This holds particularly true with regard to the control of malaria-bearing mosquitoes. In spite of all our efforts Anopheles albimanus may still be found breeding in the vicinity of the city and in the southeastern and even within the city limits. But the work of abating this nuisance is progressing nicely. The entire shore front of the city proper, that is between "Maison Centrale" and the wharf, has been filled in where needed and in addition a system of cement surface gutters has been introduced into this once very dismal and swampy section.

The various ravines and dirt ditches throughout the city receive particular attention. This maintenance work is quite extensive in nature on account of the havoc raised after every down pour.

The semi-domesticated mosquitoes Aëdes aegypti and Culex quinquefasciatus have decreased in number during the year due to more careful inspection. To be sure complaints come in occasionally regarding the "tremendous" number of mosquitoes present in certain houses. Investigation of these cases shows in the majority of instances that the source of the pest is usually on the premises as for instance in antguards under the food-cupboards, in forgotten flower vases, etc. The bassins often teem with mosquito larvae, numbers of tin cans, cocoanut shells and calabashes are often found strewn over yards and empty lots containing enough water to render them dangerous sources of mosquito-breeding. The aim of the inspection service is to cover the individual properties at least once a week in order to check up on conditions of this kind.

During the year work was started in the rural section to the North and Northwest of Port-au-Prince, in the vicinity of Pont-Beudet, Borpeau, Croix-des-Missions and Cazeau. In order to give the rural inspection force in this section a good talking point the Service placed all public ditches, canals, etc. in a good sanitary condition. The response of the individual property owners is as good as can be expected and by means of continued supervision and inspection it is hoped to bring about marked improvement in

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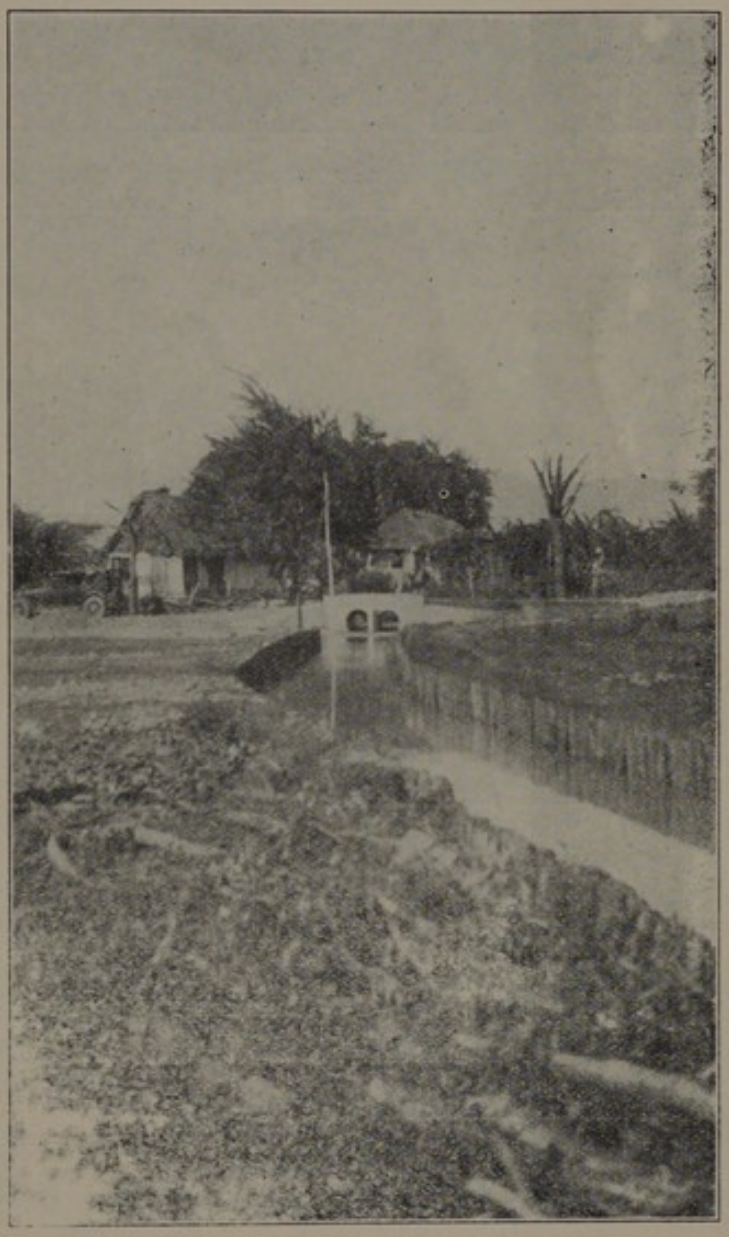
Swamp at Cazeau, District of Port-au-Prince.



Same after filling and draining.

this entire section. In the region of Hasco the intensive work of the previous year has been kept up. In this region the Second Regiment has co-operated very nicely in our attempt to keep the breeding of malaria-spreading mosquitoes down to a minimum.

The funds available during the year did not permit of any except temporary measures in the vast swamps to the south and southwest of Avenue Louverture. During the coming year however it is hoped that a sufficiency of funds will permit of the making of permanent improvements in this section as well as of the extension of the surface cement gutters along the shore front up to Rue Républicaine between Avenue Louverture and the wharf.

The incidence of malaria among U. S. Marines stationed in Port-au-Prince during the past twenty-one months is shown in the following table:

Malaria Incidence among U.S.Marines in Port-au-Prince District (1924).

	PORT-AU-PRINCE			HASCO			CAMP GEN. RUSSELL			
	Comp.	No.of: cases	Annual rate per 1000	Comp.	No.of: cases	Annual rate per 1000	Comp.	No.of: cases	Annual rate per 1000	Rain-fall (mm.)
Jan.	548	20	437.95	232	13	672.41	275	10	436.36	37.4
Feb.	593	11	222.59	232	0	0	288	13	541.66	18.5
Mar.	686	3	52.47	238	1	50.42	93	0	0	54.6
Apr.	635	3	56.69	325	1	36.92	121	0	0	255.1
May	715	2	33.56	224	3	160.71	141	0	0	143.6
June	620	0	0	222	5	270.27	197	0	0	154.7
July	637	5	94.19	192	18	112.5	273	3	131.86	128.7
Aug.	638	2	37.61	205	4	234.14	278	1	43.16	173.3
Sept.	594	2	40.4	210	5	285.71	267	1	44.94	100.5
Oct.	607	3	59.31	196	6	367.34	271	1	44.28	175.9
Nov.	625	3	57.60	192	9	562.50	271	2	88.56	135.4
Dec.	694	0	0	217	4	221.19	102	2	235.29	0.5

this centre section. In the region of Hasco the intensive work of the previous year has been kept up. In this region the second Regiment has co-operated very nicely in our attempt to keep the breeding of malaria-spreading mosquitoes down to a minimum.

The funds available during the year did not permit of any except temporary measures in the vast swamps to the south and southwest of Avenue Lowerture. During the coming year however it is hoped that a sufficiency of funds will permit of the making of permanent improvements in this section as well as of the extension of the surface cement gutters along the shore front up to the Republicaine between Avenue Lowerture and the wharf.

The incidence of malaria among U. S. Marines stationed in Port-au-Prince during the past twenty-one months is shown in the following table:

Malaria Incidence among U.S.Marines in Port-au-Prince
District (1934).

	PORT-AU-PRINCE			HASCO			CAMP GEN. RUSSELL		
	Strength	No.of cases	Annual rate per 1000	Strength	No.of cases	Annual rate per 1000	Strength	No.of cases	Annual Rate per 1000
Jan.	548	20	437.95	232	13	672.41	275	10	436.36
Feb.	555	11	222.89	232	0	0	268	13	564.66
Mar.	686	3	58.47	239	1	50.42	93	0	0
Apr.	635	3	56.69	325	1	36.92	121	0	0
May	718	2	33.56	234	3	180.71	141	0	0
June	620	0	0	225	5	270.27	197	0	0
July	637	6	94.19	192	18	112.5	272	3	131.86
Aug.	658	2	32.61	205	4	234.14	276	1	43.16
Sept.	594	2	40.4	210	5	285.71	267	1	44.94
Oct.	607	3	59.31	196	6	367.34	271	1	44.28
Nov.	625	3	57.6	192	9	562.50	271	2	88.56
Dec.	694	0	0	219	4	221.19	108	2	238.29

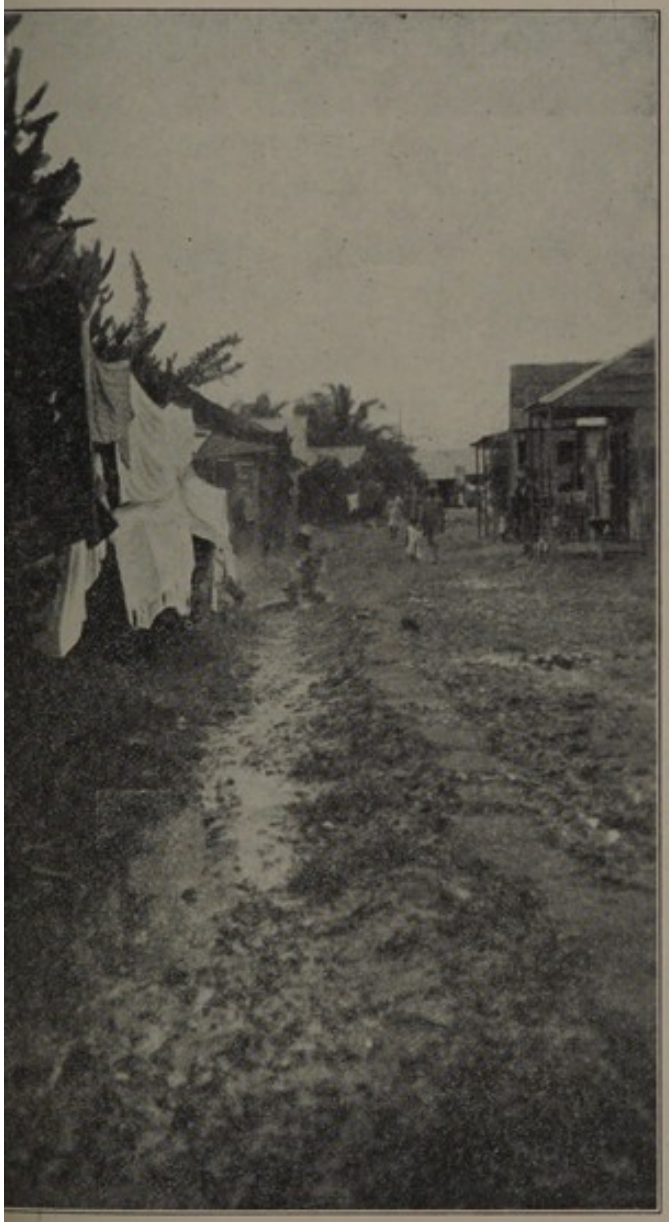
A temporary mosquito breeding place, produced while irrigation project is under construction

1925	PORT-AU-PRINCE			HASCO			CAMP GEN.RUSSELL			Rain-fall (mm.)
	Comp.	No.of cases	Annual rate per 1000	Comp.	No.of cases	Annual rate per 1000	Comp.	No.of cases	Annual rate per 1000	
Jan.	230	2	45.28	264	0	0	271	3	130.84	1.8
Feb.	563	0	0	290	0	0	272	2	88.56	177.8
Mar.	614	0	0	321	1	37.38	191	3	188.48	121.8
Apr.	604	0	0	287	4	167.24	177	0	0	179.6
May	639	0	0	291	5	206.18	166	0	0	75.3
June	653	1	18.37	310	1	38.71	74	2	324.32	44.4
July	679	3	53.02	311	2	77.17				86.8
Aug.	652	9	165.64	273	3	131.86				99
Sept.	572	9	188.81	286	3	125.80				202.5

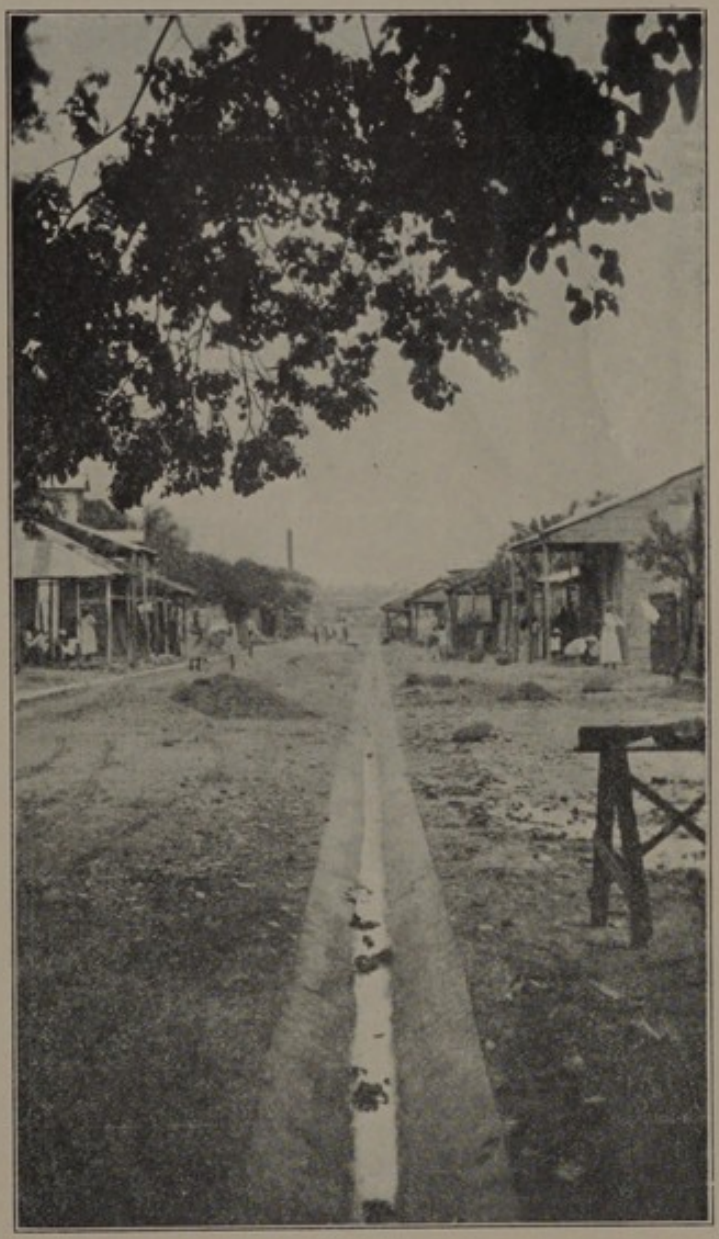
Street cleaning. The cleaning of the city streets forms quite an important part of the activities of our service. At present a fleet of 12 Ford trucks are being used in hauling street refuse and such garbage as is collected from the various properties. Two hundred and fourteen (214) men are employed in this work. As in previous years the refuse is being used in filling up low lying land. Many city blocks have been reclaimed in this fashion.

Markets and Abattoir. About fifty (50) men are employed to keep these places in a sanitary condition. Three market inspectors spend their entire time in the markets to check up on produce offered for sale. A veterinary inspector inspects the cattle before and after slaughter.

Nightsoil removal. The system of nightsoil removal is practically in the same plight as has been described in previous reports. The lack of a modern water carriage sewage system in a city, the size of Port-au-Prince, is indeed a sad thing to relate. During the year however, the Public Works Department succeeded in getting enough funds to install a sewer to take care of the sewage from the Palace, Marine Barracks, Gendarme Casern, Haitian General Hospital and the newly finished Palais des Finances.



Dirt drain, Port-au-Prince.



Same street after concrete drains had been built.

Recommendations. There is a crying need for improved water supply, a water carriage sewage system, improved surface drainage and public markets.

PORT-DE-PAIX. The Public Health district of Port-de-Paix consists of the communes of Anse-à-Foleur, Saint-Louis du Nord, Port-de-Paix, Jean-Rabel, Bombardopolis, Môle Saint-Nicolas and Baie de Henne.

COMMUNES	Population (Urban)	Schools (Urban)	Sections	Population (Rural)	Schools (Rural)
Anse-à-Foleur	600	3	3	9,700	4
Port-de-Paix	5,000	4	12	30,000	4
Saint-Louis	2,500	4	6	26,000	4
Jean-Rabel	400	3	7	21,000	7
Môle St.Nicolas	200	3	3	2,500	3
Bombardopolis	125	2	3	3,300	3
Baie de Henne	100	2	4	1,500	3
	8,925	21	38	102,000	28

From the above tabulation it will be seen that the portion of the district east of Trois-Rivières is the most thickly inhabited.

The following are employed by the Service d'Hygiène at Port-de-Paix:

1 Lieutenant Medical Corps
1 Pharmacist Mate 1st. class
2 Sanitary inspectors
1 Clerk
3 Chefs d'Equipe
1 Cook
27 Laborers.

The statistics are as follows:

Number of dogs poisoned----------172
Number of notices of unsanitary conditions----------303
Bread trays destroyed---------- 76
New latrines---------- 92
Amount of crude oil used in mosquito control---Gals. 200
Number of laborers used in cleaning streets---------- 22
Number of mule carts---------- 4
Number of loads handled----------18,000
Total money received from Communes----------Gdes. 2,583.49
Rainfall----------mm. 1,344 1/2

Accomplishments and personal remarks in regard to conditions, needs, recommendations:

Anse-à-Foleur. This Commune consists of a village and three sections. The town is about 3-1/2 hours distant from Port-de-Paix via automobile and horseback and during the rainy season due to the flood waters of the rivers Barre and Anse-à-Foleur is inaccessible at times except by boat.

The village proper consists of two streets parallel to the sea along a sandy stretch of beach, the population of the village is estimated at 600 inhabitants. A sanitary survey shows but three latrines and one well in town. The beach is used in general as a public latrine. The water supply is obtained from the surrounding rivers.

Due to the co-operation of the local gendarmes the animal situation is kept fairly well under control. The market which is held twice weekly is of open air type and its supplies are of poor quality and quantity.

Saint-Louis du Nord. The Commune of Saint-Louis du Nord consists of the village of Saint-Louis and six sections. It is about 40 minutes by automobile from Port-de-Paix and is accessible at all times.

Next to Port-de-Paix, Saint-Louis du Nord is the largest commune in the district. The population of the village is estimated at 2,500 inhabitants. The village proper consists of one main street 2 1/2 miles long with some few cross streets.

Water supply. The local rivers supply most of the drinking water. Many of the houses have wells which are inadequately covered and for the most part brackish. The town is inadequately supplied with private latrines. There are no public latrines.

Market. During the year one section of the open market was modernized. The market products are abundant and of good quality.

Streets. The streets have shown some improvement during the year in regard to cleanliness. The animal situation is well in hand.

Recommendations. A small sanitary squad would be a great help and the assistant Public Health Officer, by spending one day a week in this town, should be able to establish proper municipal sanitation.

From the communal funds the following needs are projected during the coming year: the establishment of a screened butchery

Accomplishments and personal remarks in regard to conditions, needs, recommendations.

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The village proper consists of two streets parallel to the sea along a sandy stretch of beach, the population of the village is estimated at 800 inhabitants. A sanitary survey shows but three latrines and one well in town. The beach is used in general as a public latrine. The water supply is obtained from the surrounding rivers.

Due to the co-operation of the local gendarmes the animal situation is kept fairly well under control. The market which is held twice weekly is of open air type and its supplies are of poor quality and quantity.

Saint-Louis du Nord. The Commune of Saint-Louis du Nord consists of the village of Saint-Louis and six sections. It is about 40 minutes by automobile from Port-de-Paix and is accessible at all times.

Next to Port-de-Paix, Saint-Louis du Nord is the largest commune in the district. The population of the village is estimated at 2,500 inhabitants. The village proper consists of one main street 2 1/2 miles long with some few cross streets.

Water supply. The local rivers supply most of the drinking water. Many of the houses have wells which are inadequately covered and for the most part broken. The town is inadequately supplied with private latrines. There are no public latrines.

Market. During the year the section of the open market was modernized. The market products are abundant and of good quality.

Streets. The streets have shown some improvement during the year in regard to cleanliness. The animal situation is well in hand.

Recommendations. A small sanitary squad would be a great help and the sanitary Health Officer, by spending one day a week in this town, should be able to establish proper municipal sanitation.

From the communal funds the following roads are projected during the coming year: the establishment of a screened butchery

in the market, the building of an abattoir and of at least two public latrines.

During the year 43 clinics were held in this town.

This commune contributed Gdes. 448.39 to the Service d'Hygiène.

Port-de-Paix. Port-de-Paix is the political and commercial centre for this district. The population is estimated as between 4,500 and 5,000 within the city limits and 30,000 in the eleven sections. The city is laid out in squares with narrow streets running for the most part due North and South and East and West.

There are approximately 427 plots of land in the town upon which dwelling houses have been erected. With the exception of forty all these plots have latrines. During the past year 100 new latrines were built and put in operation and it is expected that before the end of the coming year all dwellings will have them. The two existing public latrines are not adequate for the town and two more are projected for the coming year.

Water supply. The most pressing of sanitary requirements in the town is a modern water system. At present, most of the drinking water used here is transported from Trois Rivières on animals and sold about the town under conditions that are far from sanitary. Some twenty-five years ago a concession was granted and a water works built and operated. Trois Rivières was the source of supply. Three reservoirs built at that time are still in excellent state of preservation and the pipe which is of wrought iron is still mostly in serviceable condition. A preliminary survey of this old system and of other sources of water supply was made during the past year by the Travaux Publics. In the town there are 247 wells of which about 10% contain potable water, the water in the others varying from brakish to salt. Many of these wells are inadequately protected from mosquitoes.

Drainage. By the establishment of a drain run North and West in the western portion of the town across the Saline the Chief source of mosquitoes would be eliminated. After a high water level is obtained during the rainy season for the Port-de-Paix river in the Eastern end of the town it will be possible to fix the banks and prevent mosquito breeding in this section of the town by preventing the back water. The street drainage can be made adequate with the natural contour of the terrain by a very small amount of labour.

Street cleaning. It is recommended that a small truck be allotted this town for street cleaning purposes. With a truck and the two new mule carts that were recently obtained the needs of this town will be taken care of for some time to come. In

this connection it is also recommended that the Service purchase and keep their own animals.

Markets. The present open air market is rather small for the town and the meat market is entirely inadequate and has reached the state where extensive repairs are necessary.

Emigration. There are about 8,000 to 10,000 men leaving this port each year during the fall, for Cuba to work for the United Fruit Co. They return during the latter part of the following summer. These men are examined by the Public Health Service upon their return.

Recommendations and Projects. 1. As soon as the Commune is in a financial position to do so it is recommended that the present meat market be demolished and one suitable in type and size be erected along the water front.

2. That a combination garage, corral, and storeroom be erected on the Hospital grounds.

3. That the Service d'Hygiène purchase and maintain their own animals for street cleaning purposes.

4. That sufficient money be appropriated to reestablish the drainage canals mentioned above.

5. That an extraordinary credit be obtained for the installation of a modern hydraulic system for the town.

Cooperation. The Commune officials, local Gendarmerie officers, the priest, and the leading citizens, have given their unqualified support to the Service d'Hygiène in all ways during the past year.

This Commune contributed Gdes. 1,655.80 to the Service d'Hygiène.

Jean-Rabel. The commune of Jean-Rabel consists of the village and seven sections with an estimated population of 400 inhabitants, in the village and 21,000 for the rural population. It is 26.3 miles from Port-de-Paix over a horseback trail that during the rainy season is at times impassable due to the mud and flood waters of the Trois Rivières. The village proper consists of two main streets and a few irregular cross streets.

The town is inadequately supplied with latrines, and the streets are poorly cared for. There are no wells in the town and all of the water is taken from the river that flows along the outskirts of the town. The far bank of the river is the public latrine of the populace.

The market is fairly well attended but its products lack quantity and are poor in quality. There are two market days per week.

This commune contributed for sanitation Gdes. 388.93.

Mole St. Nicolas. The commune of Mole St. Nicolas is about four hours on horseback from the town of Jean-Rabel. This town formerly had some commercial importance which it has now last. The population of the town proper is about 200. The three sections have an estimated population of 2,500.

Water supply. This is taken from a river about one half hour's ride from the town. There are no wells in the town. There are a few latrines but these are insufficient in number.

Market. Very poor in quality and quantity, the attendance is practically nothing.

Bombardopolis. This commune consists of the town and three sections. The population of the village is estimated at 125, and the three sections at 3,300 inhabitants.

There are no wells in the town, and the water is obtained from a neighboring river. There is one latrine in the town in the former caserne of the Gendarmerie d'Haiti. Market is held once a week. This Commune contributed Gdes. 13.50 for its sanitation.

Baie de Henne. The Commune of Baie de Henne consists of the village and three sections. The population of the village is estimated at 100 and the three sections at 1,400 inhabitants. There is one latrine in the town in the former caserne of the Gendarmerie d'Haiti. There are no wells in the town. Water is either brought from the town of Gonaives via sail boat or from a spring three hour's ride inland. There is no market.

Ile de la Tortue. The Ile de la Tortue has an estimated population of 5,000 inhabitants. This population is spread over the island in small hamlets or fishing villages along the coast and scattered habitations inland. The biggest collection of people is at Palmiste on the inland plateau at an elevation of about 1,700 feet. The chapel with its resident priest is here. This point is about one hour's ride on horse from the sea coast. There are two private schools in the island, one at Palmiste maintained by a priest, the other at the sea coast maintained by an adventist.

The water supply is abundant from springs situated along rock outcroping situated between the sea-coast and the Plateau.

The market is fairly well attended but its products lack quantity and are poor in quality. There are two market days per week.

This commune contributed for sanitation Ordre, 329.93.

Nolo St. Nicolas. The commune of Nolo St. Nicolas is about four hours on horseback from the town of Jean-Rabel. This town formerly had some commercial importance which it has now lost. The population of the town proper is about 200. The three sections have an estimated population of 2,500.

Water supply. This is taken from a river about one half hour's ride from the town. There are no wells in the town. There are a few latrines but those are insufficient in number.

Market. Very poor in quality and quantity, the attendance is practically nothing.

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There are no wells in the town, and the water is obtained from a neighboring river. There is one latrine in the town in the former quarters of the Gendarmerie d'Haiti. Market is held once a week. This Commune contributed Ordre. 15.50 for its sanitation.

Baie de Henne. The Commune of Baie de Henne consists of the village and three sections. The population of the village is estimated at 300 and the three sections at 1,400 inhabitants. There is one latrine in the town in the former quarters of the Gendarmerie d'Haiti. There are no wells in the town. Water is either brought from the town of Bonaives via mail boat or from a spring three hour's ride inland. There is no market.

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The water supply is abundant from springs situated along rock outcropping situated between the sea-coast and the plateau.

There are about seven of these springs. There are two latrines on the island. There is no market. Mosquitoes and joggers are abundant along the sea coast as are gnats and sand flies. On the Plateau these do not exist to any marked degree. Treponematosis is extremely prevalent. Malaria exists to some degree on the sea coast. Intestinal parasites are prevalent throughout the island.

The only means of visiting the island at present is most unsatisfactory. Due to the variable winds, it is difficult to reach Tortue and hence meet engagements for clinics previously announced. Ile de la Tortue therefore greatly needs a motor boat for this work. The priest at Tortue is very enthusiastic and is doing all in his power to further the interest of the people as well as to cooperate with Service d'Hygiène, placing everything that he has at the disposal of the Public Health Officer and encouraging the people to attend clinics. A room has been set apart in the school house at Palmiste for the use of the Public Health Officer.

SAINT-MARC. The sanitation force of Saint-Marc consists of one Chief inspector, 26 laborers, 4 Chefs d'Equipe and 4 inspectors.

This town is divided into two districts, each of which is covered by one inspector who goes daily from house to house until he has covered his section. After completing his section he devotes a day to the country gardens on the outskirts of his district, then he begins once more with his house to house inspection and in that way keeps a close check of latrines under construction, general sanitary conditions and notes any new mosquito breeding areas in his district. The third inspector is continually going from place to place visiting the old areas of stagnant water and looking for new mosquito breeding places caused by the rains. He has direct supervision of oiling pools where it is impossible to drain off the water. The fourth inspector patrols the market section throughout each day forcing the venders to keep the boxes of edibles closed, except, of course, when a sale is being made. A marked improvemend has been noticed since this arrangement has been in effect.

All the inspectors report at the sanitation office each morning to receive instructions and each afternoon to make a written report of what they have accomplished during the day.

It is remarkable how the inhabitants have responded in the matter of building new latrines and putting obsolete latrines in fit condition. It is believed that within a few months each house will have a latrine. New houses that are being constructed have latrines under construction at the same time. It was formerly not the custom to build any latrine.

There are about seven of these altogether. There are two latrines on the island. There is no market. Hospitalisation figures are abundant along the sea coast as are guts and dead flies. On the Plateau these do not exist to any marked degree. Tropomaniasis is extremely prevalent. Malaria exists to some degree on the sea coast. Intestinal parasites are prevalent throughout the island.

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Break in the dyke road along the Artibonite River near Saint-Marc.

Another example of the Artibonite River overflowing its banks. Obstacles such as depicted above must be overcome in holding rural clinics.

Courts. The following is a list of the number of notices sent out to persons for infractions of sanitary regulations:

Notices sent out	518
Reported to Justice of the Peace	82
Cancelled by this Service	1

Water. The water of Saint-Marc has been a carrier in the matter of intestinal diseases. The local physicians claim that forty percent of their cases were caused by the water. During the year there were three known cases of typhoid fever. On account of this the inhabitants have been advised to boil all their drinking water and the reservoir has been frequently chlorinated.

Dogs. Every four months a campaign for the destruction of stray dogs was carried on. The total number killed during the year, was two hundred and thirty (230).

Rats. No progress is being made in the destruction of rats.

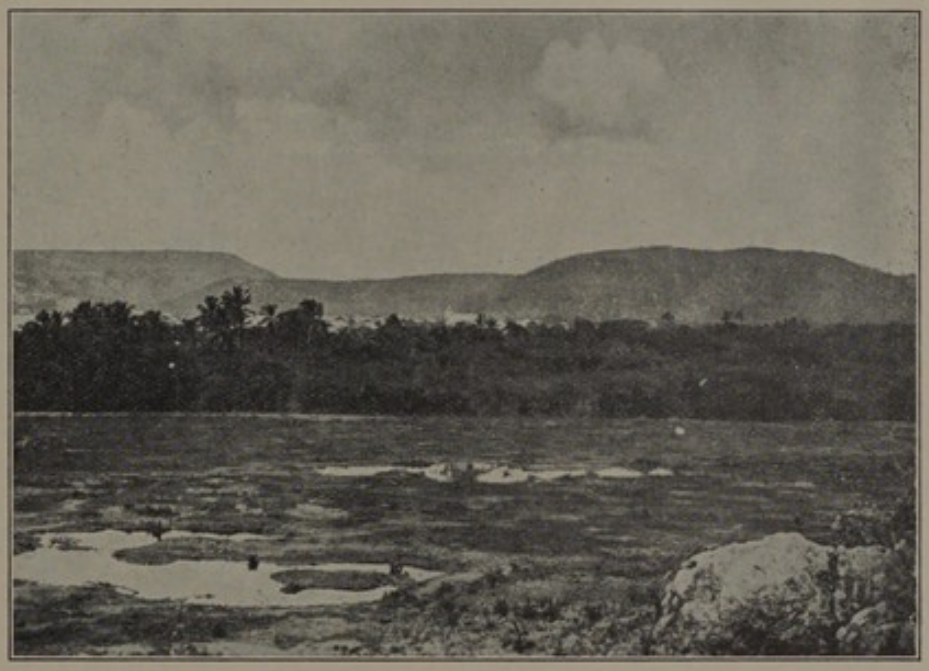
Market. The market has been in a deplorable condition on account of poor drainage.

Abattoir. The abattoir is poor and steps are being taken to improve it.

Rural districts. The largest rural district under Saint-Marc is Petite-Rivière where one inspector and six laborers are stationed all paid by the Commune. Three laborers are stationed at Dessalines, also paid by the Commune. The laborers sweep the streets and take care of the refuse while the inspector aids in keeping the towns in the proper sanitary condition.

At the end of the rainy season, usually October, mosquitoes breed in great numbers and the malaria rate increases noticeably but as there is no rain for practically six months, the city become quite free of mosquitoes soon after the rains stop.

The water supply is not ample. It comes from a spring about one and one half mile from the city at the foot of a small mountain. The spring which is none too well protected, and shows signs of contamination, empties into a small reservoir which is made of concrete and is covered. There has been an epidemic of "Fièvre Intestinale" so called among the natives, which is thought to be typhoid because at that same time three of the white population developed typhoid. Chlorination of the water supply is impracticable unless a chlorination plant be installed. A public notice was given to all inhabitants to boil their drinking water and at the same time notice was given to repair or build latrines and to keep wells covered and yards clean. The people cooperated



Stagnant pools on half mile from the center of the town of Saint-Marc.
After a heavy rain this land is covered with water.

very well and appreciated the efforts of this department to improve the health conditions of the city.

Recommendations. That a Bureau for this Service with garage and storerooms be constructed on the grounds already available.

DIVISION OF QUARANTINE.

During the past year the service was so fortunate as to secure the services of an Officer of the U. S. Public Health Service. P.A.Surgeon John T. Mahoney, U.S.P.H.S., arrived November 15, 1924, and from that date until the date of his detachment, June 27, 1925, he served in the capacity of adviser to the Sanitary Engineer on matters pertaining to Quarantine. This officer made a thorough survey of the quarantine situation and a complete revision of the maritime quarantine system of Haiti, including a revision of the quarantine law thereby putting quarantine practices on a par with those adopted by other countries. Dr. Mahoney was of the opinion that the minimum requirement for protection against the introduction of the quarantinable diseases would be a small quarantine station located near Port-au-Prince. A site was accordingly picked out near the Bizoton Navy Yard with deep water quite close to shore and plans drawn for such a station. During the coming fiscal year it is expected that money will be voted for the purchase of this land and that later there will be voted a credit for the construction of a station to include a wharf for small boats and fumigation lighter, a storehouse, office and detention barracks for a crew of about 150 men.

The introduction of plague is a very grave menace to Haiti. The entire country is overrun with rats and once this disease were imported it would without question spread very rapidly. Rat proofing is beyond the means of most of the inhabitants and the one safeguard is the prevention of the introduction of plague-infected rats and this prevention is possible only through the proper care of all ships coming from plague infected ports. This quarantine station will supply the means of ridding such ships of rats. That plague has not been introduced into Haiti long ago is not from any virtue on her part but is simply the result of precautions taken by neighbouring countries. Haiti should be equipped to do its share in maintaining international health.

Suitable boats should be provided for Quarantine Officers at all ports of entry. At present there is only one such boat, the one at Port-au-Prince. Despite this handicap all vessels are boarded promptly and the movement of vessels facilitated in every way possible.

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SALLE DES DAMES, HOPITAL JUSTINIEN, CAP-HAITIEN
ACHEVEE EN AVRIL, 1925.

SALLE DES MALADES PRIVES, HOPITAL GENERAL, PORT-AU-PRINCE
ACHEVEE EN AVRIL, 1923.

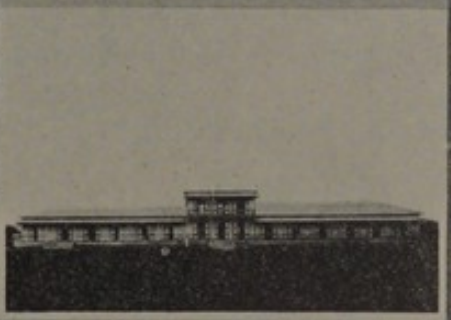
SALLE D'OPERATIONS HOPITAL JUSTINIEN, CAP-HAITIEN
ACHEVEE EN JUILLET,1924.

MAISON DES INFIRMIERES, HOPITAL GENERAL, PORT-AU-PRINCE
ACHEVEE EN DECEMBRE, 1923.

CUISINE, HOPITAL JUSTINIEN, CAP-HAITIEN
ACHEVEE EN JANVIER,1925.

SALLE DES HOMMES, HOPITAL JUSTINIEN, CAP-HAITIEN
ACHEVEE EN AVRIL, 1925.

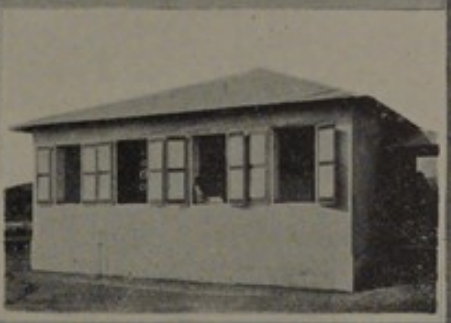
LABORATOIRE, HOPITAL JUSTINIEN, CAP-HAITIEN
ACHEVE EN JANVIER, 1925.



BATIMENT PRINCIPAL, HOPITAL ST.NICHE
ACHEVE EN JUIN, 1925.

SALLE DES MALADES (CROIX ROUGE), HOPITAL JUSTINIEN, CAP-HAITIEN
ACHEVEE EN JUIN, 1925.

DISPENSAIRE, HOPITAL ST.NICHE
ACHEVE EN JUIN, 1925.



SALLE D'OPERATIONS, HOPITAL ST.NICHE
ACHEVEE EN JUIN, 1925.

VUE GENERALE ARRIERE, HOPITAL ST.NICHE
ACHEVE EN JUIN, 1925.

MAISON DU DIRECTEUR, HOPITAL ST.NICHE
ACHEVEE EN JUIN, 1925.

DISPENSAIRE, HOPITAL JUSTINIEN, CAP HAITIEN
ACHEVE EN JUILLET, 1924.

DISPENSAIRE ET LABORATOIRE, HOPITAL GENERAL, PORT AU PRINCE
ACHEVES EN FEVRIER, 1923.

No quarantinable diseases were detected during the year just ended.

The examination of immigrants devolves upon the local Quarantine Officer. No facilities for their detention exists. It is occasionally necessary to examine during a few hours as many as 3,000 laborers returning from the cane fields of Cuba. Usually only the crowded gangway of a small vessel is available for this purpose.

The following is a tabulated statement of the foreign ships boarded during the year:

Ports.	Foreign ships boarded.
Cap-Haitien	200
Cayes	149
Gonaives	37
Jacmel	60
Jérémie	5
Port-au-Prince	374
Petit-Goave	113
Port-de-Paix	136
Saint-Marc	84
Total	1,158

DIVISION OF HOSPITALS.

General Remarks. As stated in all previous annual reports there is urgent need for a large central hospital for the insane. Until recently it was planned to locate this institution at Gressier but after more mature consideration it is now thought that there will result considerable economy in maintenance if it be located as near as possible to Port-au-Prince. By acquiring a piece of land of considerable size adjacent to the Hospice Communal, Port-au-Prince, it would be possible to group several institutions for "chronics" such as a hospital for the insane, hospital for lepers, hospital for indigent chronics, an orphan asylum, etc. A considerable annual saving in maintenance would result from this consolidation. Furthermore a large amount of clinical material would become available for teaching purposes to the instructors of the National Medical School and the Training School for Nurses. A credit of Gdes. 75,000.00 has been approved for the purchase of such a piece of land, and one year hence it is hoped

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The examination of immigrants devolves upon the local quarantine officer. No facilities for their detention exists. It is occasionally necessary to examine during a few hours as many as 3,000 laborers returning from the cane fields of Cuba. Usually only the crowded gangway of a small vessel is available for this purpose.

The following is a tabulated statement of the foreign ships boarded during the year:

Ports.	Foreign ships boarded.
Cap-Haitien	300
Cayes	189
Gonaives	87
Jacmel	60
Jeremie	6
Port-au-Prince	374
Petit-Goave	113
Port-de-Paix	156
Saint-Marc	94
Total	1,389

DIVISION OF HOSPITALS.

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that funds will be voted for the construction of buildings to accommodate 400 insane patients and also for a small institution for lepers.

The capacity of the Hospital Communal of Port-au-Prince should be doubled in order to relieve the Haitian General Hospital of certain indigent chronics. The latter institution should be reserved for acute cases. Consideration should be given soon to the erection of an Asylum for orphans.

During the fiscal year 1925-26 it is planned to further expand the Haitian General Hospital and the hospitals at Saint-Marc, Cayes and Jacmel and to build a small hospital at Petit-Goave.

This Service operates and maintains ten (10) Public Health hospitals and one (1) Hospice Communal. Excerps from the annual reports of these institutions are as follows:

CAP-HAITIEN. Justinien Hospital. The administrative personnel of this institution includes one (1) Medical Officer and two (2) enlisted men, U.S.Navy, five (5) Haitian and one (1) German physicians. The past year has shown a marked increase in service rendered by this hospital to all classes of society and a very definite falling off in the usual morbidity and mortality rates. Statistics for the past year are as follows:

Average number patients per day	160
Total number admissions during the year	1,459
Total number outpatients	44,389
Daily average outpatients	141
Discharged dead	93
Daily average death	0.26%
Number of autopsies performed	1
Total number major operations	395
Total number minor operations	1,687
Total number of salvarsan injections	7,805
Total number of bismuth injections	4,457
Total number of Hg. injections (mercurochrome)	20

Laboratory report:-

Blood smears malaria	2,712
Sputum smears	306
Feces	816
Urine examinations	600
Noguchi tests for syphilis	2,940
White, diff, and red count	612
Smears G.C.	144
Vincent's angina	72
Widal reactions	60

that funds will be voted for the construction of buildings to accommodate 400 insane patients and also for a small institution for leprosy.

The capacity of the Hospital Command of Port-au-Prince should be doubled in order to relieve the Haitian General Hospital of certain indigent cases. The latter institution should be reserved for acute cases. Consideration should be given soon to the erection of an asylum for orphans.

During the fiscal year 1929-30 it is planned to further expand the Haitian General Hospital and the hospitals at Saint-Marc, Cayes and Jacmel and to build a small hospital at Petit-Goave.

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Average number patients per day	160
Total number admissions during the year	1,659
Total number outpatients	44,389
Daily average outpatients	141
Discharged dead	93
Daily average death	0.25%
Number of autopsies performed	1
Total number major operations	395
Total number minor operations	1,687
Total number of salvarsan injections	1,908
Total number of bismuth injections	4,857
Total number of Hg. injections (mercurochrome)	80

Laboratory reports:-

Blood smears malaria	3,713
Sputum smears	306
Feces	916
Urine examinations	600
Wassermann tests for syphilis	3,910
White, diff., and red count	612
Smears V.C.	164
Vincent's angina	73
Vidal reactions	60

Smears from various sources----------264
Vaccinations----------126
Number of X-rays examinations----------364

Accomplishments for the year just ended are as follows:

1. Completion of and putting into service operating pavilion with X-ray, eye, ear, nose and throat departments and dental rooms.

2. Laboratory, morgue and autopsy rooms completed and in operation.

3. Surgical ward given by the American Red Cross completed and in operation.

4. Two wards annexes to main building completed and in operation.

5. Bathroom and dressing room for men completed and in operation.

6. Main building altered, repaired and renovated.

7. Isolation wards almost completed.

8. Animal and poultry house nearly completed.

9. New kitchen with bake-oven, etc., installed and in operation.

10. Nine old caves repaired and in use as store-rooms, dressing rooms, etc.

11. Private ward completed and in operation.

12. Three drains for carrying off waste water and storm water constructed; also four new pit latrines with cemented sides.

13. Work started on construction of band stand and gardens on ground below the private ward.

14. System of strict accounting for money received from all sources and also expenditures instituted together with installation of office and clerk at the hospital. Card system giving history, results of laboratory examinations, diagnosis of every patient inaugurated.

15. Equipment of office and staff force with desks, books, &c.

16. Hospital service organized into departments with heads and charges for hospital service systematized by a tariff.

17. Weekly medical meetings instituted where papers are read on current medical topics and cases exhibited.

18. Water from springs piped into tank and buildings and grounds piped for water.

19. Laboratory with microscope, etc., and microscopist installed in the Dispensary at Grande-Rivière.

Plans for the future may be summarized as follows:

1. The building of a maternity ward.

2. The building of a children's ward.

3. The construction of an incinerator.

4. The completion of a sewage system and drains.

5. The construction of bathroom and dressing room for women.

6. The levelling of grounds, planting of gardens, etc.

7. Enlarging the Chapel.

8. Renovating the roof and upper story of the main building.

9. The building of rural clinic dispensaries.

10. Addition to the medical and nursing force at the hospital.

CAYES. With a credit of Gdes. 200,000-co voted in January, 1925, it has been possible to purchase a considerable portion of the land belonging to the Hospice Immaculée Conception and commence the erection of a new 200 bed hospital. This transfer included a large dispensary partially completed and has made possible the use of the old hospital while the new one is under construction. The main building of the old institution will remain the property of the church and will continue to house about 40 orphan girls. The above mentioned appropriation will provide for:

(a) The land.

(b) Dispensary and Nurses House.

16. Hospital service organized into departments with heads and charges for hospital service systematized by a tariff.

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(a) The land.

(b) Dispensary and Nurses Home.

(c) Main building (2 wards and administration).

(d) Building for morgue, lighting plant and storeroom.

(e) Operating pavilion.

(f) Kitchens.

The above buildings are nearly completed and will provide about 80 beds. With an additional Gdes. 200,000.00 which it is expected will be voted one year hence it is hoped to finance additional construction to the extent of 130 beds, the new items to be as follows:

(a) An additional city block of land.

(b) One long ward divided into two sections, one for maternity cases and one for children.

(c) Two (2) medical wards of about 40 beds each.

(d) Several isolation wards.

Statistics for the past year are as follows:

Admitted during the year	253
Daily average number patients	125
Discharged cured or improved	230
Died	31
Total number outpatients treatments	17,050
Daily average outpatients	55
Major operations performed	20
Minor operations performed	105
Salvarsan injections	9,094
Mercury injections	969
Bismuth injections	500
Persons having teeth extracted	259

It is interesting to note that last year showed an increase of 9,305 persons receiving treatment over the previous year. The first sanitary report available shows a daily out-patient clinic of 8 persons as an average and a yearly total of 2,320. In other words 18 times as many people are being treated now as were being treated six years ago. Malaria and syphilis as usual head the list of conditions treated.

The Public Health Officer of this district states:- "Many people in this district as in all other districts are badly in need of operative treatment and frequently request such treatment. Most of these requests are refused for the reason

(c) Main building (2 wards and administration).

(d) Building for morgue, lighting plant and storeroom.

(e) Operating pavilion.

(f) Kitchens.

The above buildings are nearly completed and will provide about 80 beds. With an additional 6ddn. 250,000.00 which it is expected will be voted the year hence it is hoped to finance additional construction to the extent of 150 beds, the new items to be as follows:

(a) An additional city block of land.

(b) One long ward divided into two sections, one for maternity cases and one for children.

(c) Two (2) medical wards of about 40 beds each.

(d) Several isolation wards.

Statistics for the past year are as follows:

Admitted during the year	253
Daily average number patients	125
Discharged cured or improved	230
Died	21
Total number outpatients treated	12,050
Daily average outpatients	85
Major operations performed	20
Minor operations performed	105
Salvarsan injections	2,094
Mercury injections	269
Bismuth injections	300
Persons having teeth extracted	259

It is interesting to note that last year showed an increase of 2,305 persons receiving treatment over the previous year. The first sanitary report available shows a daily total of 2,250. In other words 10 times as many people are being treated now as were being treated six years ago. Malaria and syphilis as usual head the list of conditions treated.

The Public Health Officer of this district states: "Many people in this district as in all other districts are badly in need of operative treatment and frequently request such treatment. Most of these requests are refused for the reason

that the operating room is in daily use for the consultations of the out-patient department and is not a proper place for operations of a major character. It is expected that the new operating room will be in use sometime in January of the coming year."

Two Haitian doctors are employed at this hospital, one giving it his entire time and the other one assisting at the Dispensary. The sisters here as elsewhere have given valuable service as nurses and in the purchase of building material, one of them having carefully supervised the measuring of over 10,000 barrels of gravel. Over 2,000 cement sacks have been washed and made into bedding and clothing. No increase in personnel is contemplated when the new hospital is opened with the exception of three nurses and one clerk. The employees carried on the hospital payroll are as follows:-

One Public Health Officer
One Haitian physician
Eight sisters
One carpenter
One laundress
Four ward attendants.

GONAIVES. The hospital at this place can accommodate about 70 patients and has a staff of one (1) Medical Officer and (1) enlisted man, U. S. Navy. Statistics for the past year are as follows:

Daily average number of patients	55
Total number of admissions	392
Total number of out-patients	18,919
Daily average of out-patients	52.3
Total sick days	19,837
Discharged dead	31
Autopsies	0
Total number of major operations	51
Total number of minor operations	125
Total number of Neo-Salvarsan	1,059
Total number of Sulpharsphenamine	501
Total number of Bismuth injections	783
Total number of miscellaneous	301

Laboratory report:-

Blood smears	42
Stools	67
Urine	3

The following quotation from the annual report of the Public Health Officer of Gonaives states the needs of this institution:

that the operating room is in daily use for the out-patient departments and is not a proper place for operations of a major character. It is expected that the new operating room will be in use sometime in January of the coming year."

Two Haitian doctors are employed at this hospital, one giving it his entire time and the other one assisting at the dispensary. The sisters here do already given valuable service as nurses and in the purchase of building material, one of them having carefully supervised the measuring of over 10,000 barrels of gravel. Over 2,000 cement sacks have been washed and made into bedding and clothing. No increase in personnel is contemplated when the new hospital is opened with the exception of three nurses and one clerk. The employees carried on the hospital payroll are as follows:-

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CONCLUSIONS. The hospital at this place can accommodate about 70 patients and has a staff of one (1) Medical Officer and (1) enlisted man, U. S. Navy. Statistics for the past year are as follows:

Daily average number of patients	55
Total number of admissions	392
Total number of out-patients	18,919
Daily average of out-patients	52.3
Total sick days	19,937
Discharged dead	31
Autopsies	0
Total number of major operations	81
Total number of minor operations	125
Total number of Neo-Salvarsan	1,659
Total number of Sulpharsphenamine	891
Total number of Bismuth injections	783
Total number of miscellaneous	301

Laboratory report:-

Blood smears	42
Stools	87
Urine	3

The following quotation from the Annual Report of the Public Health Officer of Gonaives states the needs of this institution:

"With the exception of the women's ward all the buildings are about thirty years of age and are beginning to show the effects of time. Although no great repairs are at present necessary minor ones are called for from time to time. At the present time the number of beds at the hospital is adequate but at the present rate of increasing admissions it will be a very short time before another ward must be thought of. This is especially true for the men. For private room patients there is every indication that the present space will soon be inadequate. Especially true is this providing that two rooms now in the building used as a dispensary be utilized for dispensary purposes and also one in the women's ward be used for other purposes. The utilization of the first two mentioned rooms is highly desirable as the one small room now used is used for all purposes and is inadequate. The consultation and dispensary work is rapidly increasing and at present it is necessary to have many patients come back in the afternoon for special treatment, It is desired to use the two rooms for dressing and examination rooms in order that such work may be done under cover and with material handy; also to set aside two afternoons a week for eye, ear, nose and throat work and private consultations in these rooms."

"People in this section have not yet reached that stage of education to consider coming to the hospital as pay patients for medical conditions but the surgical demand is on the increase and there is no question but that a little surgery is the greatest asset we have in establishing prestige and good feeling."

HINCHE. The Public Health Hospital at Hinche, an institution with a capacity of 100 beds, was completed toward the end of the past fiscal year and is now ready for the reception of patients. It is expected that it will reach full capacity during the coming year. This hospital consists of the following:

(a) Main structure (central section, two 50 beds wards).

(b) Operating pavilion.

(c) Dispensary (out-patient department).

(d) Kitchens, storerooms, etc.

(e) Quarters for medical officer.

(f) Quarters for sisters.

A garage is under construction and a building to include a morgue, carpenter shop, laundry and servants quarters is under consideration. Much work remains to be done on the grounds such as

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(c) Dispensary (out-patient department).

(d) Kitchens, storerooms, etc.

(e) Quarters for medical officer.

(f) Quarters for nurses.

A garage is under construction and a building to include a morgue, carpenter shop, laundry and servants quarters is under consideration. Much work remains to be done on the grounds such as

building roads, walks and the lining of ditches with stones to prevent filling during the rainy season. Owing to lack of funds for maintenance no in-patients have been treated since the hospital was completed. Statistics for the out-patient department are as follows:

Average number of new cases, out-patients per day	28.47
Total number of new cases treated	8,773
Total number of Sulpharsphenamine injections	250
Total number of Bismuth injections	2,000
Total number of Mercury injections	393
Major operations	2
Minor operations	82

The personnel of this hospital consists of one medical officer and one Chief Pharmacist's Mate, U.S.Navy, and one commissioned Haitian physician.

JACMEL. The following statistical report of the Saint-Michel hospital is submitted:

Total out-patients treated at Hospital	25,554
Total inpatients treated	450
Total number deaths	17
Average number of inpatients	60.83
Daily average number of out-patients	70.01
Daily average of deaths	0.046
Total number major operations	8
Total number minor operations	48
Total number injections Neosalvarsan	1,400
Total number injections Sulpharsphenamine	21,600
Total number injections Bismuth	22,400
Total number injections Mercury	1,138
Autopsies performed	0

Laboratory report:-

Fecal examinations	1,354
Malarial smears	177

The administrative personnel consists of one Medical Officer and one Chief Pharmacist's Mate, U. S. Navy, and two Haitian physicians.

The institution is undergoing considerable improvement by repairs and additions. During the past year additional land was secured to provide a site for the erection of a large dispensary and an isolation ward, the foundations of both of which are completed. Upon completion of these two buildings it will be possible to remove certain activities from the hospital proper and use it for ward purposes only. During the year a gallery was added to the

sisters quarters. During the coming year it will be necessary to make certain repairs to the roof of the main building and to sheath the wards overhead. A credit of Gdes. 7,500.00 will be needed for this purpose. These repairs done and the aforesaid new structures completed the institution should be in a condition to care for the needs of the district for at least one year without further expansion. The water supply is now quite adequate and electric lights were recently installed. Provision has been made for an X-ray outfit in the new dispensary.

JEREMIE. In January, 1925, the Saint-Antoine Hospital, completed during the previous year, was transferred to government ownership and following this transfer a medical officer, U. S. Navy was placed in charge, replacing a Chief Pharmacist's Mate, U. S. Navy, the latter becoming Assistant Public Health Officer of the district. This hospital has a capacity of 50 beds. Statistics for the year are as follows:-

Average number of patients per day	36.08
Total admissions during the year	209
Total number of out-patients	12,388
Daily average of out-patients	34.05
Discharged dead	6
Daily average death	0.016
Number of autopsies	1
Total major operations	12
Total minor operations	49
Neo-salvarsan injections	33
Hg. injections	43
Sulpharsphenamine injections	2,897
Bismuth injections	1,652

Laboratory examinations:

Feces	3
Urinalysis	18
Sputum	1
Blood counts	2
Malaria	48
Milk	2

The following was accomplished during the year:

1. Addition of two sisters to the hospital.

2. Addition of two graduate nurses.

3. The training of a girl as a dresser.

4. Erection of a new kitchen.

5. The completion of the last of the three isolation buildings at the hospital.

6. The repair of the walks leading from the hospital.

7. Equipment of the operating room.

8. Equiping of the nurses' and sisters' quarters.

PETIT-GOAVE. The Saint-Jean Hospital is nothing more than an almshouse and houses about 50 patients. On account of its proximity to Port-au-Prince and also on account of shortage of personnel this hospital has been in charge of an enlisted man, U.S. Navy. About January 1st, 1926, a Medical Officer, U. S. Navy, will be placed on duty here. Statistical data are as follows:

Average number patients daily	47
Total admissions for the year	254
Total number out-patients	7,047
Daily average of out-patients	19
Discharged, dead	41
Autopsies performed	0
Number of major operations	0
Number of minor operations	0
Total number injections neo-arsphenamine	1,093
Total number injections sulpharsphenamine	2,214
Total number injections bismuth	935
Total number injections mercury	123

No laboratory work was performed in this district during the year with the exception of a few smears for conococci and several routine urinanalyses.

An extraordinary credit of Gdes. 75,000.00 has been requested with which to erect a small hospital to replace the above institution which is the property of the Church and is poorly located. A new hospital will be necessary if the medical activities of this district are to be put on a par with those of other districts.

PORT-AU-PRINCE. Asile Communal. During the year the daily average of indigents in this institution was 106. No changes in the administrative personnel occurred, the staff consisting of one physician, three sisters and one nurse.

Forty one (41) minor operations, under local anesthetic, were performed, 488 injections (intra-muscular) of mercury were given, 144 injections of emetin, 77 injections of quinine and 72 injections of sera.

5. The completion of the last of the three isolation buildings at the hospital.

6. The repair of the walks leading from the hospital.

7. Equipment of the operating room.

8. Equipping of the nurses' and sisters' quarters.

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No laboratory work was performed in this district during the year with the exception of a few smears for gonococci and several routine urinanalyses.

An extraordinary credit of Gdes. 75,000.00 has been requested with which to erect a small hospital to replace the above institution which is the property of the Church and is poorly located. A new hospital will be necessary if the medical activities of this district are to be put on a par with those of other districts.

PORT-AU-PRINCE. Delle Commune: During the year the daily average of inmates in this institution was 106. No changes in the administrative personnel occurred, the staff consisting of one physician, three sisters and one nurse.

Forty one (41) minor operations, under local anesthetic, were performed. 488 injections (intra-muscular) of mercury were given, 164 injections of arsenic, 77 injections of quinine and 72 injections of sera.

The following tabulation indicates the turnover during the year:-

Remaining, October 1, 1924	102
Admitted during the year	210
Discharged	155
Deaths	45
Remaining on 30 September 1925	112
Out-patients examined and treated	550

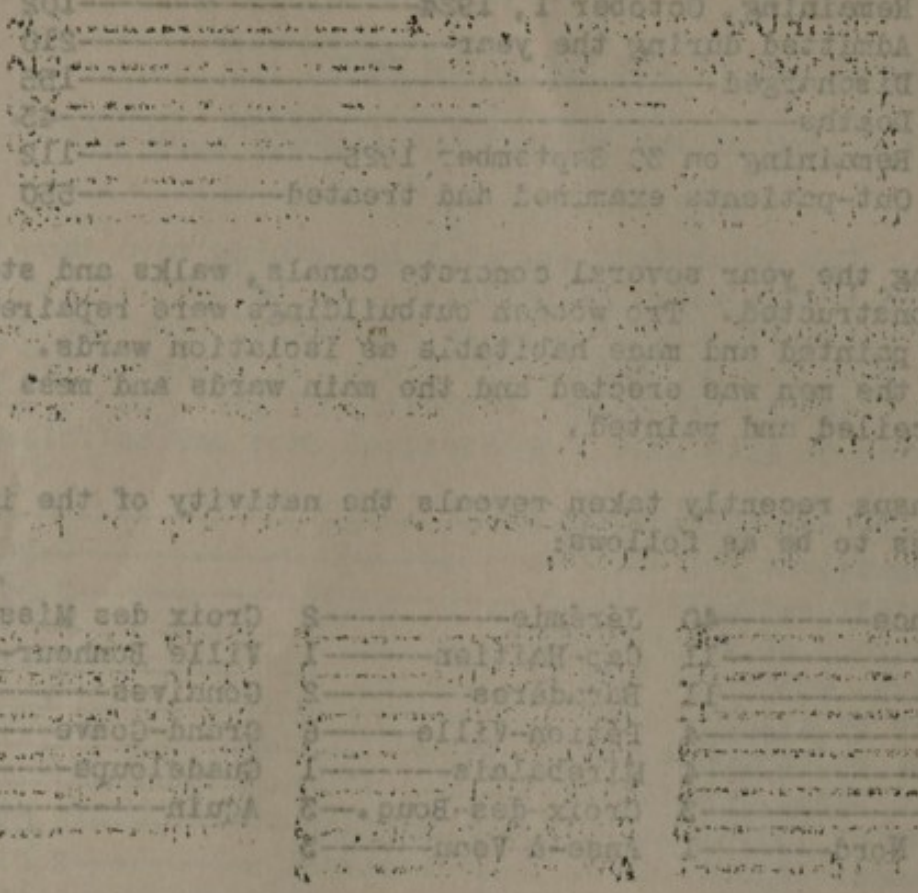
During the year several concrete canals, walks and steps have been constructed. Two wooden outbuildings were repaired, floored and painted and made habitable as isolation wards. A latrine for the men was erected and the main wards and mess halls completely ceiled and painted.

A census recently taken reveals the nativity of the indigent inmates to be as follows:

Port-au-Prince 40	Jérémie 2	Croix des Missions 2
Léogane 11	Cap-Haitien 1	Ville Bonheur 2
Jacmel 11	Baradères 2	Gonaives 1
Cayes 4	Pétion-Ville 6	Grand-Goave 3
Petit-Goave 4	Mirebalais 1	Guadeloupe 2
Pestel 3	Croix-des-Bouq. 3	Aquin 1
St.Louis du Nord 1	Anse-à-Veau 3	

The following is quoted from the annual report of this institution:

"Since less than fifty percent of the inmates are natives of Port-au-Prince, it seems only equitable that the federal government should share a portion of the upkeep of the institution. At the present time the wards are entirely inadequate to care for the number of poor that are sent for admittance. Ample space is at hand for the erection of another unit similar in size to the one now in use. This unit could be so arranged that wards would be available for the use of indigent children. Such an asylum is urgently needed and would not add materially to the present expense of upkeep. The "Crêche" offers the only harbor for these waifs at present. Since that institution operates on a scanty subvention, augmented by a few voluntary subscriptions, the number of children it can accommodate is limited to sixty, and the condition under which they are kept could be greatly improved. It is believed that with a reasonable allotment from the government, together with the present communal subvention, a sum sufficient to erect an additional suitable structure could be saved in a comparatively short time".



New Dispensary, Haitian General Hospital, Completed February, 1925. Note small structure on right which served as a dispensary for many years.

PORT-AU-PRINCE. Haitian General Hospital. During the past year the average number of patients per day has increased from 248 in 1924 to 284 in 1925 and the daily average of outpatients from 149 in 1924 to 193 in 1925.

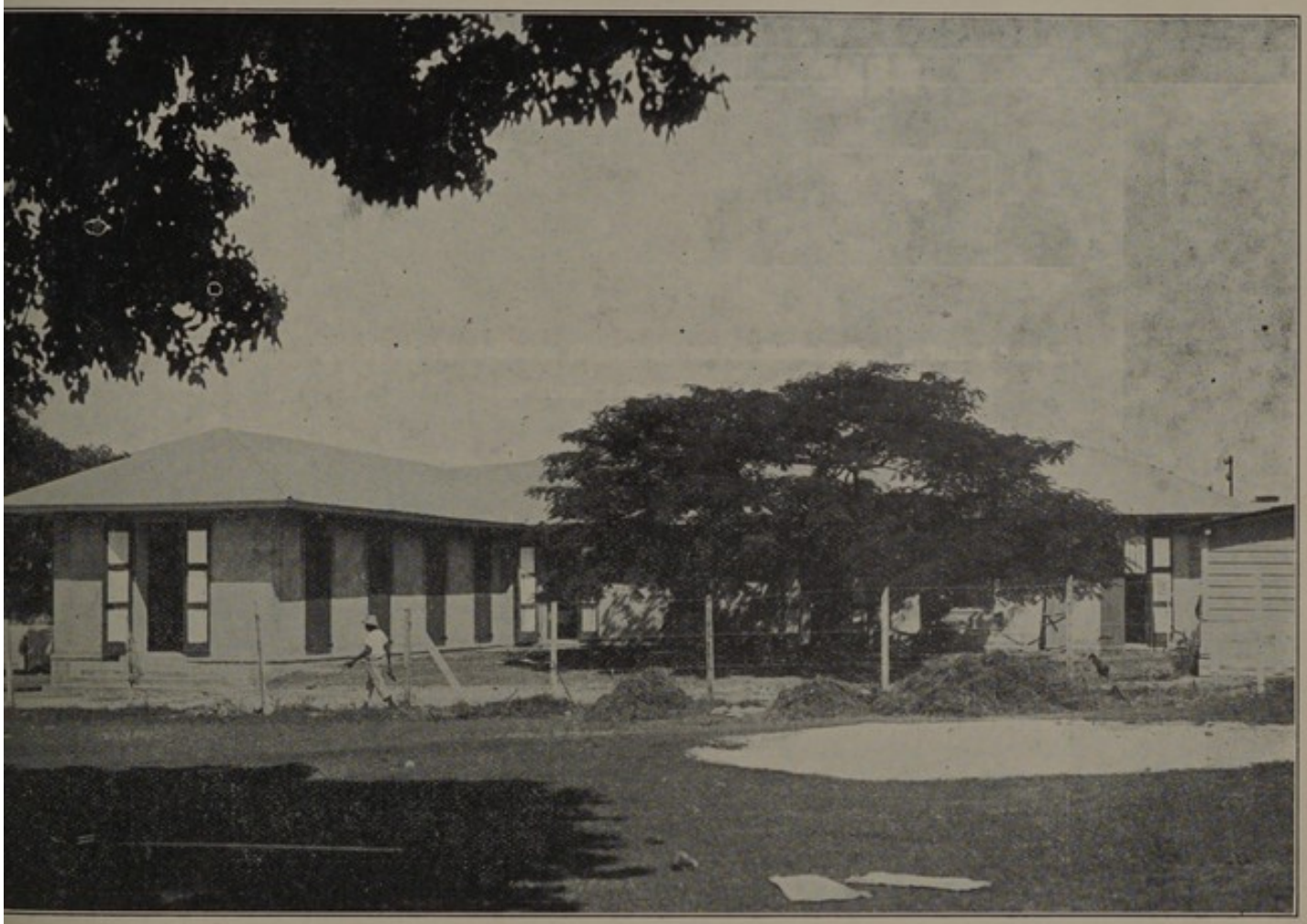
The new dispensary was completed in February, 1925. In it are located the outpatient department, the eye, ear, nose and throat department, the research laboratory, the library and the office of the Administrator. A new isolation ward was completed in November, 1925. A new chapel is about 75% completed. It will be necessary to demolish the old chapel and one old ward to provide a site for two new wards to be erected from the extraordinary credits of 1925 and 1926. A new house for laboratory animals is partially completed. During the year a considerable amount of work was done on the main wall of the hospital, the grounds and walks, and on general upkeep of buildings.

Under extraordinary credits for the past fiscal year there remains to be completed the new chapel and one large ward. Under credits to be voted during the fiscal year 1925-26 one ward and a building connecting the present morgue with the large ward just mentioned are to be erected, a modern plumbing system installed and the old X-ray outfit replaced by a larger one. There yet remains to be erected in 1926-27 an additional ward and a storehouse and garage.

This institution employes 12 doctors, 4 Red Cross nurses, 9 graduate nurses, 14 sisters and 111 other employees. In addition to rendering service as a general hospital the following activities are carried on: Training school for nurses, central laboratory, certain activities under the National Medical School, the training of internes, and the rural clinics in the district of Port-au-Prince.

Statistics are as follows:

Average number of patients per day	284
Total number of admissions	3,997
Total number of births	170
Total number of out-patients	69,372
Daily average of out-patients	193
Discharged, cured	2,817
Discharged, improved	773
Discharged, dead	374
Daily average of deaths	1.03
Number of autopsies performed	240
Major operations	306
Minor operations	4,572
Neosalvarsan injections	4,942
Mercury injections	10,878
Sulpharsphenamine	3,432



Isolation Ward, Haitian General Hospital, Completed November 23, 1925.

Bismuth injections----------2,578
X-ray examinations----------283
Dental treatment----------421
Extractions----------1,263
Fillings----------37

Laboratory:

Urine----------2,017
Feces----------405
Sputum----------449
Blood smears----------956
Blood counts----------379
Water----------15
Soft drinks----------20
Milk----------1
Wassermann----------3,980
Widal reactions----------486
Coagulation time----------38
Feces cultures----------1
Smears cultures----------10
Rats----------6
Blood cultures----------12
Examination for leprosy----------2
Rabbit injections----------7
Dog examinations----------4
Miscellaneous examinations----------169

PORT-DE-PAIX. This Service has for several years occupied a rented building as a small hospital. During the past year the uncompleted Hospice Immaculée Conception was turned over to the Governmand and an extraordinary credit of Gdes. 100,000.oo voted to complete this structure. This work is now nearing completion and will give this city a substantial, well equipped hospital of at least 60 beds, adequate for the needs of the district of Port-de-Paix for at least two years, except in the matter of a dispensary for out-patient work. Statistics for the year are as follows:

Total number of admissions during year----------98
Total number outpatients----------2,553
Discharged dead----------7
Minor operations----------51
Total number of salvarsan injections----------2,420
Total number of bismuth injections----------2,700
Total number of mercury injections----------36
Number of places where clinics were held----------6
Total number of cases for the year----------4,270

Laboratory report:

Fecal examinations----5 Urine----------14
Sputum----------5 Blood smears----------40
Malaria----------37

Saint-Antoine Hospital, Jérémie — Completed in 1924.

Immaculée Conception Hospital, Port-de-Paix, Completed in 1925.

SAINT-MARC. Saint-Nicolas Hospital. This hospital consists of two wards, each having 15 beds. These two buildings are in very bad condition and according to the local Public Works Officer not worth repairing. Only the wall on the north side of each ward is fit to be used again. The other walls are thin and poorly made. The roofs of these wards are in bad condition and leak in many places. The rafters and boards supporting the roof are rotten and the cement floor is made of poor material. In other words to put this hospital in a condition fit for the proper care of patients, it would be necessary to tear down every thing except the wall on the north side of each ward and even these walls are none too good. The hospital is entirely too small for the needs of this district and at least an eighty (80) bed hospital with a few private rooms for pay patients should be built. On account of the condition of the present wards, many patients that should be interned, do not enter the hospital. It is safe to say that the number of inpatients would more than double if the buildings were adequate.

A new combination operating room and dispensary has just been completed. A request for an extraordinary credit of Gdes. 50,000.00 for a new ward has just been made. About a year ago this Service took over the hospital and all the grounds except two small properties at the northwestern corner. It is highly desirable that these two properties be obtained so as to make the hospital grounds complete and sufficient for the building of a new hospital. The sisters' quarters are entirely inadequate, consisting of a dining and sleeping room only. A proper place for a laundry is lacking.

The Public Health Officer of this district recommends that two new wards be constructed at a cost of approximately Gdes. 25,000.00 and that new quarters for sisters be built.

Statistics for the year are as follows:

Admitted during the year	286
Daily average number inpatients	34.3
Total inpatients treated	19,647
Daily average number outpatients	70.1
Total number of deaths	37
Total number major operations	9
Total number minor operations	294
Total number of injections for treponematosis	3,132
Total number of mercury injections	0

Statistics for all hospitals are tabulated as follows:-

SAINT-LAO. Saint-Nicolas Hospital. This hospital consists of two wards, each having 15 beds. These two buildings are in very bad condition and according to the local Public Works Officer not worth repairing. Only the walls on the north side of each ward is fit to be used again. The other walls are thin and porous. The roofs of these wards are in bad condition and leak in many places. The rafters and boards supporting the roof are rotten and the cement floor is made of poor material. In other words to put this hospital in a condition fit for the proper care of patients, it would be necessary to tear down everything except the wall on the north side of each ward and even these walls are none too good. The hospital is entirely too small for the needs of this district and at least an eighty (80) bed hospital with a few private rooms for pay patients should be built. On account of the condition of the present wards, many patients that should be interned, do not enter the hospital. It is safe to say that the number of inpatients would more than double if the buildings were adequate.

A new combination operating room and dispensary has just been completed. A request for an extraordinary credit of Odes. 80,000.00 for a new ward has just been made. About a year ago this Service took over the hospital and all the grounds except two small properties at the northwestern corner. It is highly desirable that these two properties be obtained so as to make the hospital grounds complete and sufficient for the building of a new hospital. The sisters' quarters are entirely inadequate, consisting of a dining and sleeping room only. A proper place for a laundry is lacking.

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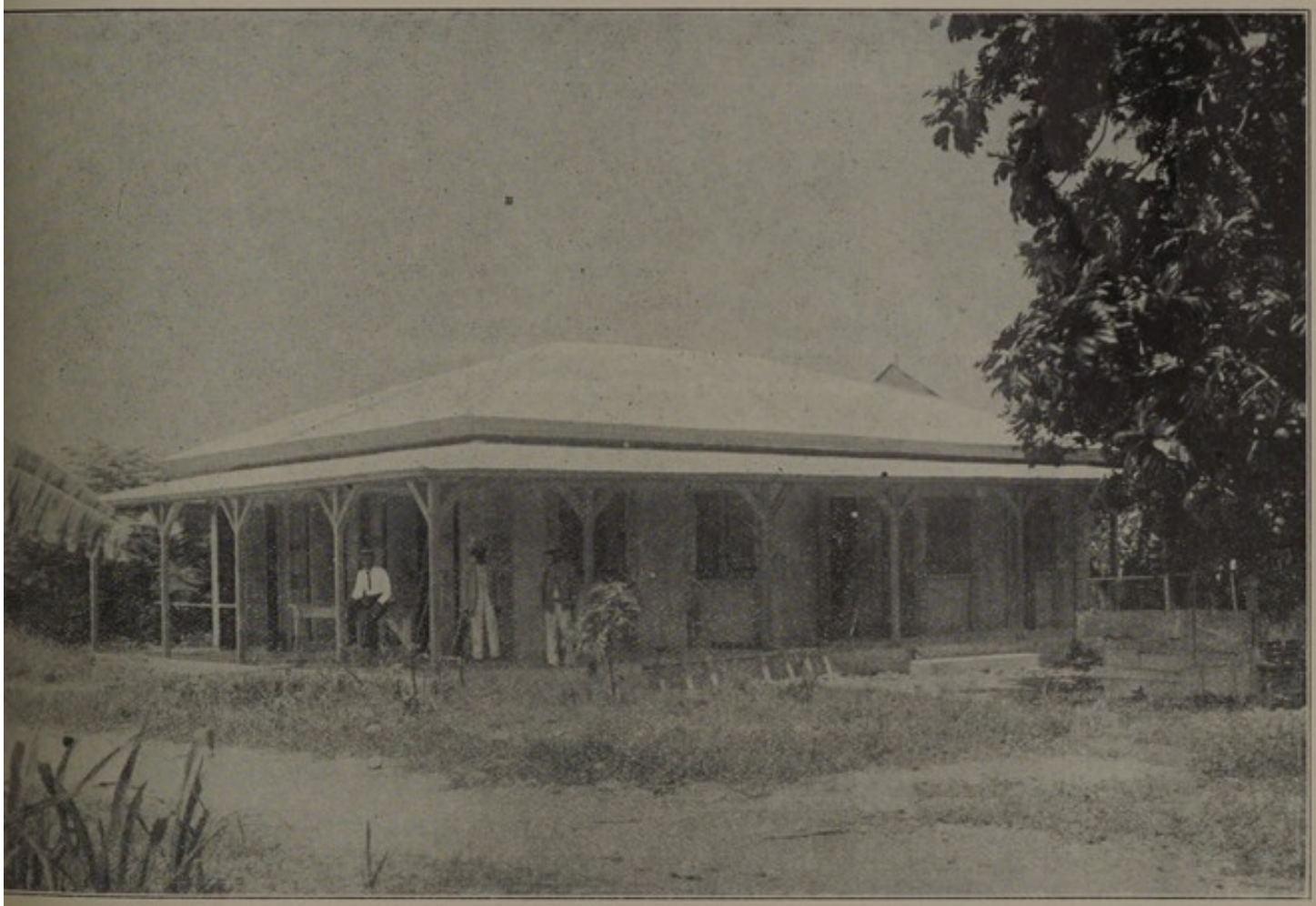
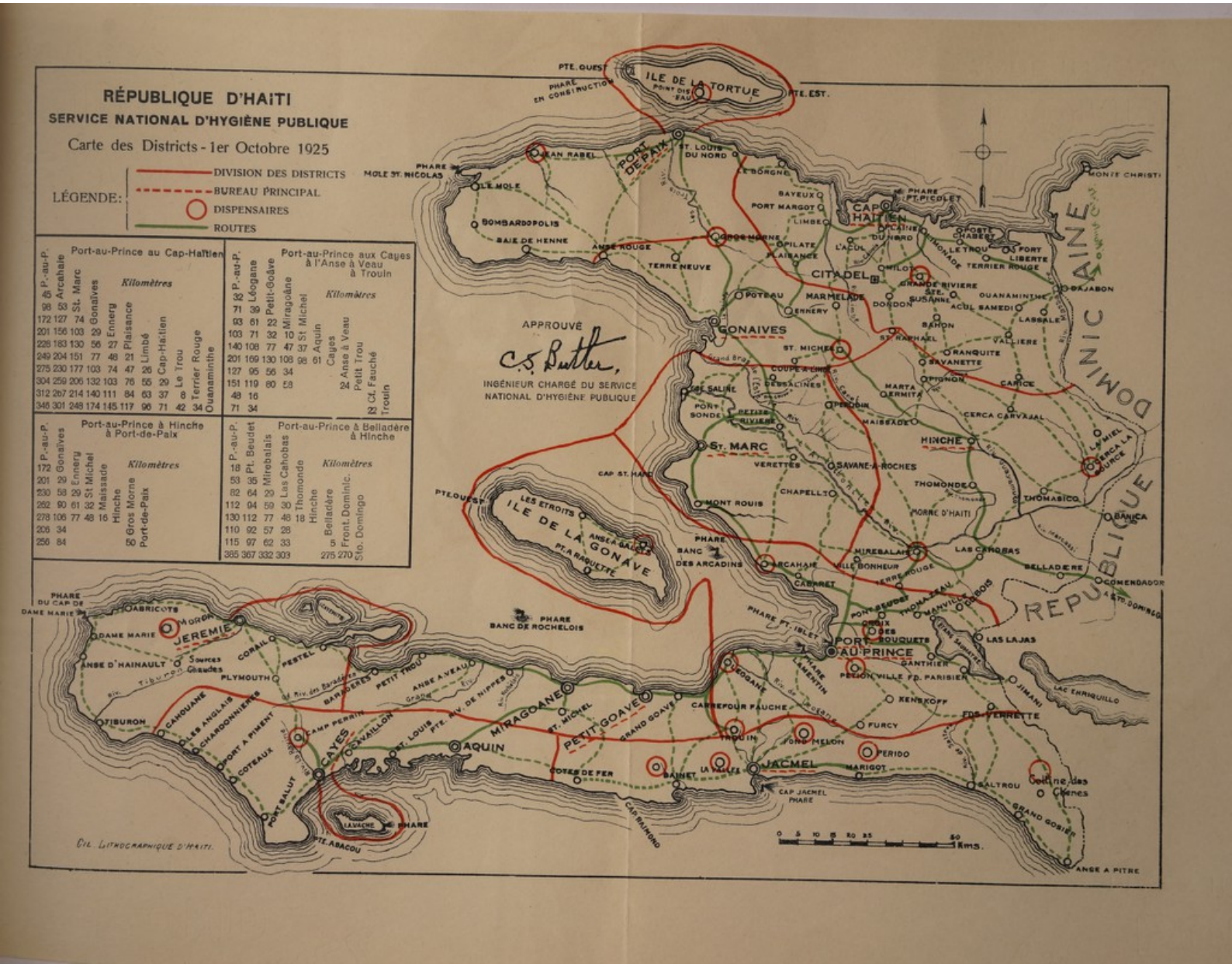


Dispensary and Operating Room, St. Nicolas Hospital, Saint-Marc. Completed August 26, 1925

DISTRICTS.	Admitted to Hospitals	Discharged dead.	Daily average out-patients	Major operations	Minor operations	Salvarsan Injections	Bismuth Injections	Miscellaneous Injections.
Cap-Haitien	1,459	93	141	395	1,687	7,705	4,457	20
Cayes	253	31	134	20	105	9,094	500	969
Gonaives	392	31	52.3	51	125	1,560	783	301
Hinche			28.47	2	82	250	2,000	393
Jacmel	450	17	70.01	8	48	23,000	22,400	1,138
Jérémie	209	6	34.05	12	49	2,930	1,652	43
Petit-Goave	254	41	19	0	0	3,307	935	123
Port-au-Prince (H. G. Hospital)	3,997	374	193	306	4,572	8,374	2,578	10,878
Port-au-Prince (Hosp.Communal)	210	45	2	0	41	144	72	565
Port-de-Paix	98	7		0	51	2,420	2,700	36
Saint-Marc	286	37	70.1	9	294	5,999	2,867	0
Total	7,608	682	643.57	803	7,054	64,883	40,944	14,466

DISTRICTS	Total number of births registered during year	Total number of births registered during year per 1,000 of estimated population	Total number of births registered during year per 1,000 of estimated population	Total number of births registered during year per 1,000 of estimated population	Total number of births registered during year per 1,000 of estimated population	Total number of births registered during year per 1,000 of estimated population
Cap-Haitien						
Cayes						
Gonaives						
Hinche						
Jacmel						
Jeremie						
Petit-Goave						
Port-au-Prince (H. Hospital)						
Port-au-Prince (Hosp. Communal)						
Port-de-Paix						
Saint-Marc						
Total						


RÉPUBLIQUE D'HAITI
SERVICE NATIONAL D'HYGIÈNE PUBLIQUE
Carte des Districts - 1er Octobre 1925
LÉGENDE:
DIVISION DES DISTRICTS
BUREAU PRINCIPAL
DISPENSAIRES
ROUTES
Port-au-Prince au Cap-Haïtien
Kilomètres
P.-au-P. 45 98 172 201 228 249 275 304 312 346
Arcahaie 53 127 156 183 204 230 259 267 301
St. Marc 74 103 130 151 177 206 214 248
Gonaïves 56 77 103 140 174
Ennery 27 48 74 111 145
Plaisance 21 47 84 117
Limbé 26 63 96
Cap-Haïtien 37 71
Le Trou 8 42
Terrier Rouge 34
Ouanaminthe
Port-au-Prince aux Cayes à l'Anse à Veau à Trouin
Kilomètres
P.-au-P. 32 71 93 103 140 201 127 151 48 71
Léogane 39 61 71 108 169 95 119 16 34
Petit-Goâve 22 32 77 130 56 80
Miragoâne 10 47 108 34 58
St Michel 37 98
Aquin 61
Cayes 24
Anse à Veau
Petit Trou 12
Ct. Fauché
Trouin
Port-au-Prince à Hinche à Port-de-Paix
Kilomètres
P.-au-P. 172 201 230 282 278 206 256
Gonaïves 29 58 90 106 34 84
Ennery 29 61 77
St Michel 32 48
Maïssade 16
Hinche
Gros Morne 50
Port-de-Paix
Port-au-Prince à Belladère à Hinche
Kilomètres
P.-au-P. 18 53 82 112 130 110 115 385
Pt. Beudet 35 64 94 112 92 97 367
Mirebalais 29 59 77 57 62 332
Las Cahobas 30 48 28 33
Thomonde 18
Hinche
Belladère 5 275
Front. Dominic. 270
Sto. Domingo 303
APPROUVÉ
C.S. Butler,
INGÉNIEUR CHARGÉ DU SERVICE NATIONAL D'HYGIÈNE PUBLIQUE
PTE. OUEST
PHARE EN CONSTRUCTION
ILE DE LA TORTUE
PTE. EST
PORT DE PAIX
ST. LOUIS DU NORD
JEAN RABEL
PHARE MOLE ST. NICOLAS
LE MOLE
LE BORGNE
BAYEUX
PORT MARGOT
LIMBE
CAP HAITIEN
PHARE PT. PICOLET
MONTE CHRISTI
BOMBARDOPOLIS
BAIE DE HENNE
ANSE ROUGE
TERRE NEUVE
GROS MORNE
PILATE
PLAISANCE
L'ACUL
LE TROU
FORT LIBERTE
TERRIER ROUGE
CITADEL
GRANDE RIVIERE
STE. SUSANNE
OUANAMINTHE
LA JABON
POTEAU
MARMELADE
ERNERY
DONDON
ACUL SAMEDI
LASSALE
GONAIVES
BAHON
ST. RAPHAEL
VALLIERE
ST. MICHEL
RANQUITE
SAVANETTE
COUPE A LIMBE
DESSALINES
OPTIMON
CARICE
MARTA
ERMITA
PORT SALINE
PETION
CERCA CARVAJAL
PORT SONDE
PETITE RIVIERE
MAISSADE
HINCHE
LA MIEL
CERCA LA SOURCE
ST. MARC
VERETTES
SAVANE-A-ROCHES
CAP ST. HAITI
THOMONDE
THOMASIQUE
PTE. OUEST
LES ETROITS
ILE DE LA GONAVE
ANSE-A-GALETS
PT. A RAQUETTE
CHAPELLE
MONT ROUIS
MORNE D'HAITI
BANICA
PHARE BANC DES ARCADINS
ARCAHAIE
MIREBALAIS
LAS CAHOBAS
BELLADERE
COMENDADOR
STO. DOMINGO
REPUBLIQUE DOMINICAINE
PHARE DU CAP DE DAME MARIE
ABRICOTS
MORON
JEREMIE
DAME MARIE
ANSE D'HAINAULT
Sources Chaudes
CORAIL
PESTEL
PLYMOUTH
TIBURON
CANAUANE
LES ANGLAIS
CHARDONNIERES
PORT A PIMENT
COTEAUX
PORT SALUT
CAYES
CAMP PERRIN
DAVEZAC
ST. LOUIS
PTE. RIV. DE NIPPES
AQUIN
MIRAGOANE
PETIT TROU
ANSE A VEAU
Grande Anse
PHARE BANC DE ROCHELOIS
ST. MICHEL
PETIT-GOAVE
GRAND GOAVE
CARREFOUR FAUCHE
PHARE PT. ISLET
PORT AU PRINCE
LES CAYEMITES
LES BOSQUETS
THOMAZEAU
MANVILLE
DUBOIS
LAS LAJAS
SANTHIER
PETION-VILLE FD. PARISIEN
LAMENTIN
LEOGANE
TROUIN
FOND MELON
FURCY
KENSKOFF
FDS. VERRETTE
JIMANI
LAC ENRIQUILLO
PERIOD
MARIGOT
JACMEL
CAP JACMEL PHARE
BAINET
LA SALINE
COTES DE FER
CAP RAIMOND
SALTROU
Colline des Chênes
GRAND GOSIER
ANSE A PITRE
LAVACHE
PHARE
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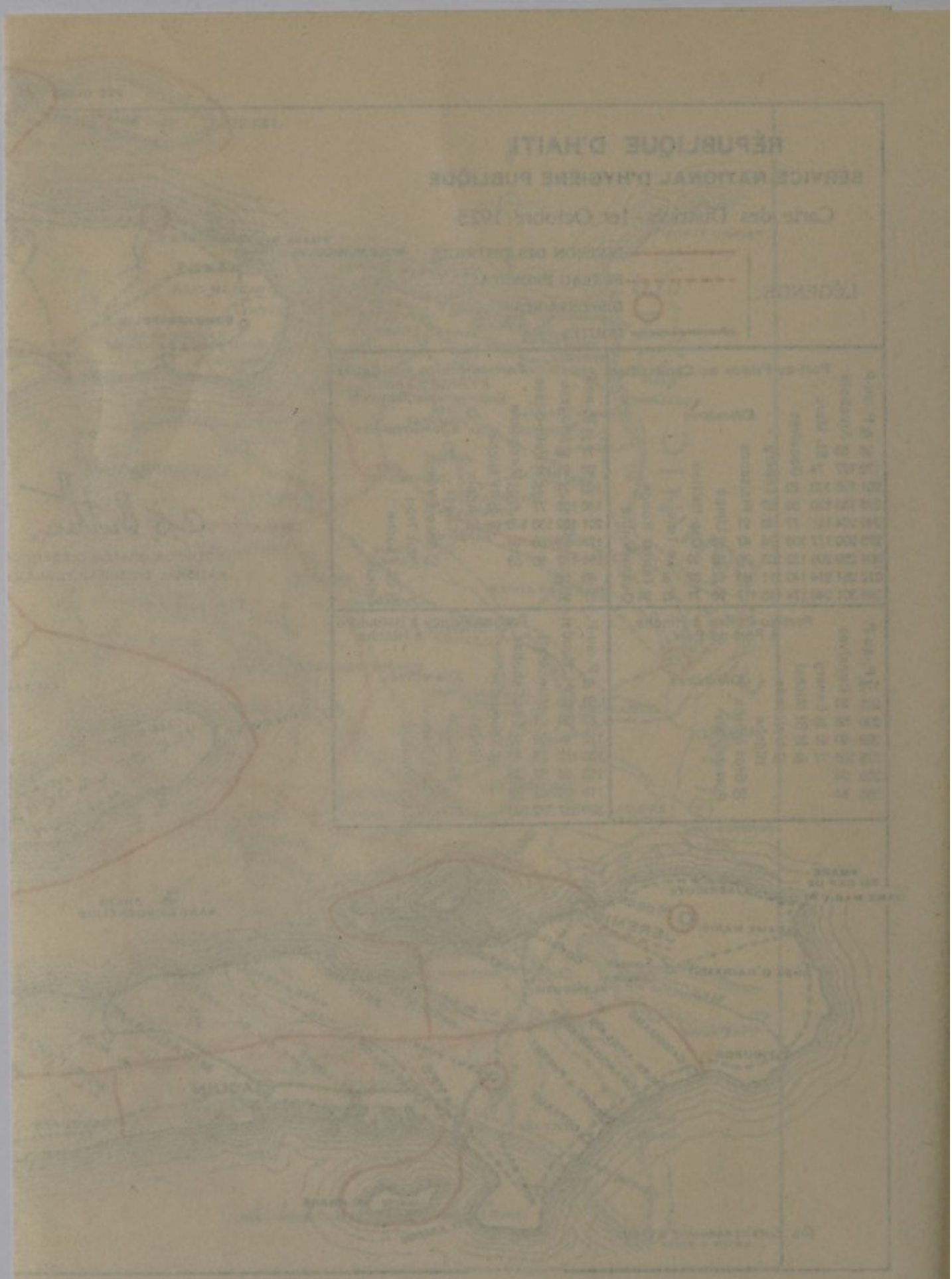


RURAL DISPENSARIES AND CLINICAL SERVICE.

In addition to a dispensary (outpatient department) operated at each of the previously mentioned hospitals the Service maintains 16 other dispensaries in localities where there are no hospitals, an increase of 14 over the number reported last year. This increase was made possible by an extraordinary credit of Gdes. 34,000 in January, 1925. A standard type of dispensary has been developed and it is hoped to erect about 9 or 10 of these each year until the need for dispensaries no longer exists. A credit of Gdes. 45,000.00 has been requested for the erection of 9 such dispensaries during the fiscal year 1925-26. Haitian physicians are located in two of these dispensaries and with further expansion of the service it is hoped to employ still others. In those in which it is not possible to employ doctors it is planned to station trained dressers, a few of whom have been placed already.

A special report on dispensary and rural clinic activities on the island of La Gonave is as follows:

"During the past year a Public Health Officer has been stationed on the Island of La Gonave. A main dispensary has been established at Anse-à-Galets, the principal town. This dispensary has an average daily attendance of from forty (40) to fifty (50) patients. Rural clinics are held once a month in the following coastal towns: Zétroits, Gros Mangle, Grand Vide, Trou Louis, Pointe à Raquette and Petite Anse. The average for each of these clinics is from fifty (50) to sixty (60) patients. All urgent cases are sent in to the main dispensary at Anse à Galets, where they receive daily treatment. A clinic is held in the hills at Mas Suerae on the second Sunday of each month. This is the most successful of the clinics having an average attendance of 150 patients.

"Three Haitian boys have been employed as dressers, and have been doing splendid work. These dressers are stationed at the following places: Anse à Galets, Mas Suerae, and Pointe à Raquettes.

"During the year 3,290 injections of sulpharsphenamine, or bismuth were given. At the main dispensary at Anse à Galets, 7,481 treatments for all diseases were given; at the various out clinics 2,800 treatments, a total for the year of 10,281.

"During the month of April, 1925, ninety two (92) children were vaccinated; out of this number, forty one (41) "takes" were counted. (Mulfords dry vaccine was used in these cases.)

Native Dispensaries and Colonial Service.

In addition to a dispensary recently opened by the Service de Santé at each of the previously mentioned hospitals the Service maintains dispensaries in localities where there are no hospitals, an increase of 14 over the number reported last year. This increase was made possible by an extraordinary credit of 60,000 francs for 1938. A standard type of dispensary has been developed and it is hoped to erect about 8 or 10 of these each year until the needs for dispensaries no longer exists. A credit of 60,000 francs has been requested for the erection of such dispensaries during the fiscal year 1939-40. Haitian physicians are located in two of these dispensaries and with further expansion of the service it is hoped to employ still others. In those in which it is not possible to employ doctors it is planned to station trained dressers, a few of whom have been placed already.

A special report on dispensary and rural clinic activities on the island of La Gonave is as follows:

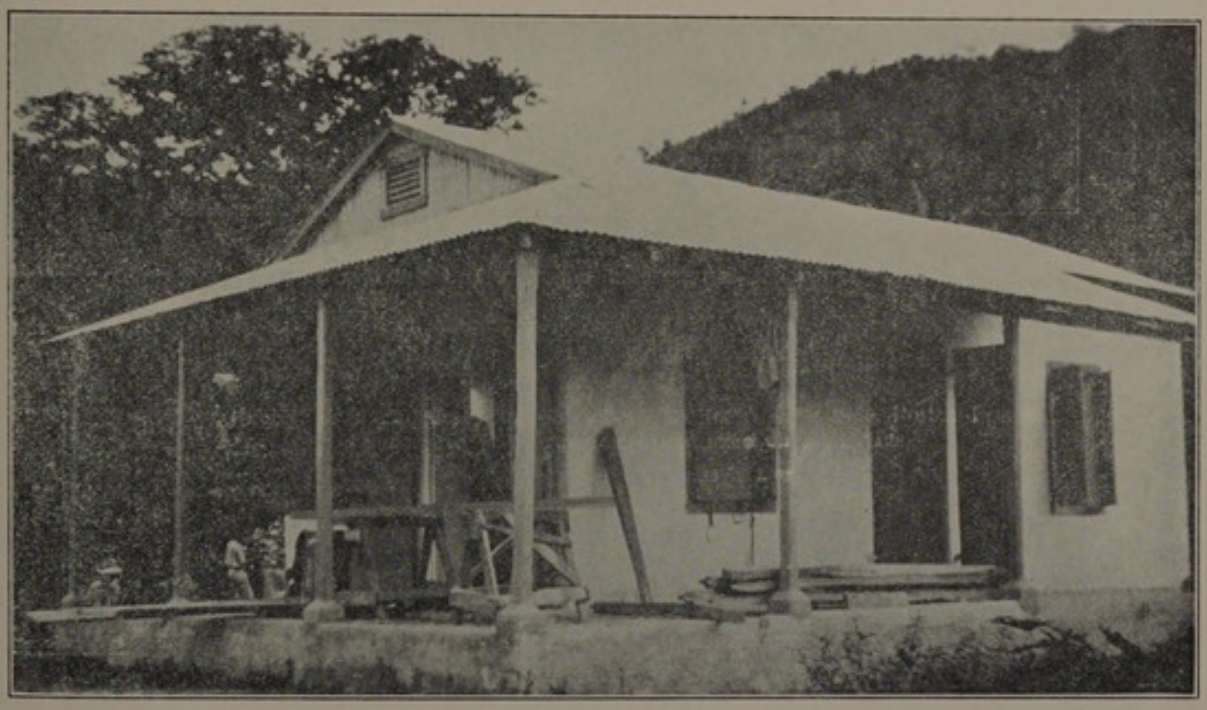
"During the past year a Public Health Officer has been stationed on the island of La Gonave. A main dispensary has been established at Anse-à-Galets, the principal town. This dispensary has an average daily attendance of from forty (40) to fifty (50) patients. Rural clinics are held once a month in the following coastal towns: Petrolite, Anse Mancie, Grand Fond, Pan Louis, Pointe à Raquette and Petite Anse. The average for each of these clinics is from fifty (50) to sixty (60) patients. All urgent cases are sent in to the main dispensary at Anse à Galets, where they receive daily treatment. A clinic is held in the hills at Mas Sapres on the second Sunday of each month. This is the most successful of the clinics having an average attendance of 100 patients.

"Three Haitian boys have been employed as dressers, and have been doing splendid work. These dressers are stationed at the following places: Anse à Galets, Mas Sapres, and Pointe à Raquettes.

"During the year 6,530 injections of sulpharsphenamine, or plemuth were given. At the main dispensary at Anse à Galets, 7,681 treatments for all diseases were given at the various out clinics 2,800 treatments. A total for the year of 10,481.

"During the month of April, 1938, ninety two (92) children were vaccinated; out of this number, forty one (41) "takes" were counted. (Mulfords dry vaccine was used in these cases.)

Rural Dispensary, Gros-Morne.



Rural Dispensary, Camp-Perrin

"Very little can be done in the way of sanitation on the island, the streets and public square at Anse à Galets are swept and cleaned by prison labor. The various towns around the coast line are policed by the Gendarmerie with excellent results. There are no public markets on the island, thus eliminating one source of disease propagation.

"There are very few sources of water supply, and most of these are considerable distance from any towns or village. All are contaminated by human and animal excreta. These sources all rise at the foot of some steep hill and flow for a few hundred yards then disappear in the porous soil, thus practically eliminating them as mosquito breeders. There are several places infested with mosquitoes, but these are very sparsely settled and of very little importance. When making a mosquito survey of the island very few anopheles mosquitoes were found and these all in isolated places. The larvae of Aëdes aegypti and Culex nigripalpus were found in great numbers in most of the stagnant pools and in the crevices of the rock.

"The commune of La Gonave contributes the sum of Gdes. 300,00 annually to Service d'Hygiène. This is received in monthly payments of Gdes. 25.00. This fund is used for the care of the impoverished patients and in paying their transportation to and from the Haitian General Hospital, Port-au-Prince.

"The inhabitants of La Gonave are of the most impoverished class in Haiti. A census of the island taken in November, 1924 shows a population of over 10,000. This population is in need of a permanent hospital or dispensary building. The building in use at present is an ordinary native hut which has been converted to answer the purpose of a temporary dispensary."

In addition to the establishment of a system of rural dispensaries mentioned above an extension of a system of rural clinics in each district is being continued. These clinics were established about two years ago and the ultimate aim is to form a net work of such clinics covering the whole Republic in order that the sick in even the smallest commune may be able to obtain treatment without the necessity of travelling the long distances formerly required. Owing to the poverty of the rural population there is as yet no incentive for Haitian physicians to settle in the smaller communities.

These clinics have to be held by busy Public Health Officers whose time is occupied largely by other duties such as work in hospital, sanitation, quarantine, vaccination and inspection of schools. These officers are further handicapped by lack of proper roads and trails, lack of boats to visit the coastal towns and lack of trained assistants. Despite these obstacles a surprisingly large amount of

Rural Clinic, La Gonave Island.

Treponamatosis, La Conave Island. A high incidence of this condition exists on this Island.

work is being done. Formerly there was another serious handicap, the lack of sufficient arsenical preparations (arsphenamine, neoarsphenamine), owing to the high cost of these products, to treat the enormous number of cases of yaws and syphilis which presented themselves. Happily this handicap has been overcome by the recent introduction by the medical profession of bismuth preparations in the treatment of treponematosis. It is now possible to give 100 treatments with a bismuth preparation for the same amount of money as one treatment formerly with arsenical preparations. This has abolished the pathetic condition of affairs where it was often necessary to turn away patients anxious for treatment, through lack of the wherewithal to treat them. Bismuth while it will not completely take the place of the arsenicals it nevertheless a God send to Haiti's rural population.

Inasmuch as treponematosis (yaws and syphilis) forms the major part of the infections treated at these clinics, the following observations of the Public Health Officer of Jacmel are of interest and are quoted:

"The following is a statistical comparison of treponematosis cases treated during the annual periods ending September 30th, 1924, and September 30th, 1925. The figures do not express very truly the prevalence of the disease or incidence of new cases because there are many factors besides actual prevalence and new case incidence which make up these figures for example, amount of drugs available for treatment, condition of trails permitting rural clinics and attendance at them, frequency and location of rural clinics and establishment of rural dispensaries, factors which have much to do with these figures. However, the ratio of primary treponematosis cases to old treponematosis cases for the two years should express to some extent the actual incidence rate:

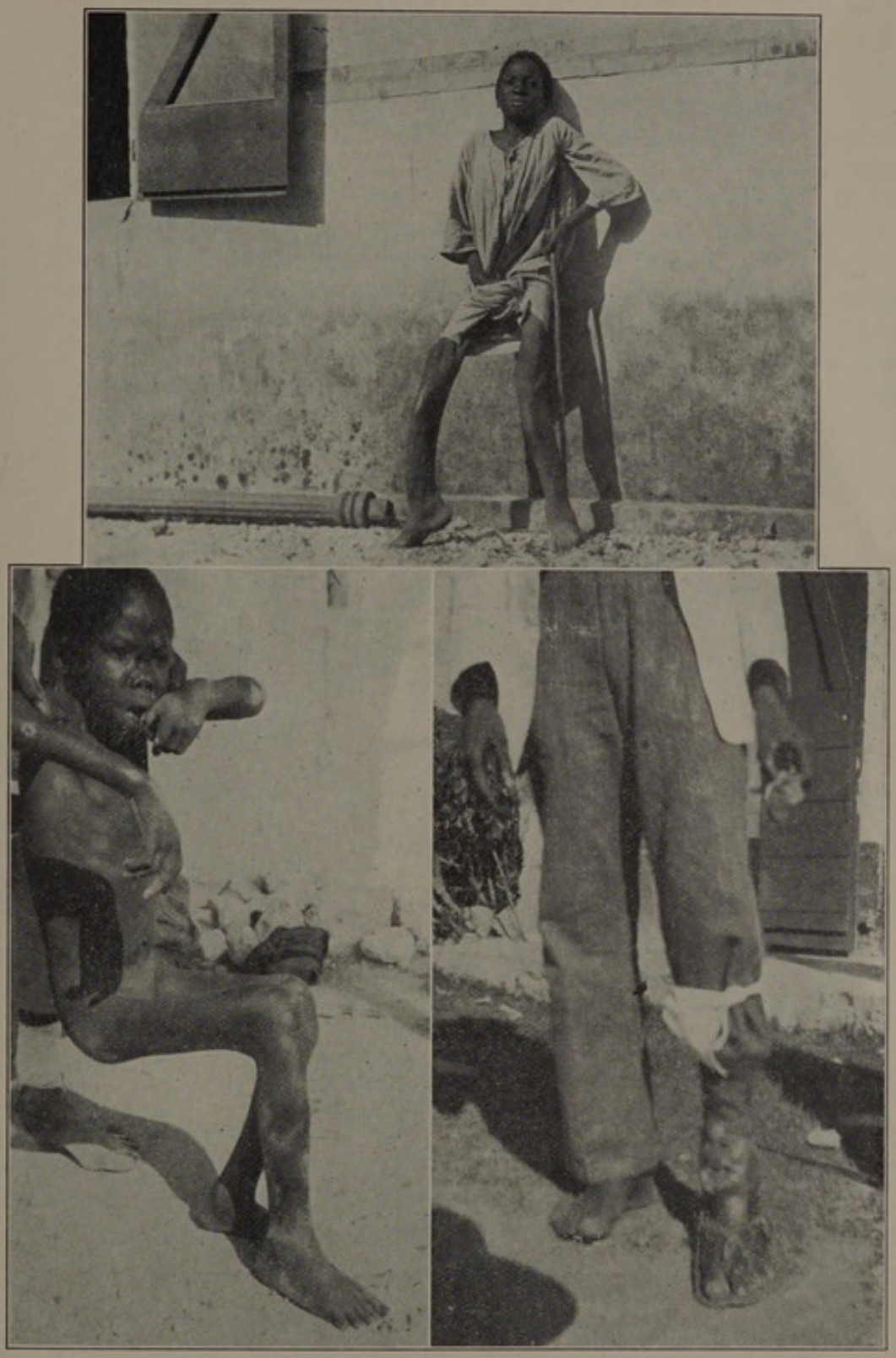
	1924	1925
Old cases treated in hospital----------	335	330
Old cases treated in rural clinics-------	892	17,930
Old cases treated in dispensary----------	6,273	12,038
Total.....	7,500	30,298
Early cases treated in hospital----------		89
Early cases treated in rural clinics-----	663	4,658
Early cases treated in dispensary--------	1,046	3,109
Total.....	1,709	7,856
Total all treponematosis cases-------	9,209	38,154
Ratio early cases to old cases-------	0.2278	0.2592

work is being done. Formerly there was another serious handicap, the lack of sufficient organized preparations (arsphenamine, neoarsphenamine), owing to the high cost of these products, to treat the enormous number of cases of yaws and syphilis which presented themselves. Happily this handicap has been overcome by the recent introduction by the medical profession of bismuth preparations in the treatment of treponematosis. It is now possible to give 100 treatments with a bismuth preparation for the same amount of money as one treatment formerly with arsenical preparations. This has abolished the pathetic condition of affairs where it was often necessary to turn away patients anxious for treatment, through lack of the wherewithal to treat them. Bismuth, while it will not completely strike the pick of this anomaly, it nevertheless a God send to Health Departments.

Inasmuch as treponematosis (yaws and syphilis) forms the major part of the infections treated at these clinics, the following observations of the Public Health Officer of Jamaica are of interest and are quoted:

"The following is a statistical comparison of treponematosis cases treated during the annual periods ending September 30th, 1924 and September 30th, 1925. The figures do not express very truly the prevalence of the disease or incidence of new cases because there are many factors besides actual prevalence and new case incidence which make up these figures; for example, amount of drugs available for treatment, condition of trails, penetrating rural districts and advertisement thereof, frequency and location of rural clinics and establishment of rural dispensaries, factors which have much to do with these figures. However, the ratio of primary treponematosis cases to old treponematosis cases for the two years should express to some extent the actual incidence rate:

	1924	1925
Old cases treated in hospital	335	330
Old cases treated in rural clinics	8925	12,990
Old cases treated in dispensary	6,252	12,945
Total	7,500	26,265
Early cases treated in hospital	89	
Early cases treated in rural clinics	663	4,598
Early cases treated in dispensary	1,046	3,139
Total	1,709	7,825
Total all treponematosis cases	9,209	34,154
Ratio early cases to old cases	0.2570	0.2292



Disabling effects of treponematosis. This disease is the most damaging one to the earning capacity of the Haitian people.

"Another method of expressing treponematosis prevalence is to compare the number of these cases treated with total cases treated for all diseases:

	1924	1925
Total inpatients treated	391	450
Per cent of these which were treponematosis	85.9	93.11
Total dispensary outpatients	16,253	25,554
Percent treponematosis	45.1	66.31
Total rural clinic cases	3,379	32,927
Percent treponematosis	40.1	68.60
Total all patients in all departments	20,023	58,931
Percent treponematosis	45.94	63.97

"The above figures express better than words the enormous prevalence of treponematosis and the resulting economic loss and suffering.

"During the coming year the completion and operation of rural dispensaries will, in the opinion of the writer accomplish more toward reducing treponematoses than any other agent hitherto at our disposal. Rural clinics can only be held one place at a time with the present personnel, whereas these rural dispensaries will be constantly operating in five different sections of the district."

Statistics for rural dispensaries and clinics are as follows:

DISTRICTS.	No. of places held	Average no. per clinic	Average cases per month	Total cases for year	No. of clinics held per month
Port-au-Prince /	12	209	7,176	57,408	37
Cap-Haitien	18	88	1,589	19,068	18
Port-de-Paix	6	29	355	4,270	12
Gonaives	2	77	539	6,475	8
Saint-Marc	12	127	1,533	18,395	12
Hinche /	7	19.55	405	2,835	16
Petit-Goave	8	53	243	2,919	4
Jérémie	12	37	55	666	2
Cayes /	13	-	-	1,616	-
Jacmel	12	374	2,743	32,927	7
Total	102	1013.55	14,638	146,579	116

/ The figures for these districts cover a period of less than 12 months.

"Another method of expressing treponematosis prevalence is to compare the number of those cases treated with total cases treated for all diseases:

	1924	1925
Total injections treated	391	450
Per cent of these which were treponematosis	85.9	93.11
Total dispensary outpatients	16,258	25,564
Percent treponematosis	46.1	69.81
Total rural clinic cases	8,379	24,927
Percent treponematosis	40.1	69.60
Total all patients in all departments	20,023	36,931
Percent treponematosis	45.94	83.97

"The above figures express better than words the enormous prevalence of treponematosis and the resulting economic loss and suffering.

"During the coming year the completion and operation of rural dispensaries will, in the opinion of the writer accomplish more toward reducing treponematosis than any other agent hitherto at our disposal. Rural clinics can only be held one place at a time with a present personnel, whereas these rural dispensaries will be constantly operating in five different sections of the district."

Statistics for rural dispensaries and clinics are as follows:

DISTRICTS.	No. of physicians	Average attendance per month	Total No. of clinics held per month	Average attendance per clinic
Port-au-Prince *	12	209	3,178	67
Cap-Haitien	18	88	1,889	18
Port-de-Paix	6	29	358	12
Gonaives	2	72	559	8
Saint-Marc	12	127	1,833	12
Hinche *	7	59.65	806	16
Petit-Goave	8	52	249	4
Jeremie	12	37	86	2
Cayes *	13	-	-	-
Jacmel	12	344	2,743	82
Total	102	1815.65	14,799	116

* The figures for these districts cover a period of less than 12 months.

TRAINING SCHOOL FOR NURSES.

I. Personnel.

American Red Cross Nurses----------4

II. Haitian Graduate Nurses

Total number of graduates----------50
Graduated during fiscal year----------5
Employed at Haitian General Hospital,(P-auPce)-----9
" " Justinien Hospital, Cap Haitien-------7
" " St. Antoine Hospital, Jérémie---------3
" " Public Health Hospital, Hinche---------2
" " U.S.Marine Brigade Hospital,(P-au-Pce)-2
" " Caserne, Gendarmerie d'Haiti, " 1
" " Prison Infirmary, Port-au-Prince------1
" " Prison Infirmary, Cap-Haitien---------1
" " Public Health Hospital, Gonaives-------1
" " Hospice Communal, Port-au-Prince-------1
" " Public Health Hospital, St. Marc-------1

There has been such a decided increase in the number of positions open to graduate nurses, particularly in Public Health Hospitals, that the demand far exceeds the number of nurses available.

III. Pupil Nurses.

Applied during fiscal year----------29
Entered----------10
Dismissed----------1
Resigned----------2
Total under instruction----------23

Classes in Anatomy, Physiology, Gynecology, Obstetrics, General Medicine, Materia Medica, Pediatrics, Bandaging, Massage, Ethics, Dietetics, Practical and surgical Nursing are conducted by Haitian physicians and American nurses. With the exception of three pupils all passed examinations satisfactorily. A course of twelve lessons in English was given to the senior class.

On February 24th, the graduation exercises for the class of 1925 were held on the lawn of the Nurses Home and were well attended by Haitian and American friends of the school. Regret was felt that His Excellency, the President of Haiti, was unable to be present.

Graduating Class — 1925. Training School for Nurses, Port-au-Prince.

The exercices were opened by the reading of the address of the Sanitary Engineer of Haiti by the Directress of the Training School. The Minister of the Interior, Mr. René Augusto, addressed the graduating class and presented their diplomas. The Vicaire Général, the Reverend Father Le Gouaze, then addressed the graduating class, following address by benediction, after which the class entertained their friends, refreshments being served in the Nurses'Home. The palacoband furnished music for dancing.

The advantages of the training offered by this School are not sufficiently appreciated by the better class Haitian young woman. There should be many more applicants than at present, especially in a country where so few professions are open to women. The course of instruction presents many educational advantages even to those who do not expect to make the profession of nursing their life work.

LABORATORIES.

The completion of the new dispensary at the Haitian General Hospital and certain wards under construction will make possible increased space for laboratory activities. It is now planned to continue the present laboratory as a clinical laboratory, to establish a laboratory of gross pathology in connection with the present morgue and lastly to establish a research laboratory in the upper story of the new dispensary.

A large amount of valuable postmortem material has heretofore been going to waste for lack of facilities and personnel, the average of such material being one or more autopsies per day. The recent addition of four medical officers of the U. S. Navy has made possible a beginning of the utilization of this valuable material. Complete autopsies are being performed in all cases where permissions can be obtained, microscopic section of diseased tissues made and complete records kept. It is also hoped to start a museum of gross pathological material for use in connection with the National Medical School. Advantage is also being taken of this postmortem material for training the younger physicians by operations on the cadaver. Many research problems await development.

The following is a list of laboratory examinations made during the past year:

	Port-au-Prince.	Cap-Haitien	All Others.
Autopsies	240	1	3
Feces	405	816	85
Urine	2,017	600	35
Sputum	449	306	6
Blood smears	956	2,712	167
Blood counts	379	612	2
Water	15	-	-
Soft drinks	20	-	-
Milk	1	-	2
Wassermann reaction	3,980	2,940	-
Widal reaction	486	60	-
Coagulation time	38	-	-
Feces cultures	1	-	-
Smear cultures	10	-	-
Rats	6	-	-
Blood cultures	12	-	-
Examination for leprosy	2	-	-
Rabbit injections	7	-	-
Dog examination for rabies	4	-	-
Miscellaneous examinations	169	480	-
TOTAL ...	9,197	8,527	265

INSPECTION OF SCHOOL CHILDREN AND VACCINATION.

During the last scholastic year a conference was held with the Minister of Public Instruction regarding the institution of a system of school inspection. A plan was agreed on whereby a beginning could be made in spite of certain limitations.

It was realized that for some time to come the inspection has to be limited to certain disease conditions of importance not only to the child but also to the community as a whole, hence it is primarily a feature of Public Health work in the broad sense of the word. Judging from the results obtained so far this work promises to be quite important. The aim of this inspection is to institute such measures as will prevent the occurence of certain diseases such as smallpox, to determine the presence of certain chronic infectious diseases, such as malaria, treponematosis, intestinal parasitism, etc., and to give proper treatment in those cases that need it.

The prevention of smallpox will continue to be a problem for Haiti as long as smallpox exists as a disease entity the world over.

This country saw a very serious epidemic of this disease spread over its entire area in 1920-21. At the end of the epidemic it was estimated that the greater part of the population had been immunized either by acquiring the disease or by vaccination.

The present problem for the Public Health Service is to keep the new generation immunized against smallpox by means of vaccination. A systematic school inspection will be of tremendous help in checking up on this feature.

Malaria is one of the most damaging diseases of Haiti. In some of the larger cities marked progress is being made with regard to the elimination of malaria by means of mosquito control. There are many points in Haiti, however, where for years to come the only measure that can be applied against this disease will be the administration of quinine to those who are actually sick. Who is more entitled to treatment for this disease than is the growing child who is in school? The importance of this work is evident when it is realized that there are some schools in the rural sections of Haiti that show from 50 to 60 percent infection as determined by the splenic index.

Yaw is a very common disease in many sections of this country; it often affects the young child. It is indeed not only good hygiene but good national insurance to institute proper treatment of this disease in the early years of life in order to prevent the crippling and disfiguring deformities of late.

Schools Examined	Enrollment.	Present on days of examination.	Vaccinated.	Splenic rate.
Port-au-Prince - 39	7,647	5,414	1,182	2.44%
Plaine du C. S.- 10	690	434	282	8.16%
Anse-à-Veau - 4	483	283	91	59.72%
Pétion-Ville - 2	414	341	126	0.88%
Léogane Plain - 3	651	469	194	33.68%
Petit-Goave - 4	559	353	170	23.79%

DIVISION OF SUPPLIES.

This department is directly in charge of a Chief Pharmacist, U. S. Navy, who is designated as the Supplies and Accounts Officer. The purchase of all supplies is, however, controlled by the Sanitary Engineer. All supplies and equipment are stored at the Supply Depot and records kept of their receipt and expenditure. Issues are made on requisitions from the various activities only after the approval of the Sanitary Engineer. A chief Pharmacist's Mate, U. S. Navy, superintends the filling and packing of all requisitions.

With the increased activities of the past year it has been found that the available storeroom space is inadequate, but so far no funds have been made available for increasing the present space.

The central garage is operated in conjunction with the supply depot. Our mechanics keep in good repair all the motor vehicles operated by the Service in the vicinity of Port-au-Prince. Housing space for motor vehicles is now inadequate, it being necessary to leave a number of motor vehicles out in the weather at night with resulting greater depreciation. Funds should be appropriated to build at least ten additional stalls. The garage workshops are not at all satisfactory. The space for doing the mechanical work on motor vehicles should be enlarged and more light afforded. The tire repair shop should be enlarged. A new building is needed for a carpenter shop, blacksmith shop, paint shop and storeroom. A building is also needed for storage of oil, gasoline, etc.

All of the motor vehicles used for removing garbage and rubbish from the streets need to be replaced with new trucks. There is also needed additional passenger cars to meet the ever increasing demand for transportation.

In spite of the fact that during the year additional credits were received, the Service is still greatly handicapped for lack of funds. At no time have funds been available to meet the demands of the different districts for such essentials as medicines, surgical dressings, instruments, etc. Lack of funds makes it necessary to disapprove requests from Public Health Officers for many things that are known to be absolutely essential for the proper care of the sick. There is no doubt that the greatest economic drain on the Republic is the health condition of its people. An investment of many thousands of dollars annually for the purchase of specifics for the cure of such diseases as yaws, syphilis, intestinal parasites, malaria, etc. would be found most profitable in the long run.

DIVISION OF SUPPLIES.

The total expenditures during the year under Supplies and Accounts is shown by the following tables:

Budgetary Funds:	Gourdes
Motor vehicles	16,037.90
Medicines	92,237.56
Surgical instruments	7,859.71
Hospital supplies	48,740.68
Stationery and office supplies	12,700.47
Motor vehicle supplies and repairs	27,446.54
Gasoline and oil	40,309.28
Other supplies not enumerated and miscellaneous	151,411.98
Books and publications	1,793.08
Tools and sanitation	21,782.29
X-Ray supplies	1,522.17
Transportation American nurses	1,606.00
	423,447.66

Extraordinary Credits:		Gourdes
Hospital Hinche:	Surgical Instruments	2,579.75
	Hospital Supplies	19,876.60
	Motor vehicle	5,258.45
	Office supplies	1,795.60
	Laboratory supplies	9,057.20
	Miscellaneous	10,927.20
		49,494.80
Purchase of Serums (Balance):	Vaccines	7,017.50
Medical and Surgical supplies:	Medicines	129,178.65
	Surgical inst.	13,486.45
	Hosp. supplies	101,321.10
	Lab. supplies	1,588.05
	Miscellaneous	4,425.75
		250.000.00
Equipment & replacement of trucks:	Motor vehicle	6,508.90
	Auto supplies	18,491.10
		25,000.00

Supplementary Credit:		
Purchase of Medical supplies:	Medicines	38,794.25
	Hospital supplies	11,205.75
		50,000.00

The total expenditures during the year under Supplies and Accounts is shown by the following tables:

Budgetary Funds:	Courdes
Motor vehicles	16,037.30
Medicines	92,837.66
Surgical instruments	7,089.71
Hospital supplies	40,740.65
Stationery and office supplies	15,700.40
Motor vehicle supplies and repairs	27,446.[illegible]
Gasoline and oil	40,[illegible]
Other supplies not enumerated and miscellaneous	151,411.[illegible]
Books and publications	1,705.00
Tools and sanitation	21,[illegible]
X-Ray supplies	1,455.17
Transportation thereon nurses	1,[illegible]
	[illegible]

Extraordinary Credits:	Courdes
Hospital Blanche:	
Surgical Instruments	2,579.75
Hospital Supplies	19,876.60
Motor vehicle	9,259.45
Office supplies	1,795.60
Laboratory supplies	3,057.20
Miscellaneous	10,927.80
	49,496.80

Purchase of Serums (Belonce): Vaccines 7,017.50

Medical and Surgical supplies: Medicines 489,179.65
Surgical Instr. 13,408.45
Hosp. supplies 101,351.10
Lab. supplies 3,008.05
Miscellaneous 14,425.75
280,000.00

Equipment & replacement of trucks: Motor vehicle 6,808.30
Auto supplies 18,491.70
25,000.00

Supplementary Credits:

Purchase of Medical supplies: Medicines 30,794.25
Hospital supplies 14,205.75
45,000.00

DIVISION OF FINANCE.

During the fiscal year 1924 to 1925 allotments made to the various districts have been based on estimates of expenditures submitted by the districts. During the first three months of the year it was realized that the sum of Gdes. 576,000.00 of the Budget for sanitation would not be sufficient. To meet this deficit a supplementary credit of Gdes. 139,466.25 was requested and authorized. However, this supplementary credit did not increase the total amount of the Budget, being met as follows:

Cancellation of the following balances:-

Article 79 ----------	Gdes.	5,250.00	
" 83 ----------		11,451.00	
" 84 ----------		900.00	
		17,601.00	17,601.00

Reduction of the following balances:

Article 80 ----------	Gdes.	104,110.74	
" 82 ----------		17,754.51	
		121,865.25	121,865.25
Total.....	Gdes.		139,466.25

A comparison of the Budgets 1923 to 1924 and 1924 to 1925 is shown in chart 1.

A comparison of the supplementary credits is shown in chart 2.

A comparison of the expenditures of budgetary funds in 1923 to 1924 and 1924 to 1925 is shown in Chart 3.

The Extraordinary credits for the years 1923 to 1924 and 1924 to 1925 are shown in chart 4.

Total expenditures during the last two years by districts are shown in charts 5 and 6.

The method of reporting expenditures has been changed and elaborated, yet made as simple as possible, during the year, so that it is now possible to obtain information concerning the expenditures made by the various activities to a greater degree of detail. Expenditures are first divided into Personnel and Material.

Under personnel the expenditures are divided into the amounts expended for "salaries" and "payrolls". Under "material" the expenditures are divided into "Expendable" and "Non-expendable" material. These divisions are further subdivided by an "Analysis of Expenditures". The "Personnel" being listed according to payroll designations; the "Material" according to items, or groups of items, of expenditure. The various items of expenditure are designated by class numbers; those from 01 to 100 representing "Expendable material" and those from 100 representing "Non-expendable material". This "Analysis of Expenditures" thus represents what a certain hospital or any activity expends for "Stationery and office supplies", "Laboratory and X-ray supplies", "Subsistence", "Forage for animals", "Furnishing of electricity", Supplies for mosquito control", "Supplies for quarantine work", "Rent for buildings", "Hire of animals", "Street cleaning; garbage and rubbish removal", "Night soil removal equipment, "Transportation and carrying equipment", "Quarantine equipment" and numerous other objects of expenditure. Some difficulty, due to lack of personnel, has been experienced in obtaining reports of expenditures of various funds, other than Budgetary, such as "Communal funds", etc. During the coming fiscal year, however, all funds from whatever source obtained, will be deposited to the credit of a Budgetary fund and all expenditures made by voucher so that the reports of expenditures will then represent a statement of <u>all</u> expenditures. A standard list of charges to be made for special sanitation and quarantine work and for hospital charges has been published and all funds obtained from these sources will also be deposited to the credit of a Budgetary Fund.

Due to lack of clerical personnel in the various districts it has been, as yet, impossible to institute a "Cost Accounting System" in each activity, but with the information which can be obtained from the present method of reporting expenditures it will be possible to prepare a very comprehensive budget.

CHART 1.

	Budget 1923-24	Budget 1924-25
	Gourdes.	Gourdes.
Administration and Supplies----------	297,186.15	507,996.oo
Hospitals----------	478,681.15	689,798.04
Sanitation and Quarantine----------	593,127.70	576,000.oo
Training School----------	26,409.oo	32,988.oo
Charity----------	4,600.oo	3,600.oo
Salary of Sanitary Engineer and one Pharmacist----------	21,000.oo	21,000.oo
Total.....	1,421,004.oo	1,831,382.04

Note:- The salary of the Sanitary Engineer and one Pharmacist amounting to Gdes. 21,000.oo for the year was paid direct from the office of the General Receiver. (This note applies to fiscal year 1923-24).

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CHART 2.

Supplementary Credits 1923-24:	Gourdes.	Supplementary Credits 1924-25:	Gourdes.
Purchase of Drugs for Hospitals----------	50,000.00	Sanitation /--------	139,466.25
Salary of one doctor-----	6,250.00		
	56,250.00		139,466.25

/- This credit dit not increase the total Budgetary of the year being met by cancellation of certain balances and reduction of others.

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CHART 3.

	Budgetary Expenditures 1923-24	Budgetary Expenditures 1924-25
	Gourdes.	Gourdes.
Sanitation and Quarantine----------	593,127.70	715,466.13
Hospitals----------	470,681.15	672.043.53
Administration and supplies--------	297,186.15	403,855.26
Training School----------	26,409.00	21,537.00
Charity----------	4,600.00	2,700.00
Salary of Sanitary Engineer and one pharmacist----------	21,000.00	15,750.00
Total.....	1,421,004.00	1,831,381,92

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CHART 4.

Extraordinary Credits 1923-24:	Gourdes.
Justinien Hospital, Cap-Haitien	25,000.oo
Purchase of sera	15,000.oo
Purchase of drugs, material & equipment, Hospital of Hinche	111,133.65
	151,133.65

Extraordinary Credits 1924-25:	
Medical and surgical supplies	250,000.oo
Material & apparatus for sanitation	15,000.oo
Equipment & replacement of trucks	25,000.oo
Permanent sanitation improvement	71,000.oo
Rural dispensaries	34,000.oo
Reservoir, sewage system, new wards, chapel and repairs at Haitian General Hospital	194,000.oo
Isolation Ward, Justinien Hospital, Cap-Haitien	40,000.oo
Completion of Hospital at Port-de-Paix	100,000.oo
Enlargement of Hospital at St. Marc	15,000.oo
Repairs to and enlargement of Hospital at Cayes including purchase of land	200,000.oo
Dispensary, repairs to and enlargement of Hospital at Jacmel and isolation ward	95,000.oo
	1,039,000.oo

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CHART 5.

BUDGETARY EXPENDITURES - FISCAL YEAR 1923-24.

DISTRICTS	Salary Sanitary Eng.& one Pharm.	Administration & Supplies.	Sanitation and Quarantine	Hospitals	Training School	Charity	Total
Cap-Haitien			105,930.20	60,600.00			166,530.20
Cayes			40,250.00	27,700.00			67,950.00
Gonaives			24,287.00	17,010.00			41,297.00
Jacmel			26,800.00	28,410.00			55,210.00
Jeremie			30,545.00	16,585.00			47,130.00
Petit-Goave			36,390.00	17,400.00			53,790.00
Port-au-Prince	21,000.00	297,186.15	274,417.50	290,726.15	26,409.00	4,600.00	914,338.80
Port-de-Paix			23,325.00	12,700.00			36,025.00
Saint-Marc			31,183.00	7,550.00			38,733.00
TOTAL	21,000.00	297,186.15	593,127.70	478,681.15	26,409.00	4,600.00	1,421,004.00

Note:- Gdes. 21,000.00, for the salary of the Sanitary Engineer and one Pharmacist, was paid direct from the office of the General Receiver.

CHART B.

BUDGETARY APPROPRIATIONS

DIVISIONS	Salary Department	Administration & Supervision	Sanitation and Inspection	Total
Cap-Haitien			108,980.80	80
Cayes			40,880.00	87
Gonaives			84,987.00	47
Jacmel			26,800.00	46
Jeremie			70,845.00	18
Petit-Goave			36,390.00	13
Port-au-Prince	21,000.00	297,186.15	574,417.50	892
Port-de-Paix			23,256.00	13
Saint-Marc			31,185.05	7
TOTAL	21,000.00	297,186.15	899,147.40	478

Note:- Odds. $21,000.00, for the salary
one Pharmacist, was paid direc
Appointment.

CHART 6.

BUDGETARY EXPENDITURES - FISCAL YEAR 1924-25.

DISTRICTS	79	80	81	82	83	84	Total
Cap-Haitien	4,000.00	1,500.00	120,515.75	122,676.95			248,692.70
Cayes			73,549.88	46,978.00			120,627.88
Gonaives			29,049.00	24,735.00			53,784.00
Hincho			8,090.00	23,895.56			31,985.56
Jacmel			45,776.00	48,992.00			94,768.00
Jeremie			37,365.00	22,510.50			59,875.50
Petit-Goave			43,680.00	18,700.00			62,380.00
Port-au-Prince	11,750.00	402,385.26	297,620.50	325,380.53	21,537.00	2,700.00	1,061,373.29
Port-de-Paix			30,785.00	16,150.00			46,935.00
Saint-Marc			28,935.00	22,024.99			50,959.99
TOTAL	15,750.00	403,885.26	715,466.13	672,043.53	21,537.00	2,700.00	1,831,381.92

79 - Salary of Sanitary Engineer and one Pharmacist
80 - Administration and supplies
81 - Sanitation and quarantine
82 - Hospitals
83 - Training School
84 - Charities.

DONATIONS.

The Sanitary Engineer of Haiti takes this occasion to express the gratitude of this Service to the National American Red Cross and especially to Mr. Ernest P. Bicknell, Vice-Chairman of the American Red Cross and to Mr. W. E. Bleo, Chairman of the Haitian Chapter of the American Red Cross.

A gift of Gdes. 50,000.oo from the American Red Cross made possible the opening of a splendid surgical ward at the Justinien Hospital, Cap-Haitien, in June, 1925. He also wishes to acknowledge from the same source the receipt of the following: Quinine sulfate - 987 ounces, Potassium iodide - 216 pounds, mosquito nets - 414, and miscellaneous articles such as bed linen, clothing, dressings., bandages, gauze and cotton.

Gifts of 6,719 ampules of neosalvarsan and 500 tubes of Bismuth preparations from the H. A. Metz laboratories is hereby acknowledged.

Occasion is also taken to thank all others who have assisted by donations.

CONFERENCES.

Dr. Charles Mathon of Port-au-Prince represented Haiti officially at the 7th Pan-American Sanitary Conference held in Havana, Cuba, November 5-15, 1924.

Monthly medical conferences of the medical officers of this Service were held regularly during the year excepting during the months of July, August, and September. These conferences have proven highly instructive and serve as a medium for the exchange of views on many matters of importance to the Service.

Medical officers from the 1st Brigade, U. S. Marine Corps and medical officers of the Gendarmerie have participated in these conferences. The following is a list of subjects presented with their authors:

1. Sanitary Survey of Port-au-Prince -- Lieutenant Ed. Peterson, (MC) U. S. Navy.

2. Aims and methods of the International Health Board of the Rockefeller Foundation -- Dr. Geo. C. Payne, I.H.B.

3. Trichophytoses — Commander C. S. Butler, (MC) U. S. N.

4. Report on Proceedings of the International Conference on Health Problems in Tropical America -- Lieutenant Commander Paul W. Wilcon, (MC) U. S. N.

5. Rural clinics -- Lieutenant Commander R. H. Laning (MC) U. S. Navy.

6. Quarantine -- P. A. Surgeon John T. Mahoney, U.S.P.H.S.

7. Bacillary Dysentery -- Lieut. P. F. Dickens, (MC) U.S.N.

8. History of the International Health Board -- Dr. H. H. Howard, I.H.B.

9. Demonstration of Unusual Cases -- Lieutenant Commander H. H. Lane, (MC) U. S. Navy.

10. Injections of Milk in the Treatment of Infections of the Eye -- Lieutenant James F. Hooker, (MC) U. S. Navy.

11. Mosquito Survey of Haiti -- Dr. Wm. H. Hoffman, I.H.B.

NATIONAL SCHOOL OF MEDICINE.

In March 1808, a law was passed in Haiti, establishing several hospitals throughout the country: one of 400 beds in Port-au-Prince, one each of 200 beds in Cayes, Jacmel, Jérémie and Anse-à-Veau. These hospitals should also serve in a way as schools for the development of medical personnel for the army and its various hospitals as well as for taking care of the sick of the country's indigent population. Doctor Dehoux sums up the extent of teaching given at these institutions thus: "To prepare the ordinary parts of apparatus, to make and apply bandages, to apply blisters, moxa, cupping glass, seton, to open a boil, to extract teeth, to make injections required by certain diseases, to extract foreign bodies, to apply tourniquets, to handle a bistoury, to make cutaneous incisions, to blood-let". With the organization of these hospitals and schools a number of regulations were issued for the control of these institutions. The regulations covered such subjects as classification of personnel, admission to the hospitals, visits to the sick, distribution of medicines and food, training in the hospital, internal administration, etc. Doctor Dehoux states that if the

intent of these laws and regulations had been carried out properly the hospitals of the Republic would probably have become worthy of the name. But, as this author says, the hospitals have been from time to time subject to gross negligence. This has occurred not only during the various revolutions but even during periods of calm. State funds were wasted under the false pretense that the sick were taken care of, a condition, Doctor Dehoux relates, of which the Government undoubtedly was aware.

The Port-au-Prince hospital with its school was kept up somewhat better than the hospitals in the outlying districts. From this primarily military institution the present school of medicine emerged.

A few years after its organization, the hospital school began to loose its strictly military character and gradually became a civil institution. In 1820 a commission was appointed to control the "medical education" and for the purpose of putting some order into the actual practice of medicine. Licenses were issued without which one could not practice.

In 1823 the Government launched a new enterprise by establishing a school of higher learning. It was called the Academy of Haiti and its curriculum included medicine, law, literature and the first elements of astronomy. It failed however.

In 1838 the hospital school at Port-au-Prince was given the name of the National School of Medicine. But it was not until 1870 that the degree of Doctor of Medicine was granted by the School. In that year also Doctor Dehoux was appointed the dean and it was under his administration that the school reached its highest development. One is struck indeed with the sincerity of this man. He is not afraid to speak the truth even if it hurts. Doctor Dehoux realized the limitations of the medical profession in Haiti and regretted the fact that its scientific standing was not as high as in more advanced countries. He insisted however that all efforts should be made to improve this condition.

During his period of administration Doctor Dehoux introduced dissection and operative surgery. He held clinics and recommended the development of various laboratories. A few students were even sent to Paris to complete their medical education. With the advent of Salomon in the presidential chair in 1879 Doctor Dehoux was removed from his post. Here is a typical example of what happens when a scientific institution is the "play ball" of politics. Doctor Dehoux was one of the best medical men Haiti has produced. He spent several years in Paris studying medicine and came back to Haiti ready to give the best he had to the welfare of his country. But politics removed him without cause. Indeed a sad thing for the medical profession of Haiti. The strength of Doctor Dehoux is best demonstrated by the fact that he believed that the pride of the

Haitian physician should not stand in the way of adopting methods of other more advanced countries. He exhibited that infallable evidence of effective education, viz., the open mind. Doctor V. Louis Michel says in his obituary of Doctor Dehoux:

> "The achievements of Dr. Dehoux in Port-au-Prince caused a large amount of envy amongst his enemies. The persecutions soon started and were kept up until his death. The poisonous darts of envy and jealousy struck him right in the heart."

It is a pleasure to follow the reasoning of Doctor Dehoux when he discusses the separation of the school from the military hospital which event occurred in 1888. He says: "This separation is fatal both to the school and to the hospital. If this separation becomes absolute where will the school find material for its clinical teaching which is absolutely essential if the school is to perform its duties. The hospital will suffer by the loss of personnel".

From the time of separation of the institution up to 1906 Doctor Pressoir states that the school was very much handicapped with regard to clinical instruction. Private clinics were utilized as far as is possible but the teaching suffered from lack of clinical material. It was during this time that Doctor Audain appeared on the scene. He undoubtedly has put his stamp on the medidal teaching of Haiti. He even introduced microscopy and on his return from France in 1905 established a local laboratory. "Adieu, traitement symptomatique et incertain" (Dr. Ricot). Internal disturbances within the school were common however and prevented the institution from taking full advantage of the new ideas introduced by Doctor Audain.

In 1906 a new law governing the medical school was promulgated taking the place of the one of 1870. It reads as follows:

"Art. 1. The instruction of the National School of Medicine and Pharmacy comprises the following subjects: Medical physics, chemistry, natural history, anatomy (dissection and operative surgery) histology, obstetrics, physiology, medical pathology, surgical pathology, therapeutics, hygiene, medical jurisprudence, surgical clinic, obstetrical clinic, pharmacy, dentistry and bacteriology.

Art. 2. The staff of the Medical School shall consist of the following: Four professors one of whom is dean, three assistant professors, one botanist and one janitor. The assistant professors are appointed after a competitive examination. To be admitted to this examination the candidate should have a diploma of doctor of medicine or pharmacist.

After a probation of at least two years, the assistant professors are entitled to fill vacancies or new positions.

Upon assignment by the dean they will act as secretary librarian and prepare courses on physical and natural sciences.

Art. 3. The teachers shall furnish three hours of instruction per week. The curriculum shall be prepared by the dean.

Art. 4. Upon convocation of the dean, the teachers shall meet to decide upon questions relative to the School, especially with regard to difficulties arising from carrying out the regulations and misunderstandings that may exist between the dean and other members of the personnel.

Art. 5. Disciplinary measures that can be taken against members of the staff are: Reprimand from the dean, reprimand from the staff in session, reduction in salary, suspension for six months with or without pay, and discharge.

The deduction from pay is made for any unauthorized absence, this deduction will be made in proportion to the time the teacher has been absent from his duties.

The amount of the deduction should be deposited to the account of the School to be used for the needs of the institution. Four unauthorized absences are considered as a resignation.

Suspension is pronounced by the Secretary of State for Public Instruction after deliberation of the board of teachers, and upon the report of the authority in charge of the control of schools.

The discharge is pronounced by the President of the Republic upon the report of the Secretary of State for Public Instruction.

Art. 6. The course for the degree of doctor of medicine is 5 years, that of pharmacy and dentistry is 3 years each, and that of midwife is 2 years.

The Government is authorized according to its revenues to create preparatory schools of medicine and pharmacy in the principal cities of the various departments.

Art. 7. The enrollment of students will be made at the school. Any person having a certificate from a secondary school showing that he has successfully completed his studies is entitled to enrollment.

Each student should take an "inscription" at the beginning of every quarter. Such "inscription" should be taken within 15

days after the beginning of the quarter. The first "inscription" should be taken during the first month of the first quarter of the year. The school will consider as valuable the "inscriptions" taken by students in foreign schools.

Art. 8. The State is authorized to give scholarships expenses to students of other places than the capital city, within the limits of the budgetary credits. The scholarship expenses are given during five years for medical students; three years for students in pharmacy; three years for students in dentistry and two years for midwives. After their graduation they will be obliged to practice in places designated by the Government, the doctors during five years, the pharmacists during three years, the dentists during three years, and the midwives during two years. In case of refusal they will reimburse the State of all expenses made for them.

Art. 9. Disciplinary measures that should be taken against the students are determined by the regulations of the School.

Art. 10. The medical students are obliged to pass five examinations before receiving their diplomas.

The time when these examinations are held as well as any details relative to this examination are determined by the regulations. After the fifth examination the candidate will discuss a thesis chosen by him. Failure to do so will not prevent the graduate however from receiving his diploma.

Art. 11. The examinations are made by the dean and the teachers of the medical school under the control of the proper school authority.

Art. 12. In order to complete the obstetrical teaching given at the National Medical School, the students as well as the midwife-pupils are obliged to follow the clinical obstetrical courses in the institutions where the courses are given in compliance with the at present existing laws.

Art. 13. Candidates to the School for Midwives should have a certificate of primary instruction.

Art. 14. There are eight "inscriptions" which shall be made in the same manner as in the case of the medical students. There are two series of examinations.

Art. 15. Scholarship expenses may be accorded to students in the school for midwives living in localities other than the capital city.

Art. 16. The medical students are exempted from military service.

Art. 17. The diplomas of M.D., pharmacist, dentist and midwife, issued by the Secretary of State for Public Instruction will be registered by the Jury Medical Central.

Art. 18. The doctors, pharmacists, dentists and midwives graduated from a foreign university shall be able to practice in Haiti only after they have received an "equivalence". The "equivalence" will be issued after the examination of titles and the candidate himself, if deemed necessary, by the Medical School. The new diploma will be registered by the Jury Medical Central and the licence will be issued by the Secretary of State for Public Instruction.

Art. 19. No one can, in the future, practice medicine, dentistry, pharmacy, midwifery if such person has not in his possession the proper diploma issued in compliance with the law.

Art. 20. Persons having diplomas regularly issued prior to the promulgation of the present law will be obliged within a delay of one year beginning from the promulgation of the present law, to register their diplomas at the Jury Medical Central.

Art. 21. Any person who shall practice any of the above mentioned professions without having a diploma registered at the Jury Medical Central, or without the licence mentioned under article 18, will be prosecuted and punished in compliance with article 217 of the Penal Code.

Art. 22. The "brevet" of a "Health officer" cannot be interpreted as a diploma of doctor of medicine.

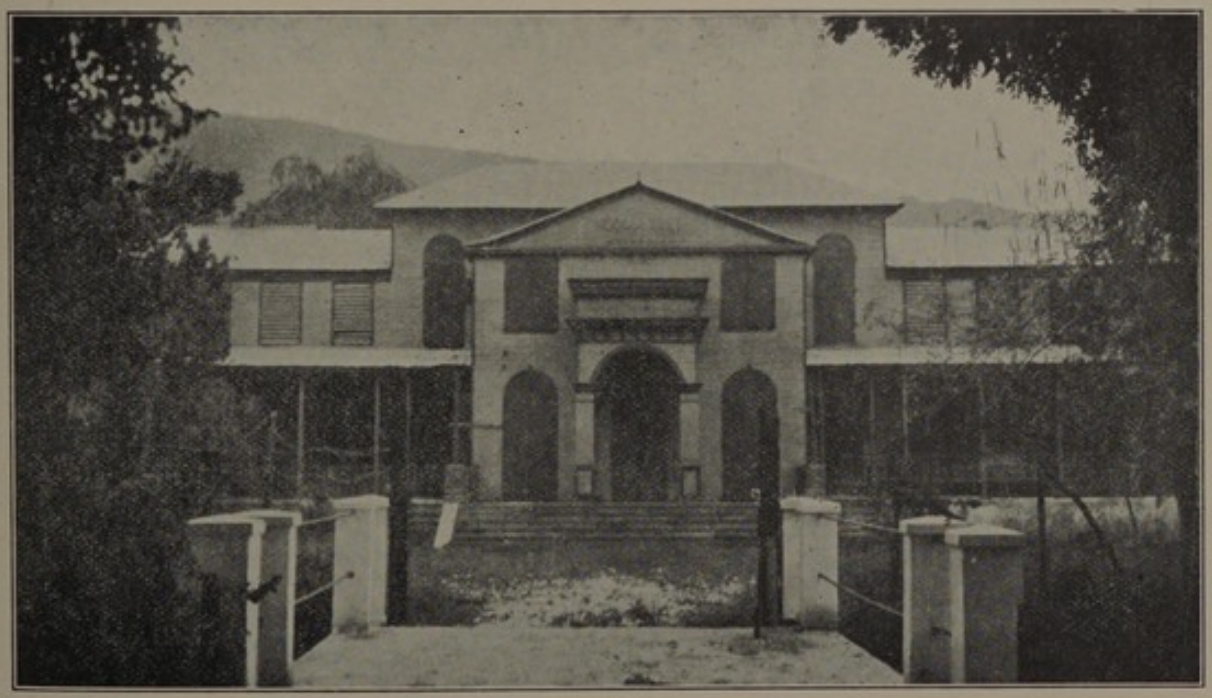
Art. 23. The clinical teaching of the National Medical School will be made at the Military Hospital."

In 1910 Doctor Salomon became the dean of the School. He held a clinic at Saint-François de Salles and opened up one also at the Military Hospital.

When the Americans arrived in Haiti in 1915 the conditions of the hospitals and the medical school could not have been said to be satisfactory. It would be rather unkind to describe the actual condition of the hospitals. The medical officers of United States Navy found after numerous conferences with the various authorities that co-operation with them as well as with the native physicians was practically impossible. The various hospitals were taken over by the American authorities and within a few years the majority of them had improved to such an extent that the name hospital was not a misnomer.

The School of medicine carried on as before. The School as it appears today does certainly not represent the fulfillment of Doctor Dehoux's dream. The School building that is now used was

Hospice Communal, Port-au-Prince.



National School of Medecine.

erected in 1881 as an exhibition building. The second story was never finished inside and has bever been occupied. The lower story contains four lecture rooms and a library. The entire building is in poor repair and owing to the ravages of white ants is ready to fall down. It is not worth repairing.

The School is under absolute government control, its entire support being received from the State. This support amounts to a meagre Gdes. 39,240.00 annually for all purposes. This sum is utilized in paying salaries as follows:

One dean----------	Gdes. 400.00	a month
Four teachers----------	300.00	"
Ten teachers----------	150.00	"
One secretary----------	150.00	"
One Janitor----------	20.00	"

There are no full time men employed. The teachers are supposed to give three hours a week to the school. The appointments are political and can be revoked at any time without cause.

A laboratory, the back bone of any medical institution, does not exist in the usually accepted sense of the term. There is one microscope in the School. Teaching in laboratory work is done by lectures, and the results obtained are those to be expected from such a system. The clinical teaching follows the "natural" method used in France. The young students entering the first year of school is at once introduced to the actual practice of medicine. The morning hours from 8 to 11 a.m. are supposed to be spent at clinics, dissection and operative surgery. The hours between 4 and 7 p.m. are devoted to didactic teaching.

The clinical facilities of the school are somewhat limited. Clinics are held in two small hospitals: Saint-François de Salles 50 beds capacity, and Asile Français 20 beds capacity. The Haitian General Hospital which is under the control of Service d'Hygiène and has a capacity of over 300 beds has offered its vast clinical and laboratory material to the service of the school but at present only dissection (desultory), operative surgery and clinical obstetrics are taught in this hospital. The schedule is as follows:-

First Year:

Morning Hours:

8 - 11	Dissections - twice a week - 2 hours period - 128 hrs.	
	Clinics -	

Afternoon Hours:

4 - 7	Medical Physics	32 hrs.
	Chemistry	32 "
	Medical Natural history	32 "
	Anatomy	32 "

erected in 1881 as an exhibition building. The second story was never finished inside and has never been occupied. The lower story contains four lecture rooms and a library. The entire building is in poor repair and owing to the rowdyism of white ants is ready to fall down. It is not worth repairing.

The School is under absolute Government control, its entire support being received from the State. This supports amounts to a measure given. 35,260.00 annually for all purposes. This sum is utilized in paying salaries as follows:

One dean	Odes.	600.00 a month
Four teachers		300.00 "
Two teachers		180.00 "
One secretary		150.00 "
One janitor		20.00 "

There are no full time men employed. The teachers are supposed to give three hours a week to the school. The appointments are political and can be revoked at any time with no cause.

A laboratory, the basis [illegible] of any medical institution does not exist in the usually accepted sense of the term. There is one microscope in the School. Teaching in laboratory work is done by lectures, and the results obtained are those to be expected from such a system. The clinical teaching follows the "natural" method used in France. The young students entering the first year of school is at once introduced to the actual practice of medicine. The morning hours from 8 to 11 a.m. are supposed to be spent at clinics, dissection and operative surgery. The hours between 4 and 7 p.m. are devoted to didactic teaching.

The clinical facilities of the school are somewhat limited. Clinics are held in two small hospitals: Saint-François de Salles, 50 beds capacity, and Asile François 20 beds capacity. The Holtzpffel General Hospital which is under the control of Service d'Hygiène and has a capacity of over 300 beds has offered its west clinical and laboratory material to the service of the school, but at present only dissection (laboratory), operative surgery and clinical observation are taught in this hospital. The schedule is as follows:

First Year.
Morning Hours:
8 - 11 Dissections - twice a week - 3 hours period - 132 hrs.
Clinics -

Afternoon Hours:

4 - 7 Medical Physics.	32 hrs.
Chemistry.	32 "
Medical Natural History.	32 "
Anatomy	32 "

Second Year:
Morning Hours:
8 - 11 Dissection
Clinics

Afternoon Hours:

4 - 7	Anatomy	64 hrs.
	Histology	32 "
	Physiology	64 "
	Symptomatology	32 "

Third Year:
Morning Hours:

8 - 11	Operative surgery	32 hrs.
	Clinics	

Afternoon Hours:

4 - 7	External Pathology	64 hrs.
	Internal Pathology	32 "
	Parasitology	32 "
	Obstetrics	64 "

Fourth Year:
Morning Hours:
8 - 11 Clinics

Afternoon Hours:

4 - 7	Medical Jurisprudence	32 hrs.
	Therapeutics	64 "
	Toxicology	32 "
	Hygiene	32 "

Fifth Year:

	Bacteriology - clinical laboratory	96 hrs.
	Medicine)	
	Obstetrics) Didactic and clinical	
	Surgery)	
	Pediatrics)	

The National School of Medicine in Port-au-Prince should be an important institution for the country. It is practically the only source of native physicians. The average graduate, however, cannot be considered satisfactory. If we consider the general condition of hospitals in Haiti at the time the United States took them over as a criterion of the efficiency of the native medical profession we must consider it quite low. The Haitian medical profession is not alone to blame for this condition. The condition of medical education was but part and parcel of the general situation found in Haiti in 1915.

The young Haitian doctor has, when he graduates, a distinct pride in his profession and does not feel that he is inferior to any one. During the last few years many of these young graduates have taken advantage of the opportunities offered at the Haitian General Hospital and have spent from one to two years as internes in this institution.

What is the future of the medical school in Port-au-Prince? One thing is certain: it can not retain the same organization as it now has without retrograding to a state of more absolute uselessness. It must be improved if it will ever play the role in the future development of Haiti that, from the nature of things, it should play. Now is this improvement to be brought about? It has been in the hands of the native profession for one hundred years and the final product is hardly an institution to be proud of. The fact remains, however, that it must continue to be a native institution. It should however be one to which the profession could point with real pride. The quickest way to accomplish this would be to place the school under the direction and supervision of the Sanitary Engineer who is the head of the National Public Health Service. Under his direction with the faculty assured of position as long as worthy of it a real esprit de corps could be developed in the school, politics would no longer hamper its progress and means could be provided to continue the progress and to establish medical education upon a firm foundation.

What are the present needs of the Medical School? A new building is essential; real laboratory work should be introduced; the teaching should be improved by employing a certain number of full time men; decent salaries should be given to the teachers.

In placing the school under the Sanitary Engineer the vast clinical and laboratory material of the Haitian General Hospital could be utilized to the best advantage. The above changes could be placed in operation within a comparatively short time and coupled with a compulsory internship of one year at the Haitian General Hospital it stands to reason that the young graduate so prepared will be much better qualified to practice medicine than is the case at the present time.

The above suggestions do not indicate any drastic changes except in that the student will be introduced to the laboratory and the microscope. In order however, to give the students time to study laboratory work it is necessary to cut down on some of the clinics during the first three years. This of course means a distinct deviation from the "natural" method of teaching, but as Abraham Flexner says, it seems to be approved by educational theory and to be established by experience that the student avoids sheer and unprofitable confusion and attaches clearer conception to terminology, if pictures of normal structure and function are developed as a preliminary to his study of disease. It is not

believed that it is possible to make this institution an A-1 school by the stroke of a pen. It is only intended to put the school on the right track. There are years and years of hard work ahead of the school, not only with regard to actual medical education but also with regard to the preliminary training of the students, secondary schools of any importance at all being few. At the present time we must be satisfied to develop the school along practical lines and forget the ideal of producing serious thinkers in the science of medicine or any of its branches. For some time to come the production of practical physicians that will be able to take care of the tremendous morbidity of Haiti will be our aim.

In order however to be able to do this the physician should know that the microscope is a useful instrument. He should know that bacteriology really is a science that is able to help the practicing physician. He should know that gross pathology has been developed in other countries to a marked degree and is of tremendous importance to the practice of medicine. He should know what information can be gained from examining a histological slide and that pathological sections often reveal conditions that otherwise would have been unsolved secrets.

In order however to place the medical profession of Haiti on its own metal and put the onus of developing the school partly upon the native physicians, whose problem it really is a few full time men should be appointed, one of whom should be dean. These men should be chosen from the best the native profession affords and should teach surgery, medicine and obstetrics. The various branches in practical laboratory work can be given at the Haitian General Hospital until a system of laboratories has been developed at this school. The development of these laboratories will have to go hand in hand with the development of men in the various branches of the medical sciences. Here we meet the biggest stumbling block, how to develop men that can teach physiology, chemistry in its various forms, embryology, histology, and anatomy. It is essential to develop men to teach these fundamental sciences in order to build up an effective faculty and put the school on a worthy basis.

The best way to train such men is probably through a system of scholarships. It is in this connection that we should like to call upon the Rockefeller Foundation to help us out in training men for this duty. Assistance of this nature would probably not be strictly in line with the benevolent work the Foundation is doing the world over but it fits in very well with its motto: "The well-being of mankind throughout the world".

ROCKEFELLER FOUNDATION.

The Survey of Haiti commenced in June, 1924, by the International Health Board of the Rockefeller Foundation has been continued during the past year. Reports from the Director of this Survey are quoted as follows:

A. "PRELIMINARY REPORT OF FIELD WORK OF HAITI SURVEY"

Organization.

"The details of the organization of the survey, its purposes, its relation to the Government of Haiti and to the International Health Board have been discussed in previous reports and they will be again taken up in detail in the final report of the survey.

This report of the Haiti Survey is prepared for the purpose of giving to the Government of the Republic of Haiti and to the International Health Board a general view of the results obtained in advance of the preparation of the final report. Some studies are not yet complete and will be omitted from this report. In all cases the statistics given in this report are subject to correction but it is believed that very few corrections will have to be made."

Field Operations.

"The field operations of the medical portion of the survey consisted of three parts, first, a census and study of causes of disability in the area known as the principal area, second, an attempt to record current illness and births in the same area, and third, study of causes of disability in seven other areas showing conditions differing from those of the principal area. Studies of causes of disability included a short medical history on every person from whom it could be obtained. Included in this history were facts in regard to age, sex, previous residence, evidence of syphilis or yaws infection, evidence of tuberculosis, gross defects of vision, evidence of malaria, history of intestinal diseases, and history of childbearing. Histories were supplemented by inspection or such other physical examination as was indicated. Fecal examinations for worm parasites and blood examinations for malaria infections were made on a representative numbers of people in every community studied. In addition, about one third of the fecal specimens were examined for intestinal protozoa and practically all blood specimens taken after April 1, 1925 were examined for the presence of microfilaria in the thick smears. Other laboratory examinations which were permitted by the equipment and personnel were done where indicated. The details of the methods used in each step of this procedure will be discussed in later portions of the report.

Description of the Principal Area. The principal area is also known as the Carrefour Area because of the fact that the village of Carrefour lies in that portion of the area in which studies were conducted over the longest period. The area lies on each side of the road which connects Port-au-Prince and Léogane and runs in a westerly direction from Port-au-Prince, more or less parallel to the sea-shore. The area includes Bizoton on the east and Mariani on the west. On the north it is bounded by the sea and on the south it extends to Croix Imbert in the valley of the Rivière Froide. From Croix Imbert eastward the southern boundary is the Riviere Froide which runs here in a westerly direction along the base of Morne Hopital. At a point south of Bizoton the southern boundary becomes the crest of Morne Hopital and from this point to Martissant only the northern slope of Morne Hopital is included in the area.

Although the area is not more than five miles in length and has a maximum width of less than five miles it contains both coastal plains and mountains and each type of territory has sufficient population to constitute a fair sample for study. Within the area are included the regions known as: Ferrier, Barau, Decayette, all on the northern slope of Morne Hopital between Bizoton and Port-au-Prince; Bizoton, Cour Bizoton, Trou Valmont, Diquini, on the same slope but farther west; Mare Caco, Dufrenet, St. Roche, Platon, on or near the ridge of Morne Hopital; Croix Imbert, Rivière Froide, Mont Fleury, in the deep narrow valley of the Rivière Froide; Thor, Mahotière, Grenade, Cour Mariani, on the foot hills and the highest portions of the coastal plain; Carrefour, Mariani, Cote Moulin, Cote Plage, on the coastal plain proper.

Within this area there are represented several different types of living conditions and all of the important crops which are produced in Haiti. Near the sea-shore and at some points in the foot-hills where water is plentiful there is much cultivation of rice. Scattered over the coastal plain in small patches there is a considerable amount of cotton. In the region of Cote Moulin and Mahotière there are some excellent market gardens. In the same general region there are many fields of sugar cane but there are no large estates. The sugar cane grown is sufficient to supply two small Haitian mills. From the beginning of the foot-hills at Cour Mariani to the summit of Morne Hopital there are fields of coffee wherever soil and moisture conditions permit and throughout the area such land as is not devoted to the market crops already mentioned is planted in gardens from which the daily food of the laborer is obtained. Ordinarily each garden is expected to produce at least four crops a year. The chief products from them are Indian corn, petit mil (similar to kaffir corn), sweet potatoes, beans, of which several kinds are grown, cassava and yams.

The population of the area is in continuous contact with the

city, especially through the medium of the women who carry the garden products, fowls and eggs to market and bring back merchandise which is retailed in minute quantities to the peasants. The population of the coastal plain is wholly dependent on agriculture. There is no industrial development and there are few opportunities for daily laborers other than in cultivation. As a result the people of this region suffer severely in years of bad crops. On the other hand there has been developped in the mountains a considerable industry in the manufacture of rush bottomed chairs. The equipment required is of the utmost simplicity, the skill needed is not of a very high grade, most of the material required is easily obtained, and there is a steady market for the product so the progressive peasant makes chairs in the intervals of agricultural activity and is relatively independent of the seasonal periods of privation which affect his brother of the plain.

The principal stream in the area is the Rivière Froide which forms the southern boundary near Dufrenot and later crosses the area from south to north. This is a rapid mountain stream flowing in a narrow valley with very steep sides until it emerges on the coastal plain at Mont Fleury. At this point, and at many others before the stream reaches the sea, water is withdrawn for irrigation of the plain. There were originally a number of other streams which were fed by mountain springs flowing across the area but in most cases they are now small because of additional withdrawal of water for the Port-au-Prince water supply or for irrigation. At present there is a net work of primitive and poorly cared for irrigation ditches throughout the coastal plain and ordinarily there is an ample water supply in the principal ditches for the needs of the people. In the hills, however, there are few streams and dependence is placed on springs or the Rivière Froide for household water supplies. In some places it is necessary to make a journey of one hour on foot over difficult trails to obtain water for drinking and cooking. The water is everywhere freely polluted by man and by animals and no pretense is made of any kind of purification before drinking. The more important streams and ditches will be taken up in more detail in their relation to mosquito-breeding.

The following description gives a brief account of the location of the districts and sub-districts used in the records and the tables of this report:

District 1. All of the coastal plain on the north side of the Léogane road from the Thor bridge to the house occupied by Doctor Brown, about one-half mile west of Carrefour.

District 2a. That portion of the plain lying south of the Léogane road and north of the foothills between the Rivière Froide and the Carrefour cemetery.

District 2b. All of the plain on both sides of the main road from the Carrefour Cemetery to Petite Saline beyond Mariani. It also includes the settlement around the Source Mariani, known as Cour Mariani, and another settlement in the foothills known as la Grenade.

District 3. That part of the Village of Carrefour south of the main road and east of the Rivière Froide together with the remainder of the settlement along the south side of the road eastwards to the Agricultural School at Thor.

District 4a. Settlement along the Rivière Froide road from Carrefour to Mont Fleury, thence along the Mahotière-Thor road to the Agricultural School.

District 4b. Mont Fleury and adjacent settlements.

District 4c. Settlements along the Rivière Froide road from the first ford to a road from Clemenceau to Port-au-Prince which crosses the river south of Mare Caco. This is the first mountain district. The valley of the river is extremely narrow with precipitous sides. The bottom of the valley reaches an altitude of about 1300 feet at the boundary of the district.

District 5a. The irregular plateau on the western end of Morne Hopital. It includes the settlements known as Platon, St. Roche, Dufrenet, Boute Moune, Mare Caco, and others. The elevation of the plateau itself varies from 1300 to 2100 feet but it is freely intersected with deep valleys with steep sides. It is in these valleys that the most luxuriant vegetation is found.

District 5b. The regions known as Diquini and Bizoton. Only that portion south of the main road is included. This district is on the plain and lowest foot-hills, very few of the houses are at a greater altitude than 300 feet.

District 5c. The northern slope of Morne Hopital between Bizoton and the summit. It includes the settlements known as Cour Bizoton, Trou Valmond, Ferrier, Decayette, and others. The side of the mountain is cut by many irregular and steep valleys in which most of the population is found. In elevation it varies from 200 to about 2500 feet.

Organization of field staff. For the work in this area the field staff consisted of the Medical Director, two assistants for obtaining medical histories, and two messengers. All except the Director were Haitians. The assistants who prepared the medical histories were men with college training, one of whom had some medical training in addition and the other had had much experience in dealing with the peasants and was by nature peculiarly well qualified for the type of work to which he was assigned. The messengers were

men of less education. They were entrusted with the duty of collecting specimens, making repeated visits to houses to obtain names and fundamental statistical data of absentees in order to complete the census, and searching for current illness, births, and deaths, in assigned territory.

In the beginning it was impossible to give to the field assistants a prescribed form in which their work was to be done and to expect them to follow it blindly. There were few precedents in methods of doing our work among the class of people whom we found in the area. A number of methods were tried before the final one was adopted and in each case the director personally conducted both principal field assistants and directed their work until he was assured that the method was understood and could be carried out independently by them. It was found that the most successful work was accomplished by covering as much ground as possible in recording histories and obtaining specimens on the first visit, so the practice was adopted of trying to obtain a complete record of all persons found at home, leaving containers for fecal specimens, and obtaining blood for malaria. In addition the senior assistant was permitted to palpate the abdomen of children for enlarged spleens and to make haemoglobin readings. The junior assistant was not permitted to make these examinations in the principal area. The Director accompanied one of the other of the assistants whenever possible or made records independtly. He saw that the work of the two assistants was performed according to uniform standards and endeavored to supplement and check their observations.

Considerable difficulty was experienced in obtaining accurate records of persons who were absent at the time of the initial visit. It was found to be not worth while to have the assistants make repeated follow-up visits to find these people so the messengers were entrusted with the task of obtaining fecal specimens from them and other information was gathered at such times as opportunity offered."

Laboratory Technique.

Fecal specimens were collected in deep tin ointment boxes of one-half ounce capacity with the label incorporated as a part of the cover. When fecal specimens were received in the laboratory they were first recorded on suitable forms and the record certified by both the clerk and by the field assistant by whom they were collected. Two smears from each specimen were then examined by separate microscopists. The smears were made on 2" x 3" microscopic slides. After the preliminary smears were examined a portion of the specimen was mixed with saturated solution of common salt in the container in which it was received or in another one like it. The container was filled to the brim with the solution and a 2" x 3" microscopic slide was placed over it in contact with the solution. After from five to twenty minutes the slide was removed, inverted,

and the surface of the fluid was examined for floating ova. Each specimen received a total of more than fifteen minutes actual microscopic search. It was permitted, however, that when ova of the three most common kinds, ascaris, trichuris, and ankylostome had been found in a single specimen it should be discarded as completed. The occurrence of other worm parasites was found to be so unusual that discarding these specimens as indicated did not affect the records of the rarer parasites,

On some specimens positive for ankylostome ova the Stoll egg-count method was used. This was carried out by emulsifying a weighed amount of feces in a measured amount of deci-normal sodium hydroxide, the amount of each used depending on the quantity of feces available. For one gram of feces, fifteen mils of sodium hydroxide was used. Of the emulsion thus prepared, 0.15 mils was transferred with a serological pipette to a slide and was covered with a 22mm x 40mm cover-glass. The entire area under this glass was examined and all of the ankylostome ova were counted. The number obtained represented the number of ova in a centigram of feces. It was thought that averages of these results would be useful in comparing the ankylostome infestation in different communities. The results of these counts will be discussed in the final report.

In the prisons of Port-au-Prince and Jacmel treatment of selected prisoners was carried out by the medical officers of the Gendarmerie and the worms expelled during a period of forty-eight hours thereafter were recovered and counted by a technical assistant of the staff of the survey. The treatment given was three mils of a mixture of two parts of carbon tetrachloride and one part of oil of chenopodium. There was no preliminary dieting nor purging. A dose of magnesium sulphate was given at the same time as the anthelminthic. The prisoners under treatment were confined to their beds in a hospital ward and were constantly under observation. Each was provided with a separate receptacle for the collection of feces. No more than four were handled at one time so there was little chance for any loss or confusions of specimens.

The method used in the search for intestinal protozoa presents no features which are peculiar or different from those used in similar recent surveys. It was not practical to obtain more than one specimen from each patient so the results are to be interpreted on the basis of the examination of a single specimen. Two solutions were used simultaneously as stains for the smears. One of these was a saturated solution of iodine in a 5% solution of potassium iodide. The other was a 1% aqueous solution of eosin. Smears were covered with glasses 22mm square. A single smear was examined from each case. In cases where cysts or trophic forms demanded additional study the material was fixed in Schaudin's solution and stained with iron-haematoxylin.

Examination of blood. Ordinarily a single specimen of blood was taken from each person. The haemoglobin determination was made immediately and a preparation was made for examination for malaria parasites and microfilariae.

In the early part of the work all haemoglobin determinations were made with the Dare instrument by the Director. As the work progressed the senior assistant was trained to make these readings but it was found that this instrument was viewed askance by many of the people, who thought that it might bear some intimate relationship with the evil eye. As a result, the Talquist scale was adopted as a standard and both assistants were trained to use it.

In the beginning of the work duplicate thin smears were prepared for examination for malaria parasites. One of these was stained with Giemsa's solution and examined and the other was discarded if it was not needed. Later the practice of preparing thick and thin smears on the same slide was adopted for two reasons. The first of these was the desire to have a means by which the work of the native microscopists would be rapidly checked and the other was that the thick drop was found to be convenient for examination for microfilariae. Two small thick drops were placed on one half of the slide and a thin smear was made to cover the other half. When the thin smear had dried, data for the identification was written directly in it with a pencil. The slides were carried in a horizontal position until the thick drops were dry. Dehaemoglobinization was brought about with distilled water after the thin portion had been fixed with absolute methyl alcohol and the entire preparation was stained with Giemsa's solution. The standard procedure of the search for malaria parasites was the examination of 300 microscopic fields on the thin smear with a 1.9 mm objective and a 10 ocular, provided no malaria parasites were found before this amount had been done. A sufficient number of the thick and thin smears were examined by a physician to establish the accuracy of the work of the native microscopists. Only three microscopists received sufficient training to take part in this work and of these there were never more than two working simultaneously.

Specimens were often received in the laboratory in numbers as great as two hundred in a day. It was essential in handling these specimens, of which we had no duplicates, that we should be able to depend upon our stain for uniform results. It was early learned that these would not occur unless careful checks were made on the optimum reaction of diluting water, degree of dilution, and time of staining for each bottle of stain. It became necessary to put each new lot of stain through a series of tests before using it on the specimens of the regular series. These tests were conducted on thin smears which covered the entire slide instead of only half of it. The slide was divided

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into two or more parts according to the conditions which were being tested. One part was stained with a known stain under its optimum conditions. The other parts were stained with different dilutions of the new stain. Successive slides were tested under different conditions until the most satisfactory method for the new stain was found. It was found to be essential to use the control of known stain on the same smear because of the great variation in results obtained from different smears in the same lot even though stained with the same stain.

Because of the fact that it was impossible to make a critical search for microfilariae by examining preparations taken by night and by day no special preparations for the examination for these organisms were made up to April 1925. At this time it was found that the thick drops for malaria which were begun at that time occasionally revealed microfilariae. Searches which had previously been made on thin smears taken during the day had never disclosed the organisms. It is not believed that the search of a single thick drop taken during the day is a critical test for the presence of microfilariae but this method was successful in disclosing a number of cases of filariasis and it was continued.

In a few cases which will be noted elsewhere in the report typhoid fever was suspected and laboratory tests were made by Mr. Gault in the Haitian General Hospital and one was made by Mr. Rydeen in the Hospice Justinien at Cap-Haitien. In most cases both Widal test and culture from the clot were made.

Sputum examinations. Since the chief means of locomotion in the survey was by horse and the rider usually had to carry a considerable amount of equipment in his saddle bags the transportation of containers for sputum and of the specimens themselves became a problem. It was settled by bringing to the laboratory, instead of a liquid specimen, a slide with a dried film of the sputum prepared and labeled in the field. This was then put through the usual technique for staining for tubercle bacilli."

Incidence of Intestinal Worms in the Principal Area.

"One of the chief activities of the survey was the determination of the incidence of intestinal worms in the principal area, in the secondary area and in some of the institutions of the Republic. This information was considered of first importance because of its bearing on fundamental sanitation and because of the damage that the worm parasites have done in some of the neighboring islands. Furthermore it is believed from studies of descriptions of Haiti in the time of the French that hookworm disease was a serious problem among the slaves.

The most difficult task of the survey was to obtain specimens of feces for examination for intestinal parasites. In general the

people were not familiar with the practice of modern medicine and the giving of feces was associated in their minds with superstitious practices of charlatans who pretend to work charms by possession of such specimens. In some localities within the principal area it was at first impossible to obtain co-operation at all when it was learned that specimens of feces were wanted. These communities were examined, however, some months later when the people had learned that no harm was done to the others. Reference to the tables showing the results of the examinations for intestinal parasites will show that, while there were many who refused examination, a sufficient number were examined so that there is no doubt that a representative sample of each community was obtained.

One of the difficulties encountered in obtaining accurate fecal examinations was the inability of the peasants to read the labels on their respective containers. Whenever necessary, recourse was had to devices other than written labels for the identification of the containers. These devices were special marks, such as crosses, bars, and circles on the covers of the containers, or specified hiding places for the container of each member of the family. Many instances were found where, in spite of all precautions, there was a confusion of containers. Some of these were discovered before examination and some long afterward. Such confusion makes no difference in the total results and it is believed that it was not of sufficient importance to make a difference in the analysis of the results by age and sex.

The results show that the percentage of infestation with hookworms in the Carrefour area is not high as compared with some of the other West Indian Islands. Egg counts made by the Stoll method will be summarized in the final reports. They have uniformly shown a very low content of ova in the stools. Many of them show no ova in the amount taken for the count although they have been found positive on flotation. The infestation is lowest in the village of Carrefour itself, where the percentage found positive was only 19.4. No doubt this low incidence is due in part to the fact that many of the residents of Carrefour are people of Port-au-Prince who spend part of their time in the country. It is also due to the fact that there are a number of good latrines in that district. The percentage of infestation throughout the coastal plain (Districts 1, 2, 3) is low and the principal factor here is probably the dry condition of the soil and the lack of heavy shade through a great part of the year. The infestation is higher in the more mountainous regions where the entire population is engaged in agricultural pursuits. It is probable however that questions of moisture, shade, and concentration of soil pollution are more important in this case than the question of occupation. The most heavily infested region is the narrow valley of the Rivière Froide, where pollution must be confined to relatively small areas near habitations. The daily period of sunlight in the bottom of this valley is about four hours

shorter than it is on the plain. Furthermore such soil as is present is fertile and there is a considerable amount of coffee and bananas, both of which give shade and seclusion with consequent encouragement of pollution. The districts in which many people of the capital have either temporary or permanent residences tend to have a lower grade of infestation than the more isolated districts.

The infestation with ascarids and trichiurids tends to follow the same variations as the ankylostomes but with individual differences. In these, as in nearly all of the districts examined during the survey, the percentage of infestation with trichuris was higher than that of the other two parasites. The infestation with other worm parasites was remarkably light but the method of examination employed was not critical for all intestinal parasites. Enterobius vermicularis was encountered 10 times but it is undoubtedly much more frequent than these findings indicate. Strongyloides stercoralis was not found in the principal area but was encountered twice in the examinations of the prisoners from the Penitencier National in Port-au-Prince and once among the prisoners of Petit-Goave. Two instances of infestation with this parasite were found in the secondary area of Port Margot, District 23. Ova of Hymenolepis nana were found 16 times and ova of Taenia were found the same number of times. Segments obtained from three persons infested with Taenia were identified as Taenia solium."

Incidence of the Intestinal Protozoa.

"With the laboratory personnel available for the survey it was impossible to examine all fecal specimens for the cysts of the intestinal protozoa. In the principal area a representative number of specimens was examined from each locality but difficulties in the transportation of specimens prevented this from being done in all of the secondary areas. The specimens examined were not selected in any way, so they represent examinations of the general population. In this respect theydiffer materially from most other surveys for intestinal protozoa for as a rule these were made on hospital or army populations. All of these examinations were made by a physician and no part of the technique was ever delegated to other members of the staff.

The findings of cysts of intestinal protozoa in the secondary areas will be discussed with those in the principal area. It will be noted that the percentage of specimens found infected varied as follows for the different organisms:

	Principal area	Secondary areas
Endamoeba histolytica	11 to 26	9 to 20
Endamoeba coli	22 to 43	26 to 47
Giardia lamblia	0 to 14	5 to 25
Chilomastix mesnili	2 to 13	1 to 10

Cysts of other protozoa were found but in such small numbers as to be without significance. Among these were Iodamoeba williamsi and Endolimax nana. One case of infection with Balantidium coli was found in the principal area.

There is no obvious correlation between the findings of intestinal protozoa and known conditions of health nor with sanitary conditions. It was found that cysts of motile forms of Giardia lamblia were commonly present in the stools of young children suffering from diarrhea. The same was true of Chilomastix mesnili but this parasite was less frequently present. No evidence of a causal relationship of the parasite to the diarrhea could be obtained. It is probable that in some areas a higher incidence of intestinal protozoa would have been found had it been possible to examine fecal specimens immediately after they were prepared. Ordinarily the specimens were twelve hours old when received in the laboratory and in the case of some of the specimens from the secondary areas two or more days elapsed between preparation and examination. It was hopeless to find motile forms and even cysts showed a high death rate in the older specimens."

Treponematosis.

"In the rural population of Haiti the presence of treponemata is frequently shown by the manifestations known respectively as syphilis and yaws. Since, in their later and disabling stages, these two manifestations are indistinguishable and the differentiation of their causative organisms is not yet universally accepted, they have been dealt with together under the name treponematosis. To have attempted a differentiation would have led to endless confusion in the tertiary cases and would have served no useful purpose. The presence of these diseases in Haiti has long been a matter of record. In fact some of the earliest literature in which these diseases are considered as definite entities concerns the island which is now occupied by the republics Haiti and Santo Domingo. The medical officers of the United States Navy stationed in Haiti have repeatedly called attention to the disabling effects of treponemata on the population of the country. During the last three years this subject has been especially stressed by the

medical officers of the Service d'Hygiène since it has been possible for them to give more attention to the rural population.

An extensive study on the disabling effect of yaws was also made in the neighboring Republic of Santo Domingo during the summer of 1920 by Doctors W. A. Sellards, W. L. Moss, and G. H. Bigelow of the Harvard University of School of Tropical Medicine (Yaws, an analysis of 1046 cases in the Dominican Republic, W. L. Moss and G. H. Bigelow, Johns Hopkins Hospital Bulletin, February 1922, No. 372, pp 43-55). This study was limited to a rather intensive study of the features of the individual cases and took no account of the incidence of such cases in the population. Apparently the conditions encountered in the regions studied in Santo Domingo were similar to some of the regions studied by this survey in Haiti. Certain differences were encountered which will be discussed in the final report.

The object of this survey in regard to treponematosis was to determine the amount of disability produced in the various communities rather than a study of individual lesions. The information was obtained by questioning and by a rapid examination of such parts of the body as could be readily uncovered at the time. In some communities histories of yaws as given by the patients were quite reliable, probably fully as reliable as any other information collected in this manner. The lesions of early yaws and of the late secondary stages are well known to the patients and ordinarily the diagnosis of the adult members of the family on such lesions is quite accurate, although there is a variety of names by which the manifestations are known in different communities. In some communities, however, there is a marked shame attached to the lesions of yaws. In such communities it was difficult to find one who admitted having had the disease and there was no recourse except to rely on the evidence furnished by visual examination. In general there appeared to be less shame about the admission of lesions which are generally syphilitic than of those which characterize yaws. It has happened that a man would freely admit a history of inguinal adenitis but would at the same time conceal the fact that at the time he was suffering with "crabe", a yaws lesion on the foot. The lack of shame in regard to syphilis extended also to gonorrhea, which is common and was freely discussed in mixed company. The reason for this is that neither of these diseases is regarded as venereal by the peasant. One rural theory of the origin of gonorrhea is that it is produced by riding a hot saddle.

Since it was not possible for the Director to question and examine every person certain standards had to be established for a permissible diagnosis for the records. The assistant taking histories asked in regard to certain lesions of syphilis and yaws in each person, using the local name of the lesion. The replies which he received were recorded. He then scrutinized the face

and lower extremities of each person for scars and active lesions and recorded whatever was found. The diagnosis of the cause of the scars and lesions was left to the Director. The cases were seen on clinic days or on subsequent visits to the houses and in such cases each person was again scrutinized by the Director regardless of whether evidence had been discovered by the assistant. Cases were classified as negative, latent, or active. The latent cases were those which gave a history of infection or showed evidence of old healed lesions and no present disability which could be directly attributed to the treponemata. Active cases were those in any stage in which active open lesions were discovered or where the patient was more or less disabled by some condition that was apparently due to his infection.

Early in the survey the palpation of lymphatic glands as a test for the presence of treponematosis was tried but it was found that the percentage of both sexes and all ages having enlarged epitrochlear and posterior cervical nodes was so large that it would be necessary to assume that other causes of lymphadenitis were operative and to ignore its presence for the diagnosis of treponematosis. It was learned that many of the Haitian physicians of experience regard practically all cases of joing pains, bone pains, and arthritis which are grouped locally under the names of rheumatism or "pain from the cold" as originating from an infection with treponemata. It appeared that in view of the presence of much malaria and some filariasis in the area this attitude probably represented an extreme position not justified by the facts. Later experience in all parts of the Republic tended to show that syphilis and yaws had a much greater part in the production of these complaints than any of the other diseases and that probably the other diseases were of only insignificant importance in their production. In the statistical summaries, complaints of rheumatic pains and allied conditions have been disregarded in the diagnosis of treponematosis. No cases are classified as positive unless there was a definite history or evidence of a definite lesion.

Not all of the areas surveyed can be regarded as giving equally accurate statistics. It has been mentioned that histories are of varying reliability according to local prejudice and individual intelligence. The total number actually examined by the Director for lesions varied considerably in different communities. In some regions the Director personally visited every house and saw nearly all of the people. In other cases the demands of other parts of the work prevented extensive visiting and dependence had to be placed upon the examination of the persons who appeared for treatment on clinic days. In a few communities, notably in District 20 on the Plaine du Cul de Sac, the proportion who appeared was very small. In other cases, as at Port Margot (District 23) the number was at times so large as to render accurate diagnosis of every person very difficult if

not impossible. Furthermore, the opportunities for visual inspection varied in accordance with local customs in wearing apparel. In places like Le Trou where one hundred or more persons came for examination or treatment in a single morning with more than half of them wearing shoes and stockings the examination of the lower extremities involved too great a delay to be borne by the patients with equanimity. In all cases the rule given above was rigidly adhered to. If an adequate examination was impossible the patient was recorded as negative. Therefore the results as given are necessarily below the true figure of the infection with treponemata. Allowance must be made for untruthful negative histories, persons not examined, evidence of treponematosis ignored because of the possibility of some other cause being involved, and for evidence overlooked.

There are included in this report only the total number of cases of treponematosis found, without regard to age, sex, or other conditions. These results will be found in tables 5 and 6. A more extended analysis of these results will be presented with the final report. The results in all of the areas studied are here discussed together for convénience.

It will be noted that, in spite of the longer period of observation, the percentage of the population on whom information was obtained in the principal area was distinctly lower than in the secondary areas. This was because the secondary areas were done later and with a more fully trained staff. In all of the secondary areas except 6 and 21 the survey worked in close co-operation with a local clinic of the Service d'Hygiène where treatment was given gratis for the treponematoses. This fact aided materially in obtaining information in regard to history and active lesions. In the principal area no treatment was given for treponematosis until near the end of the survey.

The percentage of persons found with evidence of infection with treponemata varied from 22 in District 21, La Vallée, to 63 in District 24, Le Trou. The percentage with active lesions varied from 0 in a small group in District 25 where co-operation was poor to 20 in District 24, Le Trou. The percentage with latent infections varied from 7 in District 21, La Vallée, to 53 in two small groups in District 25, l'Attalaye. There was evidence of concealment of histories and latent infections, however, in both Districts 21 and 22. In 21 the active lesions discovered out-numbered the latent infections two to one. There is no reason to believe that conditions of infection in the region have changed in recent times and therefore from known facts in the natural history of treponematosis it is evident that the latent infections should be much higher than recorded. In the case of District 22 the error is not so striking but it is certainly to be suspected, for the latent cases barely exceed the active cases, the numbers are 79 and 73 respectively.

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It is not possible to compare the results of these examinations with similar results in any other country for there are probably no comparable data in existence. The results are undoubtedly higher than would be obtained in a similar survey in rural communities where consistent treatment had been carried on over a considerable period of years. It would be unfair to compare them with any of the extensive data which is available in regard to syphilis in hospital admissions in urban populations or in military forces.

Further analysis of the data in the final report will show that the infection with treponemata very often manifested itself very early in life and that disabling lesions were to be found at every period of the life span. The child who developed yaws was more than likely doomed to a lifetime of suffering from ulcers, "crabes", crippling contractures, bone and visceral lesions and less frequently, nervous lesions. The same was true of the person who developed the syphilitic type of lesion. The economic damage done by treponematosis cannot be measured in any terms which are now available. It is by no means measured by those few conspicuous cases of ulcers and other crippling lesions which attract the attention of strangers in a tropical country. It is measured rather in very much larger numbers of cases of disability which impedes the worker but does not prevent him from engaging in some sort of occupation.

The amount of treatment prescribed in the regions under consideration by trained and licensed physicians in the past has been negligible but the people are quite well aware that the later lesion and the rheumatic pain associated with treponematosis respond to treatment with mercury and potassium iodide. The practice probably dates from the French Colonial times for one finds M. Poupee Desportes, royal physician at Cap-Haitien from 1733 to 1748, recommending corrosive sublimate and mercury for yaws in his work on medical practice in the colony of San Domingue. The remddies are expensive and the people are poor and there has been no one to insist on thorough treatment so all such effort has been hapharzard with an occasional overdose of mercury to cause fear of its use. The people have relied more on the local herb doctors than upon medicaments purchased in the distant towns.

Recently the efforts of the Service d'Hygiène in its rural work has been concentrated very largely on the treatment of active treponematosis with arsenic and bismuth preparations. The extent of this work and the results obtained will be discussed in the final report."

Diarrhea and Dysentery

"It is well known that in tropical countries the diarrheas and dysenteries often constitute the most important group of causes of death. They are also causes of acute and chronic disability which may be of marked economic importance to the country

affected. The history of medical conditions in Haiti in recent years showed that there had been a number of epidemics of dysentery with a high rate of mortality and that almost every region of the Republic had at some time been affected. It was known that there had been disagreement on the diagnosis of the condition, which was locally known as "cholerine", but the evidence indicated that it was bacillary dysentery probably with the Shiga type of organism predominating. A dysentery, probably the same as the epidemic condition, had done great damage in some of the prisons. It was diagnosed by culture of some cases and by examination of smears from others as bacillary dysentery and it was found to yield at once in its early stages to treatment with a polyvalent dysenteric serum. It was hoped that an opportunity would be afforded for the study of one of these epidemics in rural Haiti for the purpose of obtaining an accurate diagnosis, and an estimate of the actual damage done in morbidity and mortality. Such an opportunity did not occur. It appears that the epidemics resemble very closely the epidemics of bacillary dysentery with the Shiga type of organism that occasionally cause so much damage in some rural districts in the United States.

The information obtained on the subject of diarrhea was probably the least accurate of any obtained by the survey. An attempt was made in the case of every person seen to obtain the following information: Had he ever had "cholerine"? Had he had attacks of any other type of diarrhea? Was he suffering with diarrhea at the time when he was questioned? In the latter case it was proposed to proceed with a microscopiaal examination of the stool for protozoa, to take a specimen in 30% glycerine for culture, and to carry out any other procedures necessary for an accurate diagnosis.

Although there were known to have been epidemics of "cholerine" in the principal area since 1920, the number whom we could find who admitted having had cholerine was very small. These will be analyzed by year of the attack in the final report.

The replies to the third question were extremely inaccurate. Frequently a negative reply was obtained and a short time later the patient would present a specimen which was practically liquid. The reverse was often the case, patients who had asked for treatment for diarrhea presented formed stools for examination. In view of the inaccuracy of this information it is evident that the histories of past attacks of diarrhea cannot be relied on and no conclusions can be drawn from the data presented. The results obtained will be found in Tables 7 and 8.

In view of the insanitary habits of the rural population and the presence of the number of carriers of Endamoeba histolytica already shown it is surprizing that a much larger number of cases of amoebic dysentery were not found. In some of the other West Indian

islands complete disability from this cause is relatively common. In the principal area only two cases were found disabled from this cause. In Districts 23 and 24 a number of cases were seen which were clinically amoebic dysentery but the organisms were not demonstrated. It was impossible to obtain the specimens in sufficiently fresh condition to find the motile forms of the parasite. In Corail, District 23c, one boy was seen who was diagnosed abscess of the liver following dysentery. The diagnosis was confirmed by operation at the Hospice Justinien at Cap-Haitien, and endamoebae were demonstrated in the lesions.

Numerous cases of diarrhea in children were found in all areas. These were often associated with nutritional disturbances which will be discussed more fully in another portion of the report. In some cases the diarrhea was associated with the finding of large numbers of cysts of the intestinal flagellates, Giardia Lamblia and Chilomastix mesnili.

Malaria.

In certain parts of Haiti malaria has been a scourge of the population throughout historical times. There can be no doubt that malaria was included among the fevers which the French writers of colonial times describe as often attacking two-thirds of the population in a single season. It was then described under the names of "fièvre tierce", "fièvre double tierce", and "fièvre intermittente". Probably there were also many cases of malaria included among those diagnosed "mal de Siam", a diagnosis which included yellow fever also. In colonial times it was particularly damaging to the French troops, sailors, and colonists. During the Revolution, malaria served with yellow fever as a faithful ally of the Haitians. In more recent times it has done much damage in the forces of the U. S. Marine Corps in Haiti, particularly in those units which were stationed in outposts in the early years of the occupation of the country. In some of the posts there were so many attacks of severe forms of malaria that it was necessary to abandon the locations.

The object of this survey was to determine the amount of malaria infection existing among the Haitian peasants themselves, and so far as possible, the damage produced thereby. Although it was known that there are certain spots in the Republic which have long borne an unsavory reputation with both Haitians and foreigners on account of malaria, it was not the object of the survey to search out these spots and to measure conditions at their worst. It was our object to select areas which would represent large regions. The study of these areas will furnish a basis for comparison of such areas as may be examined in the future for the purpose of malaria control or for other purposes.

In all areas studied the customary indices of malaria were obtained, case histories, spleen index, and parasite index. No attempt was made to obtain the gametocyte index on account of the difficulty of training the subordinate staff to differentiate these forms from other stages in the development of the parasite. In addition to these fundamental indices for all areas, in the principal area the communities having the greatest incidence of malaria were located with the same care as though preparations were being made for control measures.

Activities with relation to malaria were not confined to the study of the human factor in the life of the parasite. The Entomologist devoted the greater part of his time to the study of the mosquitoes known to be vectors or suspected of having such a relationship. The entire principal area was searched for possible breeding places of these species and representative water deposits were studied throughout the period of the survey. Adult mosquitoes were caught in houses of the peasants and in the open in order to observe their habits. Some dissection was done to determine the frequency of infected mosquitoes. The results of these investigations are given at length in the report of the Entomologist.

Methods of collecting information in regard to malaria. In the case of malaria, as in many other illnesses in Haiti and other countries, the accuracy of case histories leaves much to be desired. In some districts they are so inaccurate that it would probably be better to ignore them altogether and to judge malarial incidence on the basis of evidence that can be more accurately collected. The Haitian peasant has one word "la fièvre", (the fever), which covers all types of malaria, other fevers, and some diseases in which there is no fever. There are many qualifying expressions used in connection with "la fièvre" which perhaps have a definite meaning in the mind of the individual peasant but they can be translated into the terms of modern medicine only with difficulty. Furthermore, it was found that the meaning of these qualifying expressions varies with the locality in which they are used. Some of the most common expressions, when translated into English are: "fever with chill", which, of course, is nearly always malaria; "hot fever", which is next in order of exactness; "seasonal fever", which may be malaria or not according to the region in which the person lives; "cold fever" and "fever in the blood" are two closely related expressions which must be interpreted in connection with other facts. They are probably closely kin to the "inward fever" of the British West Indies.

In some localities fever is such a common condition that it passes as a nearly normal condition and is denied because it is not recognized. This is especially true of parents giving clinical histories of their children. In Carrefour, on one occasion, a father stated that his child had never had fever. Its temperature at that moment was found to be 102° F. A child of about eight years,

living in Mariani, was supposed to be well and was pounding rice in a mortar; on examination her temperature was found to be 103° F. and further investigation showed that she was suffering with typhoid fever. These incidents were not unusual and they show that the fact of fever is too unimportant in the life of the peasant to cause it to be remembered, even if it is noted at the time.

On the other hand, there are localities from which it is probable that malaria is almost entirely absent, yet many of the people complain of different varieties of fever. In many of these cases there is no rise of temperature but the sensation which is called "the fever" is due to some other cause.

Standards of diagnosis in clinical histories. The person who recorded clinical histories in the survey tried to eliminate those cases in which the symptoms did not suggest malaria. He inquired in regard to the occurrence of chill, sweat, headache, and evidence of respiratory infection. In the event that there was respiratory involvement, called by the peasant "fièvre rhume", the case was not recorded as suggesting malaria. This practice probably gave misleading results in Districts 23 and 24, Port-Margot and Le Trou. Just before the survey was made in these districts there had been an epidemic of an influenza-like infection with many cases of an acute bronchitis. It was not possible to determine which of these cases were complicated by a pre-existing malaria infection nor in which there had been previous attacks of malarial fever. Therefore all were eliminated from the records of fever suggesting malaria. No doubt the record of recent malarial paroxysms in these districts would have been higher except for the confusing presence of this recent epidemic.

Cases of fever suggesting malaria were classified according to the year, and where possible the month, of their occurrence. In the final tabulation they are classified as occurring in the current year, that is, when the survey was made in that particular locality, or in the previous year. This classification is not satisfactory, for the number occurring in the present year is likely to vary according to the time of year in which the survey was made. Practically, however, the peasant does not differentiate closely between this year and last as regards his state of health and the attacks of the current year would probably be just as accurately stated as recent malaria and those of the past year as those which occurred some months before the survey was made. Included with the attacks of the previous year are those cases in which the only information which could be obtained was that the patient suffered with fever "sometimes". These cases could not with justice be eliminated, neither could they be accurately diagnosed nor accurately placed as to the time of the last attack.

In the principal area those attacks of malaria which are classified as occurring in the current year include all of those

which occurred during the time when the area was under observation. In two districts this period was slightly more than thirteen months, in the others the time gradually diminished to about four months. In these districts of the principal area the diagnoses were much more accurate than in the secondary areas for, in the majority of cases, they were controlled by blood examination and by quinine treatment. In the principal area, therefore, the most accurate standard for the comparison of attack rates is those of the recent attacks. For comparisons in which districts of the secondary areas are involved it is probably better to use the rates based on the total histories of attacks.

Blood examinations for parasites indices. The method of preparing blood smears and of examining them for malaria parasites has been discussed in a previous section of this report. It may be said here that the readiness with which the peasants lend themselves to this type of examination makes it possible that this can be made the most delicate measure of the prevalence of malaria infection among them. They have not the prejudice against this examination which is manifested against some of the other laboratory procedures, such as the examination of feces and sputum.

It is to be regretted that the blood examinations could not be made in all districts by a standard and unvarying technique so that there would be no doubt as to all results being comparable. There are two factors which vary in different portions of the areas examined and must be considered in comparing the results. First, throughout the principal area, additional blood smears were taken from each person having fever on every occasion when he was reported sick. This gave a greater chance of obtaining a positive result in these persons and would tend to raise the average for the district above that obtained by the examination of single smears from each person. The second factor tends to balance the first one. The use of thick smears as a routine began in April, 1925, so that thick smears have been taken in addition to thin smears in all of the secondary areas but in a large part of the principal area they had been omitted. The thick smears were examined to check the work of the native microscopists who had examined thin smears and the number of positive examinations was materially increased by this check.

Examination of children for enlarged spleens. In some countries the examination of the spleens of the children has been found to give the index most readily adapted to the quick measurement of malaria infection for the purpose of comparing different communities. In those countries where this is true there are either extensive villages where many children can be seen in a short time or there are well organized schools in which the physician making studies of healch conditions is welcomed. Neither of these advantages exists in the rural parts of Haiti. The people do not live in villages and it is time-consuming and expensive to make the number of house

to house visits which are necessary for the examination of a sufficient number of children to obtain a satisfactory index. Such schools as exist in the country are usually small and are often poorly organized. The children in them may not represent a fair sample of the peasant children of the region. At the Croix-des-Missions schools, in the presence of a heavy malaria infection, the palpation of 54 boys and 41 girls disclosed only three with palpable spleens and all of these were in the school for girls. House to house visiting and the examination of 46 children who had remained at home disclosed 18 palpable spleens of which 12 were one finger's breadth or more below the costal margin. There were two reasons for the discrepancy. One was that a large proportion of the children in the schools came from a distance of one mile or more from the area studied. Another was that the more heavily infected children did not go to school. These are factors which might enter into a school survey in any rural part of Haiti.

The method used in palpating spleens was as follows: The child was placed on his back on a mat which lay on the ground. His knees were flexed and his thighs were flexed on his hips. His attention was distracted by questions to obtain complete relaxation. If the spleen was not immediately recognized the child was caused to begin deep inspiration and to continue it at intervals until the examiner was satisfied with the result of the examination. There was usually no difficulty in obtaining complete relaxation of the abdominal muscles in children up to the age of about nine years. The very young children who cried were not examined. Ordinarily, children above the age of twelve years were not examined. This limit was arbitrary and flexible for there is no exact knowledge of age among rural children and limits were based on appearance and circumstances rather than on stated age.

Current illness in the principal area. One of the chief objects of this survey was to obtain a measure of the current illness in an area which might be considered representative of the rural regions of the country as a whole. This task proved to be extraordinarily difficult, as may be guessed from the discussion of the difficulties in connection with obtaining clinical histories of malaria. Difficulties manifested themselves in incompetence of personnel, failure of the peasants to recognize when they were sick, indifference to their condition, preference for local herbs for treatment, and actual fear of the medicine which they might obtain for the asking. Such information as was obtained has a bearing on the incidence of malaria and it will be tabulated and summarized in the final report.

Results of studies on the incidence of malaria. The study has disclosed the presence of some cases of malaria in every locality examined. In some cases there is very strong doubt that the infection was contracted locally. These will be discussed in their place. It was also found that all of the three parasites causing malaria are

present in Haiti. As was to be expected, P. malariae, the parasite of quartan malaria, was least in evidence. There was one community at Mariani, where it was prevalent. The record of the species of parasite present was not kept after December, 1924, since subordinate microscopists could not be untrusted with the differentiation of species. A record of the proportions of the three species obtained up to that time was submitted with the report for 1924. The predominating parasite has continued to be P. falciparum.

The species of mosquito which is most important in transmitting malaria in Haiti is undoubtedly Anopheles albimanus, as reference to the report of the Entomologist will show. Anopheles grabhamii was found and in certain localities and at certain seasons it predominated. It was doubtful whether it had any part in the transmission of malaria.

The evidence on the incidence of malaria which can now be submitted will be found in tables 9 to 12 inclusive. These tables include the records of attacks of fever which suggested malaria and the examination of children for enlarged spleens. The records of the examinations of blood are not yet tabulated and they will be reserved for the final report.

The evidence in these tables puts into concrete terms information which has long been well known to persons conversant with health conditions in Haiti. It also shows the error of some common beliefs. It is shown, both by records of paroxysms of fever and by prevalence of enlarged spleens, that in the region around Mariani (District 2b) the incidence of malaria is greater than in any other district of the principal area. The region with the least malaria of all the districts studied is the plateau on the western end of Morne Hopital, in the region of St. Roch and Dufrenet. This is district 5a. The other hill districts of the principal area, 5c and 4c, also show a low incidence of malaria. It is probable that many of the cases found in them are contracted on the plain and should not be counted against the district in which they are found. As would be expected, the incidence in Bizoton (District 5b) is comparable with that on adjacent portions of the coastal plain, as at Carrefour (Districts 1, 2a, and 3).

In the secondary areas, there is shown to be a relatively light incidence of malaria in the hill areas of La Vallée, (District 21), Degand (District 6), and at Camp Perrin (District 22). The first two of these districts are at elevations of from 2,000 to 2,500 feet. In all three of the districts there was reason to believe, from the presence of the insect vectors and from information about the patients themselves, that much of the infection was acquired locally. This is contrary to the general belief that malaria is not acquired in the hills in Haiti. There is little to say of the incidence of malaria in the other districts studied, since the opportunities for the transmission of the disease in all

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The evidence in those tables puts into concrete terms information which has long been well known to persons conversant with health conditions in Haiti. It also shows the error of some common beliefs. It is shown, both by records of paroxysms of fever and by prevalence of enlarged spleens, that in the region around Mirebalais (District 2b) the incidence of malaria is greater than in any other district of the principal area. The region with the least malaria of all the districts studied is the plateau on the western end of Morne Hospital, in the region of St. Roch and Durocher. This is district 8a. The other hill districts of the principal area, 8c and 4c, also show a low incidence of malaria. It is probable that many of the cases found in them are contracted on the plain and should not be counted against the district in which they are found. As would be expected, the incidence in Bizoton (District 5b) is comparable with that on adjacent portions of the coastal plain, as at Carrefour (Districts 1, 2a, and 3).

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of them have been demonstrated in other sections of this report. In all of them the presence of the disease is well known to the leading residents and quininization has been begun by representatives of the Service d'Hygiène.

Conditions in the principal area are of importance to the city of Port-au-Prince for there is a constant interchange of population between the two regions. Bizoton and Carrefour have reputations for healthfulness and are used for country residence by many people from the city. Activities leading to anopheline control in the area were begun by the Service d'Hygiène during the survey."

Typhoid Fever.

"The question of the incidence of typhoid fever in Haiti has been a subject of discussion among both Haitian and American physicians for many years. It is probable that much of the disagreement has been due to differences in nomenclature and to the fact that exact methods of diagnosis were not available. All of the cases of typhoid fever seen in the survey occurred in a small epidemic in Mariani and involved a group of children, all of whom were members of a single group of related families. There were eight cases in which the diagnosis was proved by culture of Bacillus typhosus from the blood or by the agglutination of this organism by the patient's serum in a dilution of 1-80 in the second or third week of illness. There were three other cases in which the diagnosis was suspected but could not be proved.

In one case suspicion was aroused by the history of the case which was obtained after death. In the same family there was a proved case which developed later and a suspicious case which was seen during convalescence. Another suspicious case was seen three days after the onset but the child was removed from the community immediately afterward so no satisfactory diagnosis could be made.

The oldest of the patients among the proved cases was seventeen years. Two of these cases were in the age group 1-4 years, two in the group 5-9 years, two in the group 10-14, and two in the group 15-19. All of the suspected cases were in the group 1-4 years.

Of the eight proved cases two died, a case mortality rate of 25 per cent. One of the suspected cases died. This gave a case mortality rate for the eleven cases of 27 per cent. This is unusually high for the disease but it is probable that not all of the cases in the epidemic were recognized. Some of those which were recognized did not go to bed except for short periods and it is probable that there were others in whom the illness was so mild that it was thought not worth while to call the attention of the physician to it.

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The period of the survey in the principal area may be considered for the purpose of rate computation as one year. Computing the case rate of typhoid fever for this area and the period of the survey on the basis of eleven cases we have a rate of 251 per 100,000, and computing the death rate on the basis of three deaths we have 67.5 per 100,000. If one is to compare the typhoid rate of this community with those reported for similar communities in other countries, it is probable that these figures are most suitable for the evidence upon which the diagnosis of the three suspected cases was based was just as exact as that upon which the diagnosis of typhoid fever is made on many of the cases reported as such elsewhere. If one wishes to use irrefutable figures, although they are undoubtedly below the truth, the rate based on the eight proved cases with two deaths gives the principal area a case rate of 180 per 100,000 of population and a death rate of 45.0 per 100,000."

Degand Secondary Area.

"During the months of November and December, 1924, repeated reports were received of an epidemic of malaria in the hills southwest of Carrefour in the region known as Degand. At that time it was impossible to make any investigation of the reports, but since up to that time malaria had not been frequently found in the hills, plans were made to include the Degand region in the principal area. Administrative difficulties prevented the full realization of this plan but it was possible to examine the region as a secondary area. The first visits, census taking, and the usual routine examinations were made during the months of June and July, 1925, and a second series of visits was made during the month of December.

The region differed from that on the summit of Morne Hopital (District 5a) in the presence of a few springs and ponds where there was constant but not abundang breeding of Anopheles albimanus. No evidence was found which would substantiate the reports of an epidemic of malaria or any other type of fever in this district in 1924. There was certainly no large amount of malaria in the corresponding months of 1925 although there was a greater incidence of the disease than in the hill districts of the principal area.

In other respects this district bore a close resemblance to the districts of the principal area which were at an altitude of from 1,000 to 2,500 feet."

The Cul de Sac Plain.

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Beyond Secondary Area.

"During the months of November and December, 1924, repeated reports were received of an epidemic of malaria in the hills southwest of Carrefour in the region known as Beyond. It that time it was impossible to make any investigation of the reports, but since up to that time malaria had not been frequently found in the hills, plans were made to include the Beyond region in the principal area. Administrative difficulties prevented the full realization of this plan but it was possible to examine the region as a secondary area. The first visit, census taking, and the usual routine examinations were made during the months of June and July, 1925, and a second series of visits was made during the month of December.

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disease conditions which were peculiar to the region. For these reasons it was decided that a study should be made of four communities on the Cul de Sac Plain and to designate them collectively District 20. The communities which were chosen were as follows: Bois Marin, along the west side of the St. Marc road from the Grande Rivière du Cul de Sac to Source Latham and extending westward on a branch road about one mile. Houses on the eastern side of the St. Marc road were also included but co-operation in them was not good. This region is designated in the tables as District 20a. District 20d was across the river from the first section along a road running eastward from Croix-des-Missions. Districts 20b and 20c were respectively on the estates known Digneron and Roche Blanche, located southeast of Croix-des-Bouquets. On the first of these there was a compact group of cabins housing about two hundred persons. In the second the houses were scattered on separate plots of land.

The principal feature of importance to health in which the Cul de Sac Plain differs from the other areas studied is in its semiaridity. The rainfall is considerably less than that of Port-au-Prince and irrigation is necessary for the cultivation of sugar-cane. The streams which reach the plain from the mountains of the south do not flow continuously to the sea except in times of flood. This condition is true even of the Grande Rivière du Cul de Sac, the principal stream of the plain and is independent of the present withdrawal of water for irrigation. The water which enters the plain in the stream channels disappears after flowing a variable distance but farther down the stream seepage pools appear which may or may not receive sufficient water to give a current in the stream bed. The number of pools and their condition varies with the season and with the erosion in the stream bed. Springs are numerous and many of them have an abundant flow. Recently they have been supplemented with wells with pumps operated by electric power on the lands of the Haitian American Sugar Company. All of these sources of water are used to supply irrigation ditches but only a small part of the land of the plain is reached by them. Ordinarily the irrigation ditches are inadequately cared for so the opportunities for anopheles production are abundant, as is shown in the report of the Entomologist.

The low grade of hookworm infestation on the Cul de Sac plain which is shown in Table 2 is undoubtedly due in large part to the semi-arid climate, inadequate irrigation, and almost continuous dryness of the surface layers of the soil in the region around the houses where soil pollution is most frequent. The differences between the sub-districts will be discussed in the final report.

Tables 10 and 12 show that malaria is probably the most important disease causing disability among the peasants on the Cul de Sac plain. This is in harmony with previous observations of physicians and planters who have had to do with the people of this

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The principal feature of importance to health in which the Cul de Sac Plain differs from the other areas studied is in its aquatic quality. The rainfall is considerably less than that of Port-au-Prince and irrigation is necessary for the cultivation of sugar-cane. The streams which reach the plain from the mountains of the south do not flow continuously to the sea except in times of flood. This condition is true even of the Grande Rivière du Cul de Sac, the principal stream of the plain and is independent of the presence of water for irrigation. The water which enters the plain in the stream channels disappears after flowing a variable distance but further down the stream appears pools appear which may or may not receive sufficient water to give a current in the stream bed. The number of pools and their condition vary with the season and with the erosion in the stream bed. Springs are numerous and many of them have an abundant flow. Recently they have been supplemented with wells with pumps operated by electric power on the lands of the Haitian American Sugar Company. All of these sources of water are used to supply irrigation ditches but only a small part of the land of the plain is reached by them. Ordinarily the irrigation ditches are inadequately cared for so the opportunities for anophiles reproduction are abundant, as is shown in the report of the Entomologist.

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region. Treponematosis is present but not to such a marked degree as in some of the other areas studied.

A report of a disabling and fatal disease with endemicity in the region adjacent to Habitation Despuizeaux and known to the peasants as "Boursarole" was investigated by the director and by the liaison officer independently and later by Dr. C. S. Butler, Sanitary Engineer. No disability was found nor was there any reliable evidence of mortality from the disease which was seen. The disease was a chronic skin lesion, the most striking features of which were areas of hyperpigmentation and areas of depigmentation. A clinical diagnosis of pinta was made and scrapings were taken from the lesions but no adequate demonstration of fungi was made. Since there was no disability associated with the disease its study was not pursued farther."

Jacmel Secondary Area.

"After the Plaine du Cul de Sac the next region examined was that of Jacmel. The object in this case was to select an area which would be representative of the general region which is tributary to the port of Jacmel. That is, the region between the Dominican border, on the east, and Cotes de Fer on the west. With the advice of Dr. Paul Wilson, then Medical Officer at Jacmel, Section La Vanneau on the western side of the Rivière Gauche was selected for study and headquarters were established in this section about three miles from the town of Jacmel.

On the whole, the region tributary to Jacmel is mountainous and is made up of steep limestone ridges with narrow valleys watered by springs and by swift mountain streams. There are a few rivers which at some points have narrow strips of fertile alluvial soil between the stream and the hillside. The largest of these is the Gosseline which empties into the sea at Jacmel. Above and around Jacmel the valley of the Gosseline spreads out to form the Plaine of Jacmel which is smaller and more irregular than the Plaine du Cul de Sac and the plain of Léogane. It is traversed by low limestone ridges and on account of the fertility of its soil it is rather thickly populated. At the mouth of the Gosseline there is a small alluvial plain which is partially inundated with water from the river. This condition is produced by the fact that tidal and wave action have thrown up a ridge of sand and gravel at the mouth of the river which has obstructed the channel. The retarded water forms small lagoons and swampy areas on the lower part of the plain. Similar conditions are produced near the mouth of every stream entering the Bay of Jacmel. Fortunately the fall of the streams is so abrupt that the area affected by the obstructed water is relatively small. Sufficient area is provided for the breeding of Anopheles albimanus that these areas will probably prove to be of great importance in the control of malaria in the town of Jacmel.

As a rule, the tops of the limestone ridges forming the mountains of the Jacmel region are irregular plateaus with sufficient soil to justify cultivation. Often the soil is so scanty that an unbelievable amount of stone must be moved to prepare for planting a single hill of corn. Upon the ridges and hillsides the usual features of a limestone formation are found, springs are abundant, limesinks are common in some areas, with or without pools, small caves are occasionally seen but large ones are rare.

In the region as a whole there is no essential difference in the nature of the population or living conditions from the areas around Port-au-Prince. Throughout the period of Haitian independence this region has been relatively peaceful. Revolutions have not influenced the rural population to any great extent. The result is that there has developed a gentle and courteous people who are industrious because of the necessity for much labor to coax the necessities of life out of a stony soil. The extermination of the white race and mulattoes was never so complete here as in some of the regions farther north so the proportion of people of mixed blood is everywhere rather high and in some localities they predominate over those of pure African descent.

The cultivation of the region tributary to Jacmel is predominantly coffee. Sufficient corn, sweet potatoes, cassava, beans and other cereals are grown to support the people and their farm animals. Very little sugar-cane is produced but in some sections cotton is an important product."

La Vanneau.

"Work was begun in Section La Vanneau on May 20, and was continued until May 28, when it was discontinued because of failure of the population to co-operate with the work of the survey. This section presented features which made it particularly desirable for study so work was continued by the Entomologist regardless of the lack of clinical records.

The southern limit of the section is the Jacmel-Bainet road which is close to the seashore and parallel with it. Its eastern boundary is formed by the rivers Gauche and Gosseline. On the west it is bounded by the crest of the ridge which marks the limit of the valley of the Rivière Gauche. Thus, in its southern portion, it comprises plain and swamp near the sea, small fertile plains along the Rivière Gauche, foothills, and high limestone ridges rising to an altitude of about 2,000 feet. All of this area is fairly thickly populated and is irregularly cultivated. Some portions are poor and barren and others bear luxuriant tropical growths.

The people, on casual examination, appears less sturdy than persons in comparable locations in the principal area. There is evidence of anemia and there are obvious lesions of treponematosis.

There is little doubt that this region is more nearly representative of the territory tributary to Jacmel than is La Vallée, which was later chosen for study.

Lack of co-operation on the part of the people of this region was due to fear of submitting fecal specimens. The Director and his representatives were received cordially in the homes of the people and were invariably treated as honored guests. Nevertheless even the people who wished treatment for obvious disability refused to submit specimens for examination. A few were willing to give clinical histories of their families, a smaller number gave specimens of blood.

Apparently the fear of giving specimens of feces was based on the idea that in obtaining the specimen we should obtain some sort of mystic control ofer the individual himself. One man said One's blood may be given but what has been take as food becomes a part of the body and must not be given up". Another one being asked for a specimen from his child replied "You may put me in jail for ten years but I will go there rather than give up a part of my child". It is also said that certain conjurors or mystics pretend to work charms by the possession of the feces of the individual to be affected.

Although no statistical data for this region can be given it is of interest to note that of ten blood smears obtained from persons who were apparently well nine were positive for the parasite of malaria. These smears were obtained at an altitude of about 800 feet in a region in which there were a number of lime sinks with abundant breeding of Anopheles albimanus. A. Grabhamii was also found in irrigation ditches in the neighborhood. There is little doubt that the evidence obtained by a study of the environment and by inspection of the people is sufficient basis for the statement that malaria, treponematosis, and intestinal parasites have an unusual incidence in the region. "

La Vallée.

"On June 1st, the operations were transferred to La Vallée, a mountainous region about ten miles northwest of La Vanneau. Here the help of the parish priest, Perre Bonnaud, brought about hearty co-operation on the part of the people. The region is one of great scenic beauty and agreeable climate but the fields have much more stone than soil so agriculture is more than usually difficult and the people must needs be industrious to live. The population is surprisingly dense for such a region and there is less of the pure African stock there than in any other area studied in this survey.

The demand for treatment was so great in this region that it was found that it would be impossible to visit all of the people in their homes so the activities of the survey were divided into

two classes, house to house visiting and diagnosis, as in previous districts, and dispensary work in which all comers were treated, regardless of residence. Persons treated in the dispensary work were classified as miscellaneous cases and are not considered in this report. From them considerable information was obtained about the intestinal parasite infestation in regions other than La Vallée itself and they will be tabulated with the final report. The system of miscellaneous cases was found to be useful and was continued in subsequent secondary areas.

For the results obtained in this area reference must be made to the appropriate tables. The fact of the heavy infestation with intestinal parasites requires comment. This feature is probably shared by nearly all of the regions tributary to Jacmel. A number of cases with obvious anemia were treated but only one case was seen which could be classified as a severe case of hookworm disease. This patient refused to comply with conditions necessary for treatment.

According to the statement of the parish priest the season of fever is during the months of August, September, and October in this region. Results of the examination of blood smears taken during the month of June, which will be tabulated in the final report, show a parasite rate for malaria at that time of 12 per cent. While Anopheles albimanus was found breeding in the numerous springs of this region in small numbers it is felt that much more time and repeated visits would be required to obtain an adequate conception of the epidemiology of malaria in this region.

The Camp Perrin Area.

"Tributary to the port of Cayes there is a large and fertile territory which includes an extensive alluvial plain, regions of irregular hills and plateaus, and a part of the rugged mountain range which forms the backbone of the peninsula. It was impossible to select a secondary area which would truly represent the health conditions existing in these widely varying regions. As a compromise, the vicinity of Camp Perrin was chosen for study, since it is on the foot-hills close to the plain and close to the mountains. The work in this area received most effective assistance from the efforts of Père Rouillard, the parish priest.

The fertile plain of Cayes, which was formerly a region of rich plantations, is traversed by a number of torrents which are known locally as ravines. The mountains above are characterized by great rainfall and in the rainy season they send tremendous masses of water down these torrents, which in the dry season are nothing but great beds of rounded stones. In colonial times provision was made for an extensive system of irrigation in the plain from the portions of these streams in which the supply of water

was constant. As a rule the canals of these systems have not been maintained and in many places they cannot be traced. One extensive system called the Canal Davezac was rebuilt during the presidency of Antoine Simon. It receives its water from the largest ravine at a point about one-half mile above Camp Perrin and enters the plain as two main canals a short distance below this village.

Immediately north of Camp Perrin there is an irregular plateau at an elevation of about 500 feet on which most of the census for the secondary area (District 22) was taken. The surface features of this region are discussed at greater length in the report of the Entomologist with an account of mosquito breeding found there. The living conditions of the people varied from those of other areas in one respect which may be important. The characteristic rural home of the Cayes and Camp Perrin region has a large grassy yard which is usually quite well tended. In other parts of Haiti the yard is bare and hard-packed. It is possible that the grassy and more moist yards may encourage ankylostome infection by furnishing an environment more favorable to the mature larva.

It was impossible to obtain adequate co-operation in the time at our disposal in the more hilly and mountainous regions at a distance from the village. The people on the plain nearby were also reluctant to give their assistance in the study so it is probable that the results which were obtained were not sufficiently representative of the region as a whole. On the plain, and particularly near the town of Cayes, there is certainly more malaria than is shown in the results given in the tables and if one may judge from the mountain people who come down to market, the ravages of treponematosis are more marked in the hills."

Port Margot Secondary Area.

"There are many regions in the northern part of Haiti which are of special interest because of their great fertility and their luxuriant tropical vegetation. In general these areas are not extensive but are confined to narrow valleys of mountain streams. It was felt that in these regions there would be sufficient differences in the health of the population to justify the study of a district which should be representative of them. It was thought that in such of these regions as were visited on reconnaissance trips natural conditions favored the spread of intestinal parasites, especially hookworms, malaria, and that the dense population would favor the spread of treponematosis.

The community selected to represent these fertile spots was the valley of the Rivière Limon running northward from Port Margot to Bayeux. It is designated District 23a. In association with the study of this district, two other communities near Port Margot were examined but they represent quite different conditions. These

communities were the village of Bord de la Mer, on the coast beyond Bayeux, and Corail, in a rather arid valley running west from Port Margot. These communities were designated respectively Districts 23b and 23c.

This area is of historical interest because it is the first that was officially settled by Europeans on the mainland of Haiti. The first French Governor had been established on the island Tortue but the second took up his residence at or near Port Margot so this fertile valley has probably had longer continuous cultivation than any similar area in the Republic. In the early years of this century the village of Port Margot suffered seriously from revolutions and from fires which were associated with them. Ruins which are still present show that it was formerly a collection of substantial buildings but these have been replaced by small but neat cottages of the style usually found in rural Haiti.

The cultivation of the principal valley and of the hills around is chiefly coffee but there is some sugar-cane, especially on the Bayeux property which is on the plain between the Limon and the Limbé and between the hills and the sea. This is a very old sugar estate which also has some cacao and some rubber. In the valley itself there is rice, bananas, and vegetables in addition to the coffee. Living conditions are typical of those of rural Haiti and present no unusual features.

The work in this area was aided materially by the fact that for about three years the Medical Officer at Cap-Haitien, Dr. R. H. Laning has conducted a monthly clinic in Port Margot in co-operation with the parish priests, Père Le Breton and Père Jamier. The people have learned to expect good results from the treatment prescribed in these clinics and they besieged the office established by the survey during one month in such numbers that it was impossible to handle them effectively and at the same time to give house to house visiting the attention which it deserved. The records of the clinic led us to expect a high incidence of malaria, treponematosis and intestinal parasites and these expectations we were not disappointed, as reference to the tables will show."

Le Trou Secondary Area.

"Between Cap-Haitien and the Dominican border and between the northern range of mountains and the sea there is an extensive strip of territory which from any of the main road appears to be uncultivated and covered with small trees and underbrush. Yet this territory is rather thickly populated and there is really a great deal of cultivation of an unusually careless type. It is said that in less peaceful times lawless elements and troops, either of the government or against it, used regularly to raid this region for supplies. This has brought about the habit of concealing gardens and fields and extreme conservation of energy used in cultivation for the better the

crop the more likely it was to be raided. In this region and in the region of Las Lomas in the Atalaye area there was also seen the careful concealment of the entrance to inhabited premises. This served as a guard against the unauthorized entrance of strangers. These facts served to explain some of the difficulties encountered in working among the people of these two regions.

The vicinity of the village of Le Trou was selected for study as representative of this portion of the north. The portion studied was designated as District 24 and it comprised plain and foothills but did not extend into the mountains because of lack of co-operation. This area did not present any marked difference from others studied in addition to those which have already been mentioned but one of the features of interest which led to its choice was the fact that there had been a recent epidemic of dysentery with many deaths in the region. It was hoped that it was not too late to determine some of the facts of the epidemiology of the prevalent form of dysentery from the information gained here. This hope was not well founded for the information on this subject was not satisfactory. Of 117 persons who admitted having had either dysentery or diarrhea 32 gave histories of having had "cholerine" with bloody stools in the years 1924 and 1925. It was impossible to have more exact information on the attacks than this.

As in the Port Margot area, monthly clinics had long been established at Le Trou through the co-operation of the parish priest, Père Lemarier, with Dr. Laning. Treponematosis was probably the most important of the diseases treated in these clinics and it was found to have a very large incidence in the population when the house to house survey was made. Reference to the tables will show that the percentage infection with ankylostomes was unusually high and there was evidence of an unusual amount of malaria."

Atalaye Secondary Area.

"In order to make a short survey of conditions existing on the central plain, headquarters were established on the estate of the United West Indies Company, northeast of San Michel de l'Atalaye on October 15. Work in this region was continued only ten days.

The central plain is a rolling and grassy region which extends from San Michel to the Dominican border. The Haitian part of it is about forty-five miles long and has a width varying from nine to twenty-five miles. In general it is covered with a heavy growth of grass in the region of San Michel but here and there there are areas of cultivation. In 1918 an American company established a plantation with headquarters in Section Atalaye and since that time it has been experimenting with various crops to find one suited for cultivation in the region. The elevation above sea-level is given by Woodring, Brown, and Burbank as about 425 meters. The soil is generally a black sticky silt but there was considerable variation

crop the more likely it was to be raided. In this region and in the region of Las Lomas in the Ataleye area there was also soon the careful concealment of the entrance to inhabited premises. This served as a guard against the unauthorized entrance of strangers. These facts served to explain some of the difficulties encountered in working among the people of these two regions.

The vicinity of the village of Le Tron was selected for study as representative of this portion of the north. The portion studied was designated as District 34 and it comprised plain and foothills but did not extend into the mountains because of lack of co-operation. This area did not present any marked difference from others studied in addition to those which have already been mentioned but one of the features of interest which led to its choice was the fact that there had been a recent epidemic of dysentery with many deaths in the region. It was hoped that it was not too late to determine some of the facts of the epidemiology of the prevalent form of dysentery from the information gained here. This hope was not well founded for the information on this subject was not satisfactory. Of 117 persons who admitted having had either dysentery or diarrhea 32 gave histories of having had "chalerine" with bloody stools in the years 1924 and 1925. It was impossible to have more exact information on the attacks than this.

As in the Port Margot area, monthly clinics had long been established at Le Tron through the co-operation of the parish priest, Père Lemaître, with Dr. Laning. Trypanosomiasis was probably the most important of the diseases treated in these clinics and it was found to have a very large incidence in the population when the house to house survey was made. Reference to the tables will show that the percentage infection with onchocerciasis was unusually high and there was evidence of an unusual amount of malaria.

Ataleye Secondary Area.

"In order to make a short survey of conditions existing on the central plain, headquarters were established on the estate of the United West Indies Company, northeast of San Michel, de l'Ataleye on October 15. Work in this region was continued only ten days.

The central plain is a rolling and grassy region which extends from San Michel to the Dominican border. The British part of it is about forty-five miles long and has a width varying from nine to twenty-five miles. In general it is covered with a bony growth of grass in the region of San Michel but here and there there are areas of cultivation. In 1919 an American company established a plantation with headquarters in Section Ataleye and since that time it has been experimenting with various crops to find one suited for cultivation in the region. The elevation above sea-level is given by Woodring, Brown, and Burbank as about 455 meters. The soil is generally a black sticky silt but there was considerable variation

in the region studied. The rainfall is about 36 inches a year and nearly all of it comes in the months of August, September, and October.

Living conditions in the country surrounding the estate are the same as in other parts of Haiti but on the estate itself there are many changes and variations due to the formation of an artificial settlement there. The organization of the estate has resulted in the importation of large numbers of laborers from other parts of the Republic at different times and many of these have remained so results obtained there are not representative of the region. For this region the results at Atalaye (District 25) are separated into four small groups or sub-districts according to varying conditions encountered in different communities.

District 25a includes population quite representative of the edge of the plain. The majority of the people lived two miles or more from the estate itself and were natives of the region. Casual inspection indicated that they were an unusually healthy group, with less anemia, fewer evidences of treponematosis, and fewer complaints of fever than the average for the Republic. Some of these opinions were changed on a study of the actual results obtained.

District 25b was on the plain proper, about two miles from the foothills and was a group of houses parallel to a ravine. Here conditions appeared to be just the reverse of conditions in 25a. Anemia was obvious, the general appearance of the people was sickly. Unfortunately co-operation was not obtained and work here had to be abandoned.

District 25c was on the estate itself and included a large proportion of non-indigenous population.

District 25d was in the valley of the Rivière Atalaye above the estate. Conditions here were of great interest but again co-operation failed so the results are based on too small a number of examinations.

Table 1. Principal area. Census and examinations for helminths parasitic in the intestine, classified by districts.

Dist.	Census	Examined		Positive for Ankylostomes		Positive for Ascarids		Positive for Trichiurids	
		No.	P. C.	No.	P. C.	No.	P. C.	No.	P. C.
1	551	442	80	143	32	121	27	198	45
2a	187	166	89	51	31	48	29	79	48
2b	248	205	83	86	42	40	20	87	42
3	441	347	72	72	21	80	23	181	52
4a	481	431	90	189	44	143	33	230	54
4b	171	153	90	46	30	54	35	72	47
4c	231	194	84	108	56	115	59	142	73
5a	713	605	85	270	45	417	69	376	62
5b	564	480	85	160	33	163	34	238	50
5c	848	728	86	304	42	440	60	481	66
Total	4435	3751	85	1429	38	1621	43	2084	56

Table 1. Principal area. Census and examinations for helminths parasitic in the intestine, classified by districts.

Dist.	Census	Examined	Positive for Ancylostoma		Positive for Ascaris		Positive for Trichuris	
		No.	No.	P. C.	No.	P. C.	No.	P. C.
1	551	448	80	143	32	121	27	45
2a	187	166	89	81	81	486	29	78
3b	248	205	83	86	42	80	20	87
3	441	347	78	78	21	60	28	181
4a	481	431	90	189	44	163	32	230
4b	171	158	92	46	30	86	25	78
4c	231	194	84	108	56	118	29	142
5a	715	605	85	270	46	417	69	376
5b	564	480	85	180	38	163	34	238
5c	848	728	86	304	42	440	60	481
Total	4435	3751	85	1429	38	1621	43	2084

Table 2. Secondary areas. Census and examinations for helminths parasitic in the intestine, classified by districts.

Dist.	Census	Examined		Positive for Ankylostomes		Positive for Ascarids		Positive for Trichiurids	
		No.	P.C.	No.	P. C.	No.	P. C.	No.	P. C.
6	379	271	72	185	68	164	61	213	79
20a	489	221	45	23	10	40	18	59	27
20b	179	141	79	54	38	62	44	48	34
20c	152	82	54	0	0	28	34	13	16
20d	281	178	63	6	3	23	13	33	19
21	588	548	93	404	74	367	65	399	73
22	546	430	79	347	81	323	75	402	94
23a	540	467	86	379	81	344	74	425	91
23b	61	29	48	17	59	23	83	26	90
23c	170	132	78	94	71	108	82	110	83
24	293	239	82	189	79	113	42	205	86
25a	135	104	80	33	32	31	30	62	60
25b	17	1	0	0	0	0	0	1	
25c	44	27	61	20	74	6	22	13	48
25d	40	31	77	5	16	6	19	14	45
Total	3914	2901		1756		1638		2023	

Table 2. Secondary areas. Genera and examinations for Helminths parasitic in the intestine, classified by districts.

Plot	Genera examined	Positive for Ancylostomes				Positive for Ascarids				Positive for Trichuris			
		No.	P.C.	No.	I.C.	No.	P.C.	No.	I.C.	No.	P.C.	No.	I.C.
6	379	271	72	185	68	164	61	213	79				
20a	459	221	48	23	10	40	18	59	27				
20b	179	141	79	84	38	82	44	48	34				
20c	152	82	54	0	0	28	34	13	16				
20d	281	178	63	6	3	23	13	33	19				
21	589	548	93	404	74	387	65	399	73				
22	546	430	79	347	81	325	75	402	94				
23a	540	467	86	379	81	344	74	428	91				
23b	61	29	48	17	59	25	83	26	90				
23c	170	132	78	94	71	108	82	110	83				
24	293	239	82	189	79	113	42	203	86				
25a	135	104	80	33	32	31	30	82	60				
25b	17	1	0	0	0	0	0	1					
25c	44	27	61	20	74	6	22	13	48				
25d	40	31	77	8	16	6	19	14	45				
Total	3914	2901		1756		1639		2023					

Table 3. Principal area. Examinations for cysts of protozoa parasitic in the intestine.

Dist.	Specimens examined	Endamoeba histolytica		Endamoeba coli		Giardia lamblia		Chilomastix mesnili		Negative	
		No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.
1	129	20	16	42	33	15	12	11	9		
2a	42	11	26	17	40	0	0	1	2		
2b	84	16	18	33	39	7	8	6	7	37	44
3	262	44	17	112	43	21	8	35	13	108	41
4a	83	19	23	23	28	5	6	5	6	45	54
4b	105	12	11	29	28	15	14	9	9	37	54
4c	162	37	23	56	35	14	9	16	10	79	49
5a	132	20	15	29	22	13	10	8	6	88	67
5b	7	0		2		1		1		5	
5c	2	0		0		0		0		0	
Total	1008	179	18	343	34	91	9	92	9		

Table 31. Principal agent examinations for types of protozoa possible in the intestine.

Table 4. Secondary areas. Examination for cysts of protozoa parasitic in the intestine.

Dist.	Specimens examined	Endamoeba histolytica		Endamoeba coli		Giardia lamblia		Chilomastix mesnili		Negative	
		No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.	No.	P.C.
6	94	12	13	43	46	7	7	3	3	46	49
20	271	23	8	79	29	22	8	14	5	160	59
21	103	13	13	47	47	5	5	1	1	52	50
22	100	9	9	26	26	11	11	1	1	61	61
23	175	35	20	77	44	10	6	18	10	92	53
24	63	12	19	29	46	6	10	3	5	29	46
25	40	8	20	14	35	10	25	2	5	16	40
Total	846	112		315		71		42		456	

Table 5. Principal Area. Information and examinations for evidence of infection with treponemata.

Dist.	Census	Information obtained		Total positive		Treponematosis latent		Treponematosis active	
		Number	P.C.	Number	P.C.	Number	P.C.	Number	P.C.
1	551	370	67	114	31	70	19	44	12
2a	187	93	49	29	31	17	18	12	13
2b	248	143	58	56	39	39	27	17	12
3	441	332	76	96	29	62	19	34	10
4a	481	324	67	156	48	125	38	31	10
4b	171	94	55	37	39	27	29	10	10
4c	231	162	71	91	56	70	43	21	13
5a	713	608	85	282	46	160	26	122	20
5b	564	403	72	139	34	86	21	53	13
5c	848	707	83	217	31	110	16	107	15
Total	4435	3236	73	1217	37	766	23	451	14

Table 6. Secondary areas. Information and examinations for evidence of infection with treponemata.

Dist.	Census	Information obtained		Total positive		Treponematosis latent		Treponematosis active	
		Number	P.C.	Number	P.C.	Number	P.C.	Number	P.C.
6	379	184	49	62	34	53	29	9	5
20a	489	148	30	44	30	32	22	12	8
20b	179	124	69	36	29	16	13	20	16
20c	152	48	32	15	31	11	23	4	8
20d	281	118	42	25	21	18	15	7	6
21	588	523	89	113	22	34	7	79	15
22	546	430	89	152	35	79	18	73	17
23a	540	496	92	289	58	227	46	62	12
23b	61	47	77	16	34	12	26	4	8
23c	170	150	88	72	48	53	35	19	13
24	293	251	86	158	63	108	43	50	20
25a	135	127	94	38	30	30	24	8	6
25b	17	17	100	9	53	9	53	0	0
25c	44	36	82	15	42	9	25	6	17
25d	40	36	90	20	56	19	53	1	3
Total	3914	2734		1064		710		354	

Table 6. Secondary areas. Information and examinations for evidence of infection with treponemata.

Dist.	Contacts obtained	Information: Positive	Information: Total	Treponematosis: Active	Treponematosis: T.C.
6	379	184	49	62	34	53	23	9	5
20a	469	146	30	44	30	33	22	13	8
20b	175	134	69	39	29	16	13	20	16
20c	152	46	30	15	33	11	23	4	8
20d	251	118	47	23	21	18	18	7	6
21	506	265	53	113	42	34	7	79	15
22	846	430	51	152	36	79	10	75	17
23a	540	436	81	209	56	227	46	62	14
23b	61	47	77	16	34	12	26	4	8
23c	170	150	88	72	48	53	35	19	13
24	293	251	86	158	63	108	43	50	20
25a	135	127	94	33	33	30	24	8	6
25b	17	17	100	9	53	9	53	0	0
25c	46	36	82	15	42	9	25	6	17
25d	49	36	73	20	56	13	36	1	3
Total	3914	2734		1064		710		364	

Table 7. Principal Area. Information in regard to attacks of diarrhea and dysentery.

Dist.	Census	Information obtained		Total positive		History of previous attacks		Attacks during survey	
		Number	P.C.	Number	P.C.	Number	P.C.	Number	P.C.
1	551	322	58	93	29	54	17	39	12
2a	187	74	40	9	12	4	5	5	7
2b	248	109	44	29	26	8	7	21	19
3	441	330	75	78	24	52	16	26	8
4a	481	267	55	81	50	73	27	8	3
4b	171	76	44	29	38	21	28	8	10
4c	231	146	63	29	20	20	14	9	6
5a	713	574	80	136	24	114	20	22	4
5b	564	374	66	85	23	65	17	20	5
5c	848	659	79	178	27	155	24	23	3
Total:	4435	2931	66	747	25	566	19	181	6

Table 7a. Principal Area. Information regard to attacks of disease and dynamics.

Table 8. Secondary areas. Information in regard to attacks of diarrhea and dysentery.

Dist.	Census	Information obtained		Total positive		History of previous attacks.		Attacks during survey	
		Number	P.C.	Number	P.C.	Number	P.C.	Number	P.C.
6	379	150	40	49	35	47	32	2	1
20a	489	146	30	62	42	59	40	3	2
20b	179	93	52	13	14	10	11	3	3
20c	152	50	33	23	46	23	46	0	0
20d	281	115	41	39	34	39	34	0	0
21	588	506	86	196	39	192	38	4	1
22	546	413	76	132	32	131	32	1	
23a	540	489	91	173	35	168	34	5	1
23b	61	48	80	26	54	26	54	0	0
23c	170	147	87	55	37	54	37	1	
24	293	235	80	121	52	117	50	4	2
25a	135	128	95	75	59	55	43	20	16
25b	17	17	100	7	41	7	41	0	
25c	44	40	91	9	22	9	22	0	
25d	40	39	98	11	28	11	28	0	
Total	3914	2605		991		948		43	

Table 8.--Secondary sexes. Information in regard to attacks of diarrhea and dysentery.

Diet	Persons obtained	Information : Total : Number : Percent	History of : previous : attacks	During survey : Number : Percent	Attacks : 1	2	3	0
6	375	140	40	38	47	32	2	1
20a	426	140	32	42	59	40	3	2
20b	179	98	55	14	10	11	3	3
20c	169	50	30	23	46	23	0	0
20d	201	145	41	39	27	34	0	0
24	500	306	96	39	198	39	4	1
22	646	413	76	39	189	32	1	
23a	660	409	83	39	159	34	5	1
23b	61	48	30	64	26	54	0	0
23c	1370	867	87	37	84	37	1	
24	1293	826	99	38	121	30	4	2
25a	1365	1298	95	39	75	39	58	43	20	16
25b	47	47	100	41	7	41	0	
25c	184	40	91	22	9	22	0	
25d	160	39	98	20	11	20	0	
Total	5914	5605	391	960	43			

Table 9. Principal area. Clinical histories of attacks of fever suggesting malaria.

Dist.	Census	Information obtained		Last attack current year		Last attack previous year		Total histories	
		Number	P.C.	Number	P.C.	Number	P.C.	Number	P.C.
1	551	397	71	186	47	60	15	246	62
2a	187	98	52	46	47	1	1	47	48
2b	248	158	64	118	75	11	7	129	82
3	441	147	33	80	54	18	12	98	66
4a	48	315	66	181	57	80	25	261	82
4b	171	107	63	53	50	14	13	67	63
4c	231	191	83	53	28	22	11	75	39
5a	713	633	89	44	7	66	10	117	17
5b	564	426	76	163	36	87	20	250	58
5c	848	730	86	131	18	162	22	393	40

Table 9. Principal areas. Clinical histories of attacks of fever suggesting malaria.

Dist.	Census	Information obtained		Last attack			Total	
		Number	P.C.	Number	P.C.	Number	P.C.	Number	P.C.
1	551	307	71	186	47	60	15	246	62
2a	107	98	82	46	47	1	1	47	48
2b	240	168	64	118	75	11	7	129	82
3	441	147	33	80	54	18	12	98	66
4a	46	316	66	101	57	80	25	261	82
4b	171	107	63	53	50	14	13	67	63
4c	251	191	83	59	28	22	11	75	39
5a	713	653	89	44	7	66	10	117	17
5b	564	426	76	165	46	87	20	250	56
5c	848	730	86	181	18	163	22	293	40

Table 10. Secondary areas. Clinical histories of attacks of fever suggesting malaria.

Dist.	Census	Information obtained		Last attack current year		Last attack previous year		Total histories	
		Number	P.C.	Number	P.C.	Number	P.C.	Number	P.C.
6	379	315	83	75	24	23	7	98	31
20a	489	187	38	80	43	73	39	153	82
20b	179	80	45	19	24	30	37	49	61
20c	152	55	36	14	25	29	53	43	78
20d	281	156	56	60	38	78	50	138	88
21	588	492	84	60	12	77	16	137	28
22	546	391	77	84	21	56	14	140	35
23a	540	482	89	203	42	44	9	247	51
23b	61	48	79	22	46	10	20	32	66
23c	170	148	87	36	24	20	14	56	40
24	293	238	81	114	48	53	22	167	70
25a	135	123	91	64	52	45	37	109	89
25b	17	17	100	13	76	3	18	16	94
25c	44	38	86	27	71	7	18	34	89
25d	40	40	100	32	80	6	15	38	95

Table 10. Secondary areas. Clinical histories of attacks of fever suggesting malaria.

Dist.	Census	Information obtained		Last attack current year		Last attack previous year		Total histories	
		Number	P.C.	Number	P.C.	Number	P.C.	Number	P.C.
6	379	315	83	24	76	7	25	31	98
20a	489	187	38	43	80	39	73	82	153
20b	179	80	45	24	30	37	49	61	49
20c	182	55	30	25	14	23	29	76	43
20d	281	156	56	30	60	20	76	89	139
21	588	452	84	12	60	16	77	20	137
22	546	391	77	21	84	14	86	35	140
23a	540	482	89	43	203	9	44	81	247
23b	61	48	79	46	22	20	10	66	32
23c	170	140	87	24	36	14	20	40	56
24	293	238	81	48	114	22	53	70	167
25a	135	123	91	52	64	37	46	89	109
25b	17	17	100	76	13	18	5	94	16
25c	44	39	86	41	27	18	7	89	34
25d	40	40	100	80	32	15	6	95	38

Table 11. Principal area. Examination of children for enlarged spleens.

Dist.	Census	Examined		Spleens palpable		Spleens 1 finger or more below costal margin	
		Number	P.C.	Number	P.C.	Number	P.C.
1	169	102	60	37	36	18	18
2a	68	33	49	8	24	1	3
2b	73	60	82	25	42	15	25
3	165	118	72	22	19	11	9
4a	163	85	52	17	20	3	4
4b	64	35	55	1	3	1	3
4c	77	60	72	5	8	0	0
5a	290	248	86	2	1	0	0
5b	178	108	61	8	7	0	0
5c	356	229	64	1	0.4	0	0

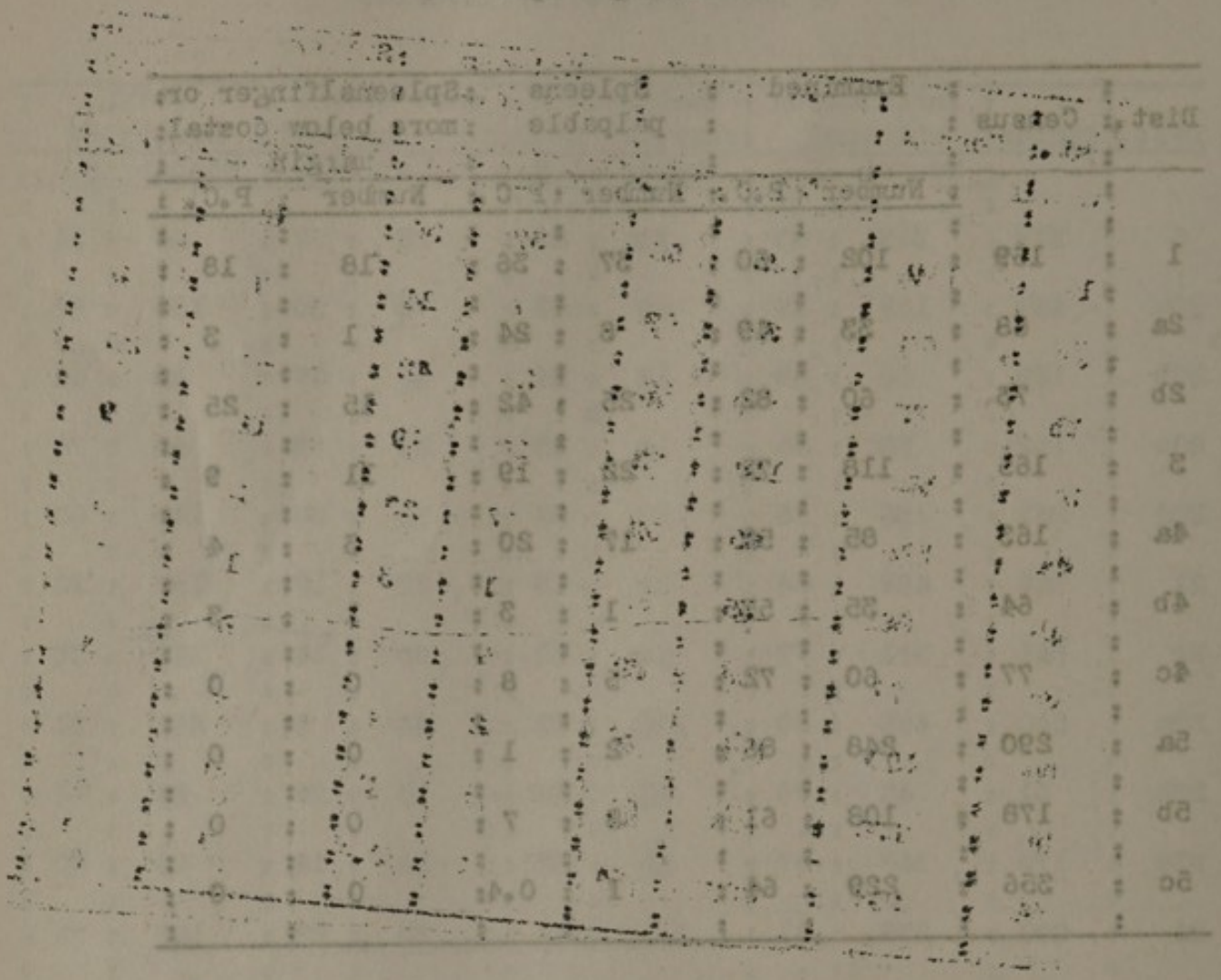

Table 12. Secondary areas. Examination of children for enlarged spleens.

Dist.	Census	Examined		Spleens palpable		Spleens 1 finger or more below costal margin	
		Number	P.C.	Number	P.C.	Number	P.C.
6	132	115	88	0	0	0	0
20a	157	46	29	16	35	7	15
20b	53	25	47	5	20	0	0
20c	51	6	12	0	0	0	0
20d	110	46	42	18	9	12	26
21	253	99	39	2	2	0	0
22	246	81	33	5	6	0	0
23a	237	75	32	27	36	12	16
23b	24	8	33	6	75	4	50
23c	78	33	42	9	27	2	6
24	98	25	26	10	40	4	16
25a	65	40	62	7	18	0	0
25b	7	5	71	4	80	2	40
25c	20	9	45	2	22	0	0
25d	18	14	78	4	29	2	14

B. "REPORT OF THE ENTOMOLOGIST".

"Previous experience of Haitian and American physicians indicated that one of the chief health problems of Haiti was the control of malaria. For this reason it was recognized that the chief activity of the Entomologist should be the study of the anopheline mosquitoes of the Republic with special emphasis on the ecological problems which might be of importance in malaria control. After a preliminary reconnaissance of one month in which important assistance was given by Doctor Edwin Peterson of the Service d'Hygiène and by Mr. G. L. Crain, then Public Health Officer of Port-au-Prince, work was begun in September, 1924.

The Entomologist was provided with a field laboratory with equipment for collecting, breeding out, and dissecting mosquitoes and similar insects. He had an automobile for transportation to the more accessible localities and horses for himself and assistant for the more difficult journeys. His assistant was a Haitian without previous training and with only a primary education who was trained to recognize mosquito larvae and to distinguish the more important genera.

The general plan of the work of the Entomologist followed the one outlined for the survey as a whole, that is the intensive study of a single representative area over a period of one year with shorter studies of secondary areas chosen to represent special conditions. The area in which intensive studies were made was the same as the principal area already described and in general the secondary areas were the same as those chosen for other activities of the survey. Cases in which the secondary areas studied by the Entomologist did not coincide with the areas discussed in other portions of the report will be discussed in connection with the respective areas.

The first step in the survey of the principal area was a reconnaissance to determine the character and location of the water deposits which might serve for mosquito propagation. Since it was impossible to make regular visits to all water deposits for the collection of larvae, representatives of each class were selected for study throughout the period of the survey. The intervals at which the stations were visited varied with their apparent importance, their accessibility, with the season, and with the pressure of work in the secondary areas. The more important stations were visited at intervals from one to two weeks and the stations which were in inaccessible locations in the mountains were not reached more often than once a month. During the months of September and October, 1925, there was a period of seven weeks when no inspections were made in the principal area."

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The inspection of a station consisted of a study of the water, the plants, and other conditions in the environment which might influence mosquito breeding, collection of a representative number of such larvae as were found and collection of plants, fish, or other material which might either encourage or check the production of mosquitoes in that environment. This inspection was not confined to a restricted spot in any station but in deposits of small or moderate size it was extended throughout their area. In large deposits, such as coastal swamps, inspection was conducted at various points so that a notion of conditions in the entire area was gained.

Materials used on the inspections consisted of:

1. An agate dipper with a long hollow handle which was further lengthened by the insertion of a round piece of wood about three feet long. In the case of the gray dippers obtained locally it was found that white paint applied to the inner surface helped in rendering the larvae visible.

2. A wide mouthed pipette with rubber bulb for removing larvae.

3. Fruit jars of one-half pint capacity with glass covers retained by wire loops.

4. Thermometer for taking the temperature of the water.

Dipping was done in such a manner that practically all of the water collected was from the surface, since anopheline larvae frequent this stratum almost exclusively unless disturbed. With the pipette the larvae desired were transferred to one of the glass jars to which a label indicating the location and the time of collection was attached. In case knowledge of the hydrogen-ion concentration of the water was desired special care was taken in cleaning the jar and in rinsing it with samples of the water before collection was begun. The sample of water for examination was then placed in the jar with the larvae collected.

A record of each inspection was made on a card which was adapted from the records of the Porto Rico survey. The items about which information was noted were as follows:

Identification of station and date and hour of inspection.
Distance and direction from man and animals.
Nature of water deposit, whether temporary or permanent.
Temperature of water.
Quantity of anopheline larvae and pupae and presence of other genera of mosquitoes.

Presence and character of fish and predaceous larvae.
Description of water as regards turbidity, color, current.
Description of environment as regards margin, light, presence of debris, algae, or other vegetation.

No absolute numerical means for estimating the quantity of anopheline larvae during a long period was available so it was necessary to adopt an arbitrary device. The scheme devised by Doctor H. H. Howard for the Porto Rico survey was adopted since it gives a practical basis for comparison. The following divisions were adopted to indicate the numbers of anopheline larvae found.

1. 1-3 larvae per dipper, majority of dippings negative.

2. 3-5 larvae per dipper, majority of dippings positive.

3. 5 or more larvae per dipper.

Spotted. Larvae fairly common but the dippings vary considerably. As a rule this class stands intermediate between classes 2 and 3.

These data give a basis for the study of seasonal fluctuations in breeding and changes in environment.

It is not sufficient to know that we have a given amount of anopheline breeding in an area. We must know in addition with what species we are dealing for not all are of importance as vectors of malaria. At first the technique of identifying anopheline larvae taken in the field consisted in caring for them until their development was complete and identifying the adult mosquitoes which emerged. The captured larvae from each station were placed in a small dish in which there was water and some vegetable material, chiefly Spirogyra or a related blue-green alga with microscopic plancton. As pupae developed they were transferred with a small quantity of water to glass cylinders with inside dimensions of 1 x 5 inches. The adults emerging in these tubes could readily be identified by known specific characters.

Experience with this method showed that if all of the larvae collected or even representative numbers were to be brought to maturity in this manner there would have to be a great increase in the space, apparatus, and technical assistance for the work. Furthermore it was shown that even with the utmost care a great percentage of loss ensued through death of larvae. A third difficulty was that there was a period of several days between making a collection and obtaining definite information in regard to the species obtained. A little study with the work of Root as a guide (reference Amer. Jour. Hyg. 2: No. 2: 379-92: July, 1922) soon demonstrated that the direct determination of the larvae was quite feasible. The equipment required for this purpose was: A binocular microscope with

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1. 1-2 larvae per dipper, majority of dippings negative.

2. 2-5 larvae per dipper, majority of dippings positive.

3. 5 or more larvae per dipper.

Spotted. Larvae fairly common but the dippings vary considerably. As a rule this class stands intermediate between classes 2 and 3.

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24 mm. objectives and X 10 oculars, a few hollow ground slides such as are ordinarily used for hanging drop preparations, a pipette drawn out to a very fine termination, and another pipette with a uniform bore of about four millimeters. A single larva was transferred from the jar used for transportation to the depression in a hollow-ground slide with a small amount of water. This was conveniently done with the pipette of large bore. Upon inspection under the binocular microscope the amount of water was regulated with the finer pipette until there was an insufficient amount for the larva to swim freely but still a sufficient quantity to permit satisfactory illumination. The speed of the examination of large numbers of larvae was increased by having an assistant transfer larvae from the transportation jars to the slides.

The recognition of species by difference in the larvae eliminated the use of nearly all of the cumbersome apparatus that was used in the breeding out procedures. It dispensed with the use of one assistant. It eliminated the loss of valuable material by death and consequently gave results that were far more accurate. It eliminated the long period between collection and identification which was inherent in the old method and under ordinary conditions gave the results of collections on the day that the larvae were brought to the laboratory. Usually a glance at the cephalic portion of the head capsule sufficed for the identification of a larva and after a little practice several hundred specimens could be identified in an afternoon.

As a standard procedure fifty larvae from each collection were examined when they were abundant, but in case this number was not obtained all of the larvae collected were examined. In following this procedure we acquired an accurate conception of the comparative numerical abundance of the anopheline components. As a check on the results obtained the larvae were separated according to species and placed in containers with water and suitable food material. Over each container there was placed a lamp chimney covered with fine netting. Adults were identified as they emerged and the result compared with the previous identification of the larva. Since the completion of the preliminary study and the adoption of a standard technique there have been only three errors in the larval identification detected by this check.

In four of the secondary areas difficulties of transportation made it impracticable to conduct day by day examinations of larvae with the binocular microscope. In these cases the larvae were transferred soon after collection to vials containing 95% alcohol. The vials were labelled as to location and time of collection. At a convenient time the larvae were identified with a folding compound microscope using a 16 mm. objective and a X 10 ocular. Individual larvae were placed on ordinary microscopic slides in a drop of alcohol.

The identification of preserved larvae was not so satisfactory as the method used in the principal area. Many larvae were lost by breakage of vials, evaporation or leakage of alcohol, and by adherence to the walls of the vial above the alcohol level. Examination of these specimens also required more delicate manipulation and it was not possible to use the services of the assistant to advantage.

The only species of Anopheles encountered were A. albimanus Wiedemann and A. grabhamii Theobald. Root (loc. cit.) has shown that the outer anterior clypeal hairs of the former give off small simple branches, while with the latter this structure gives rise to considerable bifurcation after the manner of punctipennis. For third and fourth stage specimens this distinction serves admirably except when the mouth brushes are expanded and render these hairs invisible.

First instar grabhamii bear a remarkable resemblance to albimanus in that all clypeal hairs appear unbranched. In the case of the latter these are evenly spaced, rather fragile, approximately equal in length, more or less parallel, and taper to a fine point. Corresponding specimens of grabhamii have thick clypeal hairs, the inner pair considerably longer than the outer, and the outer pair placed more closely to the median set . The central pair tend to point inwards, this being more easily observed when the head is inverted.

Second stage larvae also present difficulties. Grabhamii does not show such completed division of the outer anterior clypeal as when more mature. Furthermore surface tension in the hollow slide often causes coalescence causing it to appear uniform. Close observation under such conditions establishes the presence of a slight terminal thickening, while in the other species there is the usual tapering. As a rule the inner anterior clypeals of grabhamii are heavier, more closely set, and converge. In albimanus they are usually parallel or divergent, and not closely placed. Second stage larvae however tend to have these hairs more closely approximated than is the case with other instars of albimanus.

Characters by which larvae of A. albimanus and A. grabhamii may be distinguished.

Stage.	Albimanus.	Grabhamii.
1	All clypeal hairs apparently unbranched.	All clypeal hairs apparently unbranched.
	All clypeal hairs usually evenly spaced	Outer pair set fairly closely to median set.
	Clypeal hairs fragile and tapering.	Clypeal hairs somewhat thick.
	Inner clypeal hairs parallel or diverging.	Inner clypeal hairs tend to converge.
2	Outer clypeal hairs not bifurcate.	Bifurcation of outer clypeal hairs indistinct or incomplete.
	Inner clypeals more closely approximated than in stages 1,3, and 4: sometimes converging.	Inner clypeals closer than in albimanus.
	Clypeal hairs tapering.	Outer clypeal hairs not tapering.
2,3,4	Inner clypeals well separated (even in 2nd stage always more widely separated than grabhamii), and excepting 2nd stage always parallel or diverging.	Inner clypeals closely approximated; usually heavier than albimanus; converging.
3,4	Outer clypeals with simple branches	Outer clypeals completely bifurcated.
	Palmate hairs on segments 1-7 inclusive.	Palmate hairs on segments 3-7 inclusive.
	Palmate hairs deeply cut into, at least to basal fourth.	Inner half of palmate hairs practically solid.
	Individual leaflet of palmate hair long, narrow, gradually tapering; margins even.	Individual leaflet of palmate hair shorter and wider; margins dentate at apical third.

Characters by which larvae of *A. albimanus* and *A. crucians* may be distinguished.

Stage.	Albimanus.	Crucians.
1	All clypeal hairs apparently unbranched.	All clypeal hairs apparently unbranched.
	All clypeal hairs usually evenly spaced	Outer pair set fairly closely to median pair.
	Clypeal hairs fragile and tapering.	Clypeal hairs somewhat thick.
	Inner clypeal hairs parallel or diverging.	Inner clypeal hairs tend to converge.
2	Outer clypeal hairs not bifurcate.	Bifurcation of outer clypeal hairs indistinct or incomplete.
	Inner clypeals more closely approximated than in stage 1.	Inner clypeals closer than in albimanus.
	Clypeal hairs tapering.	Outer clypeal hairs not tapering.
3 & 4	Inner clypeals well separated (even in 2nd stage more widely separated than crucians and excepting 2nd stage always parallel or diverging).	Inner clypeals closely approximated than albimanus, converging.
3 & 4	Outer clypeals with simple branches	Outer clypeals completely bifurcated.
	Palmate hairs on segments 3-7 inclusive.	Palmate hairs on segments 3-7 inclusive.
	Palmate hairs deeply cut into at least 8 leaflets.	Inner half of palmate hairs practically solid.
	Individual leaflet of palmate hair long, narrow, usually tapering evenly.	Individual leaflet of palmate hair shorter and wider; median dentate at apical third.

A minute difference between the palmate hairs of the two species brought about satisfactory differentiation in some of the preserved larvae. The individual leaflet of the palmate hair of albimanus gradually and evenly comes to a point; in grabhamii a tendency toward the formation of dentate lateral margins exists. Root (loc. cit.) has already noted this minute differential character.

The accumulation of these differences tends to give the entire palmate hair an appearance which is characteristic for each species and is readily noticeable before the individual leaflets are scrutinized. In all probability there are a number of other differences to be revealed by further study.

The opportunity for the transmission of malaria parasites from person to person depends, not on the number of larvae found in nearby breeding places, but upon the number of adult female anophelines of transmitting species which have an opportunity to feed more than once and at an interval of more than seven days on human inhabitants. This factor is dependent on many variables which have no relation to the density of local breeding. It was therefore important to obtain information as to the density of population of adult anophelines in and around the homes in the districts studied. This activity received all of the attention and study that its importance justified but it was not possible to obtain results by which the different areas could be compared.

The earliest efforts were made to collect adult mosquitoes in the houses of the people at different hours of the day. This method failed at the time for several reasons, the most important one being the objection of the people to strangers entering their homes for a purpose which they could not understand. The method was later used more effectively and will be more fully discussed in a later section of the report. Upon the failure of the house catching individuals were hired to act as bait for catching mosquitoes in the open near the houses. This method was not so satisfactory as the use of a horse for the same purpose, a method which was suggested by Doctor H. H. Howard. In the principal area certain stations were selected to which the horse was brought in the evening and all anopheles which fed upon it during measured period of time were captured.

For the capture of adults the method used by Doctor Darling at Leesburg gave satisfactory results. The principal article of equipment for the purpose was a glass cylinder 1-1/4 x 4 in. with an invaginated opening approximately 3/8 in. in diameter. The other end of the tube was closed by a cork. In some cases it was found convenient to perforate the cork and fit to it the rubber bulb of an automobile horn. In this case it was necessary to stretch a piece of fine gauze over the opening in the cork to prevent mosquitoes from entering the bulb. In capturing mosquitoes

which rested on very hard surface such as concrete walls it was found advisable to encircle the open end of the tube with rubber or with adhesive tape to prevent breakage of the glass.

The mosquito was located by means of an electric flashlight. Then the open end of the glass tube was gently placed over it and rested against the surface on which the mosquito stood. The mosquito was then in the invaginated portion of the tube and was induced to enter the body of the tube by disturbing it with the light, by moving the tube, or by suction with the rubber bulb. Once captured, it was necessary to keep the opening of the tube constantly closed to prevent loss of mosquitoes. When six or eight individuals had been captured in a single tube the opening was stopped with cotton, an identification mark was placed on the tube and the mosquitoes were transported to the laboratory in it. It was necessary to employ care in the use of the light while placing the tube over the mosquito. It was likely to be disturbed by a bright light or by a shadow so the light was held in such a manner that the approaching tube cast no shadow upon the insect until it was well within the invagination. A second search sometimes showed that specimens were overlooked, especially if the specimens were resting at about the level of the eye, less of the body being visible under such conditions."

Breeding stations.

"The following consists of a discussion of the more important stations and others of interest:

1: Rice fields near the Cercle Mariani. Water supplying these fields came from an adjacent spring. In the middle of October, 1924 when first observed albimanus occurred in considerable numbers, a gradual decline setting in a month later. Coincident with heavy rains in March there followed a slight increase which reached its peak at the end of May, this giving way to another subsidence. At the end of August breeding was at a low ebb. Two months afterward when conditions in the rice which had been planted in July were stable, a marked increase was evident. In the latter part of November when breeding was just beyond its zenith heavy rains caused an almost complete cessation of such activities. At present (middle of December) practically all water has disappeared.

2: Branch of an irrigation ditch, northwestern portion of Carrefour. Situated on the property of Dr. Brown a veterinarian, this station showed potentialities as a breeding place, owing to the accumulation of debris which materially lessened the rate of flow. On November 8, 1924, a few albimanus larvae were taken. Subsequently all debris and vegetation were removed at this point. Larvae were never again encountered.

3: Leakage from water pipe near the Gendarmerie headquarters at Carrefour. The escaping water gives rise to a short stagnant ditch terminating among grass and weeds. At no time does breeding become abundant. Since the earliest observations in December, 1924 albimanus was found to be the predominant form, though grabhamii occurs at times. This deposit never attains any importance from the stand point of quantity production.

5: This station located opposite the Mariani railroad station. A spring and the Rivière Mariani furnish water here to a large area devoted to the cultivation of rice, though much of it is given over to sweet potatoes during the first half of the year. It was chosen chiefly with the idea of deriving some idea as to the importance of the spring as concerned winter breeding. Larvae were taken in numbers during the period from March through August, 1925.

6: A variety of conditions exist at this station located near Petite Saline. There are ditches practically choked with vegetation, others with considerable grass. On part of the plot short grass grows, this being to a great extent covered with water. At first glance one is strongly reminded of the meadow pools in the United States frequented by Aedes. The water apparently seeps through the soil and is never entirely absent. At practically all times an abundance of albimanus may be taken. The species also occurred among an adjacent group of mangroves since cut down, though greatly outnumbered by Aedes. With the removal of these trees Anopheles seems to have increased there as well. Observations were commenced September, 1924. Insofar as production of Anopheles is concerned this area is by far the most important of the seepage type.

7: A roadside pool occupying the space usually alloted to the gutter along the main street of Carrefour. Water was obtained principally from rainfall, though to a lesser extent from a small irrigation ditch. Protection from direct action of the sun's rays a greater part of the day largely retarded evaporation. Larval abundance varied greatly. After a dry period approximately two weeks seem to have been required before Anopheles, chiefly albimanus, again became numerous. First observations were made December, 1924. Occupying, as it did a central position in the village it merited consideration as an important factor in the dissemination of malaria. Late in the spring it was eliminated through the efforts of the Service d'Hygiène.

8: A continually wet rice field near the Lamentine lighthouse in which much aquatic vegetation occurs. From December, 1924 to the following August it has proved to be a prolific breeder of Anopheles albimanus. It can be considered fairly representative of much of the swamp land along the coast where larvae develop throughout the year. There began in December a gradual decrease

in the amount of water present until in April but one fifth of the surface was covered. With the onset of rains in March ar which continued intermittently this had increased to a half and soon after diminished to one third. After the middle of the year this proportion again rose. However larvae are rather abundant most of the time, for throughout this vast area of which the station is but a part there are many plots that always contain water and many immature mosquitoes.

8a: A spring near the preceding containing much aquatic vegetation except after an occasional cleaning administered by the people living nearby. From January to April grabhamii was an important constituent of the anopheline fauna. Immediately succeeding a thorough cleaning of the spring toward the end of May albimanus became the sole species living there. Whether this result can be ascribed to the cleaning, or whether it would actually have taken place at this time regardless of it is an unsettled question. Breeding fluctuated markedly, there being three distinct peaks these occurring in December-January, February-March, and May-July.

9: This situation represents the result of leakage from a rigole near the agricultural school at Thor. First noted in December, 1924 never more than a few larvae of albimanus were taken at one time from its grass covered uneven depressions, and then only occasionally. Since February there has been little seepage, the breeding of anophelines having been brought to a stand till.

10: A deposit formed by the penetration of seepage through the retaining walls of an irrigation ditch behind house 17, district 2, Carrefour. The vegetation consisted of short grass. From December, 1924 to the following June the numbers of anopheline larvae yielded varied considerably. Along the latter part of June the leak was repaired. In October larvae were found in fair quantity along the portion of a nearby irrigation ditch which was covered over in great part with short grass. Due to the temporary diverting of water to other channels (December, 1925) no breeding is now in progress. This area may not be without importance in reference to the occurrence of malaria in Carrefour.

11: A portion of a slowly flowing irrigation ditch in the rear of house 24, district 2, Carrefour. The stream as a rule has been overgrown with miscellaneous vegetation and alga. A limited adjacent area has occasionally been flooded as well. Water is not always present and Anopheles albimanus the only species occurring here has been only infrequently taken.

12: Seepage from an irrigation ditch in a cane field at Brochette. Since December 12, 1924 when a fair number of larvae were found no breeding has been observed. As is the case with many streams in this environment, water is not permitted to flow constantly.

13: Seepage pool and puddles from a rigole along the Rivière Froide at Brochette. The pool itself is the terminus of a stream and empties into the river. When first noted early in January both anophelines were present in fair numbers. Soon after a decided decrease set in. From the beginning of February to the end of May breeding entirely ceased. In August and November, 1925 albimanus was well represented. Heavy rains during the middle of the latter month put an end to these activities and larvae have not since reappeared. In the puddles a few albimanus could now and then be gathered. Such places as this afford Anopheles the opportunity of existence during unfavorable periods. Otherwise other situations notably the rice fields in this section are preferred, especially in the case of albimanus. This point marks the limit of distribution for albimanus in the lower Rivière Froide region.

14: A seepage pool probably a hundred square feet in extent along the Rivière Froide near the village so named. Occasionally grabhamii breeds there, though always in small numbers.

15: Sides of a rigole opposite the Cercle Mariani. The stream flows rapidly beneath mango trees which provide shade along much of its course. Along the banks among grass and weeds grabhamii may be caught in numbers during the first half of the year. Then the other species greatly outnumbers it, the former again becoming evident in November. At present (middle of December, 1925) owing to the heavy rains which caused suspension of breeding in the rice fields albimanus is very abundant.

16: A spring at Petite Saline in which grows a profusion of Tradescantium and Eleocharis. During the period of the survey breeding has proceeded quite irregularly. In the main there was found to be an appreciable percentage of grabhamii in the winter and early spring. Since May albimanus has been recorded almost exclusively.

17: A spring near the Cercle Mariani. Both species occur, grabhamii principally. Breeding activities seem to be concentrated in the time between January and April. Later the rice fields prove more attractive to albimanus while the other form then disappears.

18: A backwash at the first ford of the Rivière Froide beyond Mont Fleury. Grabhamii, the only species present reached its greatest abundance at the end of February, then gradually declined with the slow retreat of the water. Heavy rains along the end of April caused the stream itself to flow through in a torrent thereby preventing further breeding.

19: A rice patch in the southern part of Mariani not far distant from 15. During the winter of 1924-25 water from a rigole was permitted access to this plot resulting in a restricted boggy area. Therefore while albimanus was relatively uncommon elsewhere in the vicinity active breeding continued here uninterruptedly and there was

a sprinkling of grabhamii. In the succeeding October when the next rice crop began to ripen the water supply was cut off, albima still holding on in residual pools, for a short time.

20: Extensive spring seepage west of the termination of that portion of the Bizoton-St. Roch road which is passable for vehicles. At times some rice is grown here as the remains of mud walls show. Between July and October, 1925 a portion of the land so cultivated harboured great numbers of albimanus. Much of the ground is overgrown with aquatic vegetation, especially Eleocharis, grass and weeds. Though observed since February, anophelines, mainly albimanus, have been plentiful throughout the period of observation. Furthermore this station located at the base of the foothills is of interest because it represents the highest point in the region near Port-au-Prince, (Its altitude is approximately 200 feet) where albimanus is known to occur. In all probability to this mosquito colony can be traced a part of the high incidence of malaria in Diquini and upper Bizoton.

21: Rice plot and seepage near junction of route Bijou and route de Mahotière at the village of Mahotière. The production of Anopheles, the great majority albimanus, was never great, but in all probability this was a focus from which mosquitoes spread to adjacent rice areas in Mahotière and Brochette.

22: Rice fields east of the Mahotière road at Thor. Albimanus was abundant here only in October and November when conditions in the rice fields were favorable for their development. At this time they also overran old sweet potato depressions flooded by heavy rains. During the remainder of the year the few found in this section were restricted to a very small seepage area.

23: Rice area, Brochette-Mahotière. The breeding area here on the whole takes on no importance except in the height of the rice growing season, that is in October, November, the first week of December, and possibly in September. Then albimanus (a few grabhamii) swarm in the rice fields. With the ripening of the crop no attention is paid to water supply and disappearance of mosquitoes soon follows. During the spring of 1925 one small neglected rice plot received an ample supply of water. Considerable short grass and a great quantity of algae flourished along with albimanus larvae. Late in April this source was shut off.

24: Rice fields back of Bailey's at Bijou. Like the preceding, albimanus was found in abundance chiefly in October and November. Early in the spring this species was occasionally present in numbers when seepage from a stream had access to a small grassy area. For the most part breeding during the inactive season took place in a few sweet potato depressions into which water had escaped from a rigole alongside, or in a few sheltered spots along the several irrigation ditches running through this section."

Rivière Froide.

This region included the valley of the Rivière Froide from above a village of that name to a point approximately two miles beyond Croix Imbert. Eight visits were made to this region at intervals of one month or more. Stations between the proximate end of this district and Croix Imbert were designated R F A, R F B, R F C, R F D, and R F E. R F A consisted of a small group of puddles along the river a short distance above Rivière Froide. Now and then a few larvae were taken. When first found in the middle of December R F B a backwash and former channel, contained numerous immature Anopheles, which were concentrated chiefly beneath an overhanging rock and among a heavy growth of Polygonum that occurred along the margin. Toward the end of January they became less common, and by April were entirely lacking. At that time the water had completely disappeared. Since then, though water has again returned, instead of being still it flows very rapidly, preventing Anopheles from regaining a foothold. Larvae have as a rule been present at R F C, a shaded pool near the river formed by seepage from the rocks. However they have never been numerous. When first visited in December R F D, a grassy area and pool below Croix Imbert formed through leakage from the river, provided an abundance of larvae. In January coincidently with the gradual failure of water the number of larvae declined, finally disappearing during the next month. A few places in this vicinity have at times yielded larvae in relatively small numbers, namely a seepage pool near the village and a spring just below R F D. R F E, a backwash located in the neighborhood of Croix Borde, proved unimportant. In sheltered spots throughout this section larvae may be found in small numbers.

Above Croix Imbert the valley attains a greater width. More seepage and sheltered pools are also in evidence. As in the other portion of this district grabhamii has been the only anopheline recovered from water deposits. From the catch taken November 9, 1925 in a small pool approximately one and a half miles beyond Croix Imbert containing an alga of the Spirogyra type, six larvae of albimanus were included. No members of this species are known to occur between Brochette and Croix Imbert, while beyond this point the territory is cut off from the coast by a series of high hills where both autochthonous malaria and albimanus are unknown. The presence then of Albimanus so isolated from other members of the species is difficult to account for.

At intervals trips were made to the district comprising St. Roch and adjacent villages. It consists of very uneven country at a fairly high altitude. The only water is from a few springs and the small streams issuing from them. In these deposits the few specimens of Anopheles taken were always demonstrated to be grabhamii."

Rivière Froide.

This region included the valley of the Rivière Froide from above a village of that name to a point approximately two miles beyond Croix Imbert. Eight visits were made to this region at intervals of one month or more. Stations between the proximate end of this district and Croix Imbert were designated R F A, R F B, R F C, R F D, and R F E. R F A consisted of a small group of puddles along the river a short distance above Rivière Froide. Here and then a few larvae were taken. When first found in the middle of December R F B a boskvasn and former channel, contained numerous limnetic mosquitoes, which were concentrated chiefly beneath an overhanging rock and among a heavy growth of Polygonum that occurred along the margin. Toward the end of January they became less common, and by April were entirely lacking. At that time the water had completely disappeared. Since then, though water has again returned, instead of being still it flows very rapidly, preventing Anopheles from remaining a foothold. Larvae have as a rule been present at R F C, a shaded pool near the river formed by seepage from the rocks. Nowhere they have never been numerous. When first visited in December R F D, a rocky area and pool below Croix Imbert formed through leakage from the river, provided an abundance of larvae. In January coincidently with the gradual failure of water the number of larvae declined, finally disappearing during the next month. A few places in this vicinity have at times yielded larvae in relatively small numbers, namely a seepage pool near the village and a spring just below R F D. R F E, a backwash located in the neighborhood of Croix Borde, proved unimportant. In sheltered spots throughout this section larvae may be found in small numbers.

Above Croix Imbert the valley attains a greater width. More seepage and sheltered pools are also in evidence. In the other portion of this district Krabbumi has been the only anopheline recovered from water deposits. From the catch taken November 9, 1926 in a small pool approximately one and a half miles beyond Croix Imbert containing an adult of the Spicaceus type, six larvae of albimanus were included. No members of this species are known to occur between Brochette and Croix Imbert, while beyond this point the territory is cut off from the ocean by a series of high hills where both autogethicus malaria and albimanus are unknown. The presence there of albimanus so isolated from other members of the species is difficult to account for.

It intervals trips were made to the district comprising St. Joon and adjacent villages. It consists of very uneven country at a fairly high altitude. The only water is from a few springs and the small streams issuing from them. In these deposits the few specimens of Anopheles taken were always demonstrated to be Krabbumi."

District 6.

"District 6 was a mountainous area south of Mariani and was known as Degand. As is the case of most of the elevated section in this region water deposits are few and far between and their presence governs the density of population.

A pond at Dare almost an hour's ride from Mariani has never been shown to contain larvae of Anopheles. Possibly the continually turbid water is responsible for this condition. Dare is from 900 to 1,000 feet above the sea level.

Mare Boyet at Galant with an altitude somewhere between 1,800 and 2,000 feet is the most important station from the stand point of mosquito production. It is a large pond of somewhat turbid water, which however both man and animals drink. A large mass of Potomogeton foliosus, an aquatic plant, is always present. Among this vegetation albimanus may usually be found. The following is a digest of collections made there.

January 13	-	abundant
February 5	-	spotted
March 3	-	a few ova
June 1	-	no evidence of breeding found.
November 11	-	abundant.

In all probability a few larvae were present on June 1, but were not discovered. In another pond between Galant and Degand, larvae of albimanus were taken only on November 11. This body of water superficially appears to be an ideal breeding place since it has considerable Potomogeton grass, and other vegetation growing in it. Culex has been found on each occasion. Possibly predaceous insects such as Odonata, Belostomatidae (Heteroptera), and members of the coleopterous families Dytiscidae and Hydrophilidae, all well represented, act as natural control agents.

Source Degand at an altitude of approximately 2,000 feet seems of little importance. This spring, the chief source of water in the portion of the district where it is located contains much Protomegeton. At its surface a fine layer of crystals may be the principal factor governing the sparsity of larvae found here. Only once were albimanus recovered, this being on June 1. At that time 19 specimens of this species and 23 grabhamii made up the catch. On two other occasions a few small representatives of the latter form were obtained. The spring on November 11, was so badly choked with algae that not even Culex and Aedes usually present, were evident.

Source d'Almont a small spring with its stream in a deep valley south of Galant and west of Degand persistently yielded grabhamii, but never many."

Pleasant 5.

"District 5 was a mountainous area south of Marinell and was known as Pegand. As is the case of most of the elevated section in this region water deposits are few and far between and therefore govern the density of population.

A pond at Dare almost an hour's ride from Merchant has never been shown to contain larvae of Anopheles. Possibly the continually turbid water is responsible for this condition. Dare is from 900 to 1,000 feet above the sea level.

Marc Doyot at Galant with an altitude somewhere between 1,000 and 2,000 feet is the most important station from the standpoint of mosquito production. It is a large pond of somewhat turbid water, which however both man and animals drink. A large mass of Potomogeton foliosus, an aquatic plant, is always present. Among this vegetation Albimanus may usually be found. The following is a digest of collections made there.

January 15	-	abundant
February 5	-	spotted
March 3	-	a few ova
June 1	-	no evidence of breeding found.
November 11	-	abundant.

In all probability a few larvae were present on June 1, but were not discovered. In another pond between Galant and Pegand, larvae of albimanus were taken only on November 11. This body of water superficially appears to be an ideal breeding place since it has considerable Potomogeton grass, and other vegetation growing in it. Culex has been found on each occasion. Possibly predaceous insects such as Odonata, Belostomatidae (Heteroptera), and members of the coleopterous families Dytiscidae and Hydrophilidae, all well represented, act as natural control agents.

Source Pegand at an altitude of approximately 2,000 feet seems of little importance. This spring, the chief source of water in the portion of the district where it is located contains much Potomogeton. At its surface a fine layer of crystals may be the principal factor covering the sparsity of larvae found here. Only once were albimanus recovered, this being on June 1. It that time 19 specimens of this species and 23 Pseudomallii made up the catch. On two other occasions a few small representatives of the latter form were obtained. The spring on November 11, was so badly choked with algae that not even Culex and Aedes usually present, were evident.

Source d'Aimont a small spring with its source in a deep valley south of Galant and west of Pegand perennially yielded Pseudomallii, but never many."

District 20 (Plaine Cul de Sac).

As a secondary area for study of a less intense sort than that undertaken in the principal district the Plaine du Cul de Sac received first consideration, partly on account of its proximity to Port-au-Prince, making it possible to conduct this inquiry without measurably disturbing the organized routine of the main project. In addition conditions of peculiar interest not met with elsewhere presented themselves.

That part of the Cul de Sac investigated falls readily into two groups, each represented by a definite area. The first of these includes such geographical divisions as Croix des Missions, Papeau, Goureau, Cazeau, Bois Marin, Santo, Fourgy, Lathan, Jameau, and Bon Repos: the other comprises Digneron, Galets-Dumay, Pernier, and Galets Drouillard, all situated in the general region of Bassin Général, an irrigation reservoir in the bed of the Grande Rivière du Cul de Sac among the foothills. It supplies an extensive acreage with water.

The first of these undergoes intensive cultivation, the principal crops being cane and sweet potatoes. Unless the land is constantly given over to agriculture xerophytic vegetation soon occupies it. A fair supply of ground water seems at hand which manifests itself through wells ranging from 5 to 25 feet in depth, and numerous springs.

Source Lathan, a spring along the St. Marc road, and the stream leading from it offer a fairly typical example of breeding conditions in the area under consideration. The extremely heavily shaded spring contains a great mass of Potomogeton. Owing to the overshadowing foliage only sparse breeding of albimanus has ever been noted there. Some 75 yards below where the surface is covered with a thick mat of Potomogeton foliosus, some Ceratophyllum dimersum, a little water cress, a small quantity of Lemna pauciflora and Hydrocotyle umbellata rendered the stream practically stagnant. Here among this vegetation albimanus could be obtained in abundance at almost any time.

At the end of March inhabitants of the neighborhood removed this plant matter in order to obtain a better flow of water. Then larvae nearly disappeared. On the occasion of the next visit early in May the Potomogeton had attained its former growth and larvae again swarmed among it. The Service d'Hygiène removed this mat in August, 1925 and have prevented it from regaining a foothold. Since then breeding has ceased. Similar conditions with modifications for instance such as the replacement of Potomogeton by Ceratophyllum exist at Croix des Missions, Papeau, Goureau, Fourgy, Bon Repos, Cazeau, and again at Lathan. Fish were always abundant in this spring and in the stream which flowed from it. Only small individuals were found near the surface in proximity to the larvae. Larger forms were present at

District 20 (Plaine Ouï de Sno).

deeper levels. The vegetation was unusually thick and it probably acted as a protection for the larvae. On several occasions specimens of fish were captured and preserved for future identification.

Abundance of mosquitoes and the common occurrence of malaria can be traced to another source in the portion of the plain between Croix des Missions and Bon Repos. For much of the year the bed of the Grande-Rivière du Cul de Sac contains no water between Bassin Général and above Santo. Beginning at this latter locality seepage from ground water and subterannean springs causes the formation of a series of pools in the otherwise dry river bed. Here and there the supply is sufficiently great to give rise to a sluggish current for a short distance, the water then disappearing. Such conditions were found to persist at least as far as Jameau. Along the grassy margins of these water deposits thousands of albimanus larvae are present at practically all times. Following a short period of heavy rainfall late in April all mosquitoes were swept along with the torrent. These rains led to the formation of temporary pools. Within two weeks, before a generation could be matured from these places larvae had again begun to appear in the river bed, where conditions were once more tranquil.

One other observation is worthy of note. Running directly from the river near Santo a rigole winds its way through Bois Barin and other localities to Jameau, a district along the river approximately two miles from the sea. At Bois Marin the sides had been recently cleaned, were steep, and harboured no vegetation beyond some protruding roots here and there. With a flow of about 40 feet per minute and other conditions unfavorable, the place was not deemed worthy of an examination. However the assistant having no interest in the theoretical requirements of anopheline larvae found quite a few of what later proved to be albimanus in the first dipperful. Subsequent search both here and further along the stream disclosed many.

In the district around Dumay conditions differed radically from those mentioned above. Both malaria and anophelines were exceedingly rare. The latter however could be demonstrated after an exacting search. They seemed to frequent residual puddles in irrigation ditches among cane fields and others of a non-permanent nature formed in grass or depressions. All of these no doubt resulted from rain falling shortly before (middle of April). No species other than albimanus was recovered.

By the ephemeral nature of the prevailing type of breeding place, it follows that numbers of the larvae must perish, for evaporation under the strong rays of the sun proceeds rapidly. The disappearance of these water deposits came under observation several times. Nevertheless it stands to reason that somewhere in the vicinity deposits of some degree of permanency must exist in the sector; for otherwise it is doubtful whether the species could eke out the precarious existence

it does without some such aid. Some suggestion along this line lies in the finding of larvae in a neglected irrigation ditch at Digneron, and in the branch of what appears to be a permanent stream at Pernier. Quite possibly Source Greffin situated somewhere across the river opposite from Galets Drouillard serves as a center of distribution. This point was not reached. Dr. Peterson of the Service d'Hygiène states he has found albimanus breeding at the bassin above its dam."

Hinche.

"At the request of Dr. Butler a mosquito survey comprising the town of Hinche and adjacent outlying portion was conducted during the period from May 12, to May 20, 1925.

Though considerable precipitation had falled some time previous to the arrival of the entomologist practically no rain was encountered at the time of the survey. Consequently comparatively few water deposits were met with. On the other hand a fair idea was gained of at least some of the permanent breeding places from which dissemination doubtless takes places when conditions favor their spread.

Situated on the Central Plain Hinche presents a number of topographical irregularities consisting largely of ravines. One of these contains a series of pools arranged in a step-like formation. In these larvae of both albimanus and grabhamii occurred, though not in profusion and there was less than 20% of the latter in the catch. Considerable numbers of both species were found in a small spring nearby. Here too were located a few pools lying in shallow pits. While A. albimanus occurred in such situations by far the most of the larvae belonged to the genera. Culex and Aedes. Approximately a half mile above this last mentioned area (toward Maissade) a similar series of pools occurred along the same line of drainage. Here were larvae of albimanus only and in somewhat greater numbers than below.

From the stream running back of the hospital to the Guayamouc River one larva of grabhamii was taken. However the possibility of albimanus breeding in residual pools subsequent to recession of the stream from its highest level cannot be excluded.

Opposite and below the residences of the Gendarmerie officers lie a group of native houses. Behind these the land slopes rapidly to form a small valley. Here in times of heavy rainfall a not inconsiderable area becomes inundated. Though much of the water at the time of examination had already evaporated, numerous specimens of albimanus were readily available. According to the natives this patch sometimes serves as a rice field.

A ravine consisting of a series of disconnected seepage pools passes near the market. Culex may be found in considerable numbers,

A. grabhamii rather rarely. Many of the pools were stocked with what appeared to be top minnows.

In the southwestern portion just beyond the town, in close proximity to the same stream passing behind the hospital swampy conditions were encountered. Much of this area was covered by water containing aquatic vegetation. Here albimanus bred in a spotted manner. This probably is one of the most important permanent breeding places in the district.

Along the Guayamouc a broad rapidly flowing stream, few if any situations suitable for the maintenance of anophelines were available. In some fields adjacent to it depressions which during the rainy season might be favorable, were noted.

The survey covered Hinche proper fairly carefully. A number of places likely to hold water during periods of heavy precipitation, namely linear gullies and hollows that usually pass for gutters were pointed out to the local sanitary officer. In deciding what were likely to offer trouble, the presence of species of the sedge family, members of which as a rule prefer aquatic or subaquatic environments for at least a part of their existence, served as indicative guides.

At Belladère a sluggish stream in a bottom just back of the town supported a few anophelines and hordes of Culex. Along the road a few miles west of the town was found a slowly flowing stream overgrown with Ceratophyllum among which were present large numbers of Anopheles larvae. Such a combination as this usually signifies a permanent breeding place.

Between Hinche and the main road much evidence of borrow pits formed through road building activities, was noted. Most of these were located in a sparsely settled district. That potentially most dangerous was situated near the Artibonite bridge. No breeding of Anopheles was evident in it at the time.

It should be borne in mind that the survey took place at a time when mosquitoes were at a low ebb and that conditions probably differ markedly at other seasons."

La Vanneau and La Vallée.

"This district was studied June 18-26 inclusive, and was reconnoitred by an assistant two weeks previously. It presents great topographical contrasts. The elevation varies from sea level to an altitude of approximately 2,500 feet. Since the location of many water deposits had been ascertained in advance by the assistant, the operation of scouting was considerably simplified.

A. <u>Erythrosoit</u> rather rarely. Many of the pools were stocked with what appeared to be top minnows.

In the southwestern portion just beyond the town, in close proximity to the camp extensively bordering the hospital swamp condition was very encountered. Much of this area was covered by water containing aquatic vegetation. Here <u>A.albimanus</u> bred in a spotted manner. This probably is one of the most important permanent breeding places in the district.

Along the Guayaquil a broad rapidly flowing stream, few if any situations suitable for the mutations of anopholines were available. In some fields adjacent to it depressions which during the rainy season might be favorable, were noted.

The survey covered Mache proper fairly carefully. A number of places likely to hold water during periods of heavy precipitation, namely linear gullies and hollows that usually pass for gutters were pointed out to the local sanitary officer. In flooding what were likely to offer trouble, the presence of species of the sodyo family, members of which are a rule prefer aquatic or subaquatic environments for at least a part of their existence, served as indicative guides.

At Bellavista a sluggish stream in a bottom just back of the town supported a few anopholines and breeds of <u>Culex</u>. Along the road a few miles west of the town was found a slowly flowing stream overgrown with <u>Cyperaceae</u>-like grass which were present large numbers of <u>Anopholes tarsimaculatus</u>. Such a combination as this usually signifies a permanent breeding place.

Between Hinche and the main road much evidence of borrow pits formed through road building activities, was noted. Most of these were located in a sparsely settled district. That potentially most dangerous was situated near the Arthonite bridge. No breeding of Anopholes was evident in it at the time.

It should be borne in mind that the survey took place at a time when mosquitoes were at a low ebb and that conditions probably differ markedly at other seasons."

La Vanoise and la Valise.

"This district was studied June 18-26 inclusive, and was reconnoitred by an assistant two weeks previously. It presents great topographical contrasts. The elevation varies from sea level to an altitude of approximately 2,800 feet. Since the location of many water deposits had been ascertained in advance by the assistant, the operation of scouting was considerably simplified.

In the main three types of breeding places predominated, namely lime sinks, springs, and streams. All lime sinks occurred within a short radius of headquarters at La Vanneau, and varied from 50 square feet in area to more than 20,000 square feet. In these places apparently sufficient organic matter had accumulated at their bottoms to prevent appreciable loss of water through the porous limestone. Anopheles is far more abundant here than anywhere else in the district. All specimens but one taken from the lime sinks were albimanus.

Directly in the rear of headquarters a narrow stream flowed with considerable speed. Here occurred a few specimens of grabhamii. A stream of similar type running through a ravine called Demerade, a short distance away, yielded a few of this form June 9. No trace of them could be obtained thirteen days later, after havey rains. Available breeding places in such situations, result to some extent from the accumulation of sticks and debris operating to diminish the current, and causing the formation of small eddies where the water is less disturbed. Further along in its course not far from the Rivière Gauche, into which it empties, a level area at times becomes partially flodded. Such conditions did not obtain during the investigation.

At various points along the Rivière Gauche from Trouin to a locality known as Passe Charbon, this latter point being just above the junction of the stream with the Rivière Gosseline, anopheline larvae occurred in fair numbers in residual pools, or in small ponds still retaining some connection with the main body of water. In practically all of these an ample supply of alga of the Spirogyra type was at hand. According to observations made in the Rivière Froide such situations should be frequented exclusively by grabhamii. Instead, but five of the ninety nine larvae gathered along this valley were members of this species. In all probability these proportions vary with the season. That some of these places are insecure is demonstrated by the complete disappearance of larvae where they had previously abounded, after heavy rains in the interior had materially increased the quantity of water and force of current. No breeding was noted during this period between Passe Charbon and Jacmel.

About a mile east of Jacmel along the seashore there is a small stream whose source is Source Titi back in the hills. To this place women descend from a considerable distance in order to wash garments. The stream at its mouth is dammed up by tidal action so that there it is entirely stagnant. Owing to the great amount of laundering done the water had become a dark dirty gray and was covered with a greasy scum. Yet at one point where some algae grew eight small albimanus in addition to a few ova were fished from the growth. While the refuse from washing operations provides no favorable environment for immature anophelines, apparently in some cases at least it does not check existence. In a few temporary pools near the stream albimanus flourished. Among some weeds in a little tributary of the Rivière Camm

situated somewhat nearer Jacmel, a few specimens of the same form were caught. Superficially the place seemed better adapted to meet the requirements of grabhamii.

Not distant from Jacmel, though well beyond the opposite (east) bank of the Rivière Gauche the only spring in the lowlands was encountered. It is a spring of some magnitude not unlike that one at Fourgy opposite Source Latham. It gives rise to swampy conditions, much of the area being overgrown with Typha. An extensive algal growth in poor condition floats at the surface. Fish, apparently minnows, are common and were seen nowhere else save a few in the river. Comparatively few albimanus were found. Yet it is believed that this spring and its immediate surroundings may not be without importance to Jacmel and vicinity. A short distance beyond is Mare Lama a swamp along the foothills. Numerous specimens of Aedes could be taken with each dipping but Anopheles seemed absent.

At higher altitudes entirely different conditions prevail. During a great part of the year water is found only in a few scattered springs, most of which are mere waterholes. Some few give rise to small streams. To obtain water for their needs the natives must travel a fair distance. In the main the inhabitants live in the hills while the springs are located more than 500 feet below. Of the fifteen to twenty springs in La Vallée and La Vanneau (excluding the lime sinks in a restricted area) only two, Sources Munyac and Lambert, both in La Vallée, yielded larvae, the former one, the latter two on one occasion, and again ten. Source Lambert is small and bare of vegetation except a small quantity of water cress. There is no current. Some of the larger springs come directly from the rocks with considerable force, and give rise to rapidly flowing streams. All larvae were albimanus.

It is said that in August when the rains are heavy there are many accumulations of water which were not present during the survey. In view of the fact that malaria is apparently indigenous in this region and during certain seasons is said to be very prevalent it is probable that these additional water deposits are breeding places of Anopheles. During the survey it was noted that even on the summits there are depressions in the limestone which hold water for long periods. In some cases the quantity of water is sufficient to serve as a temporary supply for cooking and washing. Some of these deposits were investigated near the western limit of La Vanneau. Only Culex was found.

Camp Perrin.

"The study of Camp Perrin and vicinity covered the period from July 25, 1925, to August 3, inclusive. A variety of conditions was met with. Insofar as breeding conditions were concerned it is believed a fair idea of them was obtained, at least for that period of the year.

The elevation of Camp Perrin probably reaches approximately 500 feet. This section receives a good water supply from a number of streams, those chiefly concerned being the Ravine du Sud which passes through Camp Perrin on its way to Cayes, and its branches, Ravine Moreau and Ravine du Parc. The last was partly dry and consisted principally of a series of seepage pools. A large irrigation having its beginning a half mile above Camp Perrin parallels the Ravine du Sud, though as a rule it does not come in close proximity to it.

Practically no small irrigation ditches such as occur abundantly in the main district were noted. Due to this, mosquito production depends more directly upon rainfall, especially so since only hill rice is cultivated.

Topographically the district may be divided roughly into two parts, that west of the Ravine du Sud tending to become quite irregular, numerous streams flowing through valleys, which as a rule are considerably wider than that of the Rivière Froide. Some of the hills probably attain an extreme altitude of 2,000 feet. A short distance eastward of the stream quite different conditions obtain. There the country is much more level.

While anopheles seemed to be distributed throughout the area yet material could seldom be found in abundance; and as a rule breeding places were well scattered. Both those of a permanent and temporary nature were located. Arbitrarily and in a rough manner they may be grouped as follows:-

Permanent.		Temporary.	
Pools occupying dry stream beds --	3	Rain pools ----------	5
Pools connected with streams -----	2	Miscellaneous -------	1
Branches of streams----------	2		
Sides of large streams----------	3		
Springs----------	1		
Miscellaneous----------	3		

A glance at the tables will reveal the fact that larvae were not often captured in numbers, since on no occasion did the number of specimens reach fifty, within a maximum period of a half hour. Observations also indicate that anopheles find in temporary rain pools a favorable environment, especially so in the presence of an abundance of grass. During the period of the survey very little rain had fallen, so it cannot be definitely stated how far this tendency manifests itself. Along a road parallel to the Ravine du Parc no anophelines were observed. On the other hand a species of Psorophora, probably pygmea, abounded. Since a division of this genus possesses predaceous and even cannibalistic habits, the presence of these larvae may account for the absence of anopheles.

The elevation of Camp Perrin probably reaches approximately 500 feet. This section receives a good water supply from a number of streams, those chiefly concerned being the Ravine du Sud which passes through Camp Perrin on its way to Cayes, and its branches Ravine Morenu and Ravine du Pere. The last was nearly dry and consisted principally of a series of scooped pools. Large irrigation ditches, its beginning a half mile above Camp Perrin parallels the Ravine du Sud, though as a rule it does not come in close proximity to it.

Practically no small irrigation ditches such as occur abundantly in the main districts were noted. Due to this, mosquito production develops more directly upon rainfall, capacity as since only hilly rice is cultivated.

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Malaria anophelines seemed to be distributed throughout the area but numerous could be found in abundance and as a rule breeding places were well scattered. Both types of a permanent and temporary nature were located. Arbitrarily and in a rough manner they may be grouped as follows:-

Permanent.	Temporary.
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Branches of streams ---------- 3	
Sides of large streams ---------- 3	
Springs ---------- 3	
Miscellaneous ---------- 3	

A glance at the tables will reveal the fact that larvae were not often encountered in numbers, since on no occasion did the number of specimens reach fifty, within a maximum period of a half hour. Observations also indicate the fact anopheles fluctuate in temporary rain pools a favorable environment, especially in the presence of an abundance of grass. During the period of the survey very little rain had fallen, so it cannot be definitely stated how far this tendency manifests itself. Along a road parallel to the Ravine du Pere no anopheline were observed. On the other hand a species of Psorophora probably Pygmaeus abounded. Since a division of this genus possesses predaceous and even cannibalistic habits, the presence of these larvae may account for the absence of anopheles.

In the section where malaria apparently prevailed to a greater extent than in others, Habitation Moreau, more and better breeding places exist. This is especially true of a valley which is partially inundated during periods of heavy rains. The presence of aquatic and semi aquatic plants in grassy areas tend to confirm this. Several branches of the Ravine Moreau more or less permanent in character are located there. One of these consisted at the time of a series of pools, then becoming totally dry. Most of the flooding evidently occurs near this branch. Others contain great quantities of Ceratophyllum, Potomogeton, and Spirogyra. Where this vegetation thinned out somewhat albimanus was found in fair numbers. Several other streams in this vicinity heavily overgrown with Typha Eleocharis and Polygonum contained no anophelines. Further down along the main stream in the Habitation La Roche ponds and pools barely connected with the creek proved to be centers of anopheline production. In the last section were several temporary rain pools along the road in which albimanus larvae were relatively plentiful.

At Constant at an altitude of more than 1,000 feet a small spring yielded a few larvae of albimanus. In another along a hillside nearby results were negative.

Both albimanus and grabhamii occur throughout the area. The latter seems to exercise a preference for streams in the hills. This form predominated in the Ravine du Parc as well.

Excellent control through the agency of fish was noted in two instances. In the first of the branches mentioned as flowing into the Ravine Moreau at Moreau exceedingly few anopheline larvae were encountered, unless sheltered by a thick growth of aquatic vegetation. In spite of the fact that albimanus makes every effort to hold its own, as evinced by the number of ova found, but few larvae reach maturity. Practically none of those taken had passed in development beyond the second instar. In one of the pools in the bed of the Ravine du Parc minnows were present in enormous numbers. No mosquito larvae of any sort existed along with them. A large tree divided this pool into two parts. In the other division very few fish were observed. There both anophelines and culicines thrived. The difference in abundance of fish evidently accounted for this disparity.

Several large ponds or small lakes, to which nothing similar exists in other areas studied, contribute an interesting feature. Three of these Etang La Roche, Etang Dount, and Etang des Cocoyers were studied. These contained turbid water in which some quantities of aquatic vegetation grew. Few larvae, all albimanus were caught.

In relation to malaria the city of Cayes and contiguous territory present problems most difficult of solution. Both within and beyond the city limits lie vast tracts of swamps. Moreover along the shore wave action and tidal currents close up many streams with sand dams. Still another difficulty, lack of a grade all but prevents

drainage. With what resources he has available Dr. Powell is making appreciable strides. The course of one large stream running through the town has been made straight, and all vegetation removed. Innumerable fish are able to prevent breeding. A large swamp within the city has been effectually drained by means of well placed ditches. Another season should make decided difference in the type of vegetation prevailing. Furthermore Dr. Powell is striving to induce cultivation of this area, which in colonial days supported excellent sugar crops. Small bogs, of which there are many, are being filled in as rapidly as possible. Palliative measures such as petrolization are being carried out as well.

Cayes in great part receives its water supply through the medium of shallow wells. These have proved prolific breeders of anopheles and contributed greatly to malaria production. This obstacle has been overcome by the introduction of fish which have thus far thrived in wells of this type. The occurrence of anophelines under these conditions coincides with the findings on the Cul de Sac. Neither albimanus nor grabhamii has ever been taken in deep wells there, though a few have been found in those not exceeding a depth of six feet."

Port Margot-Bayeux.

"The secondary area studied from September 4 to 17, and six days previously by an assistant consists of a narrow valley, the most extensive found in any area studied. Roughly it is limited on the north by the sea at Bayeux by Port Margot four miles away in the opposite direction by the river Limbé along its eastern margin, and a range of high hills to the west. A series of elevations approximately parallels the eastern bank of the Rivière Limon, a meandering stream occupying a more or less central position in the area. This, its branches Corail, Valereau, the Bertrand a tributary of the Valereau, another branch of the Limon running into it north of Port Margot (in the rainy season), the rivers Limbé and Bas Petite Borgne, provide an adequate water supply.

The period of the survey coincides with the conclusion of the dry season. At this time many deposits had been rapidly disappearing. Some along the Rivière Limon which had contained an abundance of larvae were entirely dry a week later. A spring considered the chief source of the Rivière Bertrand contained no water. The stream through other means, and the Rivière Valereau however, continued to maintain a fair flew. Other branches such as the Corail are apparently flood streams. Their beds are rather extensive and strewn with large boulders. Here and there springs lead into it. After a short distance water coming from them disappears. A grest cattail swamp west of the Rivière Limbé contained no water at all. In the rainy season it cannot be traversed.

The Rivière Limon and its tributaries proved to be by far the

most important producers of anopheline larvae. Throughout the length of these streams they could be demonstrated in varying numbers.

Quite different conditions obtained however along the flood tributaries. Seepage pools emptying into them here and there all served as breeding places of both species of Anopheles. In only one of these did grabhamii occur exclusively (42). These deposits and those in permanent streams doubtless function as the principal anopheline reservoirs of the district.

From a casual examination one would conclude that the upper portion of the Rivière Bas Petite Borgne was favorable for grabhamii only, if for any anopheline. Here the current passes along quite rapidly, the stream bed is decidedly rocky and no vegetation lines its banks. For the most part large trees prevent an appreciable amount of sunlight from penetrating. In the hollow base of a Ficus tree somewhat less than a half mile before the creek reaches the open (24) albimanus occurred along with grabhamii. In all respects the situation appeared to better fulfill the requirements of the latter form. Incidently the discrepancy in the percentage of the two species represented on two occasions is not without interest.

The Rivière Limbé is the largest stream in the region. Its course to quite an extent lies among a mountainous section in the interior where considerable rain fell during the time of the survey, causing a decided increase in both current and volume. Though the banks were thickly lined with grass larvae were exceedingly rare (37) and were found only after a painstaking search.

In part the presence of vegetation makes for conditions favorable to larvae, particularly albimanus, both as regards to protection from predaceous enemies and the production of suitable food. But if Lemna grows in such profusion as to entirely cover the surface larvae will invariably be absent. In a pond so covered near Bayeux (17) a few culex were found along a slight break in the vegetative cover. When found in a spotted condition, that is, a few clumps of plants found here and there, lemna served as an efficient protector of albimanus. Azolla caroliniana, a small aquatic pteridophyte or fern occuring in both Europe and North America has been found in this area, where it occupies a position similar to the preceding in relation to albimanus when present in small clumps. Nothing can be stated as to its influence when covering the surface. Along the main road to Limbé a species of Marsilia closely allied to if not identical with M. quadrifolia, the water shamrock of the temperate zone, was a noticeable constituent in fairly deep ponds. In the United States it usually frequents open water. Not unlikely it is capable of offering adequate shelter to mosquito larvae as did water lilies in the case of 38.

One circumstance that tends to maintain breeding at a high level

along the Rivière Limon and some of its tributaries is the custom of the natives to erect barriers across these water ways as an aid in catching fish. Bamboo enters principally into their construction, though due to their abundance rock and stone were used at one place along the Rivière Bas Petite Borgne. Gradually debris accumulates and these barriers cause a diminution in the current. While grass and weeds grow along the margins of these streams practically throughout their course, albimanus is more likely to be found in greater abundance along with algae, behind these dams.

The Valereau and Bertrand being entirely valley streams are naturally sluggish, owing to the slight grade in the territory they traverse. They derive none of their supply from the mountains where the rainfall seems to persist over a greater period. This leads to stable conditions and the mosquitoes more than hold their own except in times of heavy rainfall. As the dry season progresses current and water volume decrease and more concentrated breeding sets in.

In two cases rigoles led from streams to cane mills, an adequate supply of water being essential for their operation. One of these form the Rivière Valereau ended in a sump cane mill, whence it was pumped to the apparatus. It was practically stagnant throughout its short course. At its extremity were a few floating banana leaves, some "mombe" fruit, and small masses of Azolla (16). Larvae of albimanus abounded among this comparatively small quantity of material in spite of numerous minnows. Several days later the fish had migrated.

The other rigole led from the Rivière Limon to the sugar mill at Bayeux. Before reaching the mill the stream runs beneath the road by means of an inverted siphon. Due to this the rigole becomes stagnant before entering the subterannean passage. A considerable quantity of debris consisting of "mombe" fruit and twigs covers one portion, and adjacent to this numerous small leaves completely covering the surface have accumulated. In the first section Culex and Anopheles existed in great numbers but among the leaves there were none. Many open spaces persisted among the sticks and "mombe" giving the respiratory apparatus direct contact with the atmosphere (30). That albimanus is very sensitive to surface conditions can be demonstrated by another instance. A permanent pool near the Rivière Corail (21) yielded twenty specimens when first visited. Later after a surface scum of dust had formed but one was recovered. Below the sugar mill cane refuse flows into the rigole supplying it, sometimes coloring the water almost black. In spite of this pollution four mature albimanus larvae were taken, a fact that suggest considerable adaptability in this form when necessity demands it.

The appearance of the general topography of the valley leads one to the opinion that during the rainy season much water accumulates, providing excellent breeding places. Many roadside ditch beds,

some of which attain a depth exceeding three feet, totally lack outlets. At Bayeux especially, ditch beds completely choked with vegetation were frequently seen. According to an employee of the sugar company such vegetation is removed each year: how adequately however, was not stated. Many other depressions suitable for retention of water were observed. All this combined with the extremely heavy rains and resulting residual pools everywhere, would seem to indicate opportunities for a high anopheline density.

Since some filariasis occurs at Bayeux a few observations as to the source of numerous specimens of Culex quinquéfasciatus, both male and female, found daily subsequent to six p.m., seemed desirable. In a well nearby both egg rafts and other immature stages of this form were found. Within one hundred yards two other pfolific sources were uncovered, one in a ditch containing stagnant water, the other in an accumulation of dirty fluid beneath a shed at the mill. Search of crabholes near the house used as a residence and farther away yielded only aedine mosquitoes, which were never observed within the dwelling. Owing to their depth and corkscrew formation the bottom of these crabholes, where breeding of some sort doubtless occurred, could not be reached. At no time was Aedes (Stegomyia) aegypti found, a fact which caused some surprise since this form exists at all other coastal points visited."

Le Trou.

"The territory comprising the regions of Le Trou, Ste. Suzanne, Coutlette, Roche Plate, and adjacent land was covered by an entomological survey during the period between September 21, and October 8, 1925, inclusive. Within this area are included conditions varying from those found at sea level to an altitude of above 1,500 feet; and while some localities lacked a plentiful rainfall at the time showers occurred in others almost daily. Since the rains were tardy in arriving, the following discussion will in the main be restricted to those breeding places in which anopheles were enabled to hold over through the dry season.

Le Trou, the chief settlement of the region owes its importance to a location upon a small stream, the Rivière Le Trou, thus being assured a permanent water supply, and along the main thoroughfare from Cap-Haitien to San Domingo in addition to being the mart for the products grown for some distance back in the hills. On the whole this commune and much of the adjoining country consists of untilled land covered chiefly by logwood and acacia trees. Toward the south this semi-xerophytic area terminates at the base of a range wherein lies Ste. Suzanne. No water is met with south of the Rivière Le Trou until one reaches the extensive springs along the hills bounding Ste. Suzanne, three miles away. No larvae occur at the springs. At the river conditions vary. Between Habitation Froche and Le Trou larvae were found at various points, grabhamii predominating where

trees provide shade (nos. 1, 9, and 11), albimanus at more open situations (nos. 2, 6, 8, 10).

Between Le Trou and Limonade eroded stream beds denoted the presence at times of rapidly flowing bodies of water. This section is given over almost exclusively to logwood. Less than two miles away from Limonade lies a large pond of decidedly turbid water. When held close to the nostrils a putrid odor is discernible. Pigs and other domestic animals frequent this pond. Laundering operations are carried on there. Along one portion of the margin among an abundance of acacia leaves and fine debris at the surface many larval albimanus thrived. This instance illustrates the adaptive powers of the species in being able to exist under manifestly unfavorable, or at least non-preferred conditions.

Within the limits of Limonade proper a little trough contained water from a well nearby. It was dug for the use of pigs, though apparently not utilized for that purpose and harboured many albimanus. The majority of homes in this town derive their water supply from wells ten to twenty five feet from the surface. Some of these were examined. No larvae were taken but since the equipment available was inadequate the possibility of their presence was not excluded.

One of the surprising though by no means unimportant sources of albimanus lay in a series of pools occupying the bed of a tributary of the Rivière le Trou at a place known as Carrefour Jacquesy, a short distance south of Post Chabert (4). This station was found in the midst of the extensive xerophytic area continuing from Le Trou, through Post Chabert, and beyond Caracol. Water was present only as series of pools. Larvae of albimanus occurred in a spotted manner. Since the rainy season had not set in it seemed logical to assume that water may be found here throughout the year.

Those dwelling at Caracol obtain water by digging holes in a temporary creek bed. At this time of the year no other source is available. No trace of larvae could be found in salt water pools which superficially appeared favorable for the development of albimanus. The Rivière Le Trou in its course gradually decreases in width till finally it disappears beyond Post Chabert.

East of the Rivière Le Trou along the road to Ouanaminthe there is a little village called Croix Jésus. A roadside pool (no. 3) in this locality in which there was breeding of Anopheles was of interest since the nearest known permanent breeding place was along the stream, about one mile away. Ordinarily such deposits did not play an important part at that season because they disappeared before larvae had an opportunity to reach maturity. In many roadside pools where there was wallowing by hogs albimanus was absent. There were numerous borrow pits along the road but the sandy nature of the soil prevented the accumulation of water in them at that time.

trees provide shade (nos. 1, 9, and 11). *Albimanus* at more open situations (nos. 2, 6, 8, 10).

Between Le Tron and Limonade eroded stream beds denoted the presence at times of rapidly flowing bodies of water. This section is given over almost exclusively to logwood. Less than two miles away from Limonade like a large pond of decidedly turbid water. When held close to the nostrils a putrid odor is discernible. Pigs and other domestic animals frequent this pond. Loundering operations are carried on there. Along one portion of the margin among an abundance of brook leaves and fine debris at the surface many larval *albimanus* thrived. This instance illustrates the adaptive powers of the species in being able to exist under manifestly unfavorable, or at least non-preferred conditions.

Within the limits of Limonade proper a little trough contained water from a well nearby. It was dug for the use of pigs, though apparently not utilized for that purpose and harboured many *albimanus*. The majority of homes in this town derive their water supply from wells ten to twenty five feet from the surface. Some of these were examined. No larvae were taken but since the equipment available was inadequate the possibility of their presence was not excluded.

One of the surprising though by no means unimportant sources of *albimanus* lay in a series of pools occupying the bed of a tributary of the rivière le Tron at a place known as Carrefour Jacquesy, a short distance south of Post-Chabert (4). This station was found in the midst of the extensive xerophytic area constituting from Le Tron through Post Chabert, and beyond Carreaul. Water was present only as series of pools. Larvae of *albimanus* occurred in a spotted manner. Since the rainy season had not set in it seemed logical to assume that water may be found here throughout the year.

Those dwelling at Carreaul obtain water by digging holes in a temporary brook bed. At this time of the year no other source is available. No larvae could be found in such water pools which superficially appeared favorable for the development of *albimanus*. The rivière le Tron in its course gradually decreases in width till finally it disappears beyond Post Chabert.

East of the rivière le Tron along the road to Ouanaminthe there is a little village called Croix Jeune. A roadside pool (no. 3) in this locality in which there was breeding of *Anopheles* was of interest since the nearest known permanent breeding place was along the stream, about one mile away. Ordinarily such deposits did not play an important part at that season because they disappeared before larvae had an opportunity to reach maturity. In many roadside pools where there was wallowing by hogs *albimanus* was absent. There were numerous borrow pits along the road but the sandy nature of the soil prevented the accumulation of water in them at that time.

Roche Plate the section southeast of Le Trou possesses a much richer water supply, which consists of small fairly rapidly flowing streams. The majority of these empty into the Rivière Le Trou, which, except for a short distance, is too bare and swift of current to sustain mosquito life. At the time of the survey some of these streams hadundergone a process of drying which resulted in the formation of a series of pools, in most cases well shaded. With but few exceptions grabhamii proved to be the only anopheline present.

Just beyond the northern boundary of Perche, the region southeast of Roche Plate, a spring fairly well filled with Ceratophyllum, Potomogeton and other aquatic vegetation, was discovered. Albimanus occurred there in countless numbers. This spring it seems should be able to provide a considerable territory with this species when conditions permit its spread.

Rather surprising was the fact that grabhamii occurred even in temporary pools (23). In other pools occupying the beds of more or less permanent streams their presence can be explained on the basis that specimens found there represent holdovers, and that with the coming of the rains conditions for the usual requirements of grabhamii are fulfilled (Nos. 11, 12, 25).

At Ste. Suzanne and Cotelette, larvae, in the majority of cases grabhamii, were found as at Roche Plate along streams. Located as these water courses are at higher elevations their currents have a somewhat swifter flow. Except in sheltered spots here and there very little breeding was noted. A spring below the Ste. Suzanne road offered what appeared to be the most favorable conditions for albimanus. At the time it was so heavily overgrown with a Spirogyra like alga that Uranotaenia alone abounded. Occasionally natives clean the springs upon which they depend. Following such operations albimanus might be expected to increase. Ste. Suzanne and Cotelette receive a heavier rainfall than other sections of the district. Showers were of almost daily occurrence at the latter locality.

On the whole, conditions for the propagation of albimanus seem most favorable along that part of the Rivière Le Trou extending from the lower (northern) portion of Roche Plate through Le Trou. Springs such as that in Perche (14) likewise are of significance."

Fort Liberté.

"Two mornings, those of October 11th and 12th, were given to a consideration of Fort Liberté, a notoriously malarious district approximately twenty miles northwest of Le Trou. One need not go far to seek the reason for the prevalence of fever. In the very center of the town excess water from the community pump flows into a furrow alongside the main street, giving rise to a fertile source of larvae.

Of greater significance is a very extensive cattail marsh to

the west and south of the town. The margins only could be studied, deep water preventing further penetration. Larvae occurred in a spotted manner, being abundant chiefly where water had invaded land covered by short grass. Many could also be found where Heteranthera limosa grew in extensive patches, owing to the manner in which it proliferates over the surface, forming a network which offers ideal protection. Here and there Azolla caroliniana replaced Lemna as at Bayeux. In all places examined albimanus occurred to the exclusion of grabhamii.

According to the statement of an officer of the Gendarmerie the swamp was begun by excavation by the French who utilized the material drawn therefrom in the manufacture of bricks. Gradually water from creeks and springs gave rise to marshy conditions. Apparently the changing of the bed of the main stream of the region also aided this transformation. At present this water covered land represents an area of more than a square mile."

Attalaye.

"An entomological survey of San Michel d'Attalaye and adjacent areas included the period from October 16th to the 22nd. A meager rainy season had already come to an end. As a part of the Central Plain, this section bears much resemblance to the territory about Hinche.

The extensive plantation here is of interest, since malarial fevers have contributed to giving the locality an unsavory reputation. During the time when forces of the occupation were stationed here many of its members were affected. In general the land is fairly level, though there is sufficient grade for good drainage. Traversing this area are a number of ravines some dry, some partially so, still others containing water for practically their entire length. Trees seldom occur except along their banks. Where the soil is not cultivated a heavy growth of high stringy grass locally known as "Madame Michel grass" covers the surface. Since but a small portion of the plain is being devoted to agricultural purposes, this plant occupies thousands of acres.

North of the plantation the valley of the Rivière Attalaye is quite narrow, its banks well shaded by trees. As one proceeds up the stream this gives way to a fairly broad valley possessing somewhat the characteristics of an undulating plain. Here a small spring fed stream meets the larger body of water, the area it traverses being designated as Habitation Gonya. Above this junction the river again becomes closed in by high sides. Below (southeast) the plantation the Attalaye passes through grass covered land, though trees line its banks.

Petit Mil, region southeast of Attalaye was also investigated. The population seems restricted to the neighbourhood of a ravine. Surrounding this area one finds the usual grass land.

On the plantation efforts were first directed to the ravines. Frequently their flow had very little force. In one of these (5) a barricade of leaves, sticks, and miscellaneous debris that accumulated against a barbed wire fence thrown across effectually halted the feeble current. Here a number of anophelines were found. In most of the ravines running through the plantation larvae occurred sparsely.

Artificial deposits however contributed far more important breeding places. Foremost of these were very small pools formed through continuous leakage from a large wooden tank (13) in which albimanus was abundant. Hoofprints a hundred and fifty yards distant contained a few. Some inhabited a well within the northwest limit of the estate near the San Michel road. On the few occasions albimanus has been taken in artificial containers of this type the surface water had never been so far, six and a half feet, beneath the ground.

Important breeding foci of albimanus occur along the stream leading from the spring at Gonya to the Rivière Attalaye. Below this point breeding of significance continues along the latter here and there up to the plantation. Above the junction grabhamii appears as the main form, which would be expected judging from the rapid flow and the shade prevailing. Albimanus however did not entirely disappear.

Below the source of the tributary at Gonya larvae of albimanus were taken in abundance in seepage and among aquatic vegetation so thick in growth that no current was noticeable (15). Further down in rapidly flowing water they were protected by discrete masses of Potomogeton (14). The Rivière Attalaye between the junction and plantation from all appearances ought to provide excellent facilities for grabhamii. Yet at stations 10, 11, and 12 this form was practically lacking, while above (station 17 and 18) and below (station 1, 2, and 3) this stretch grabhamii contributed a far greater proportion.

Petit Mil is also a malarious district. All breeding at this time could be traced to the sluggish ravine running through the region. Albimanus larvae tended to predominate in the open pools. As one searched further up the ravine in shaded areas grabhamii replaced it. Still further the stream ceased to be continuous. Where pools remained only grabhamii was evident."

Ecological considerations.

The principal water deposits in which Anopheles bred may be readily separated into five main groups, namely: rice fields, springs, irrigation ditches, seepage areas, and temporary deposits.

Rice fields. The rice fields of importance are those of valley or lowland rice in the culture of which the flooding of the lower part of the plant with water plays such an important part. Breeding in fields of hill rice occurs only in accidental water deposits of a temporary nature.

The culture of lowland rice depends on the abundance of the water supply and it is upon this factor that the seasonal cycle of its growth depends. The fields of the principal area have two main sources of supply, springs, either on the property or connected to it by irrigation ditches, and the Rivière Froide from which an extensive system of primitive irrigation channels spreads over the plain. Some of the fields have an abundant supply of water throughout the year and their owners are not restricted to a definite season for cultivation. Others are associated with a less reliable water supply so they are limited to the rainy season for rice growing and use the land for other purposes during the dry season. In general, rice for lowland cultivation is first planted in seeds beds which often are not in the fields themselves but may be in the court where the laborer lives. The young rice is transplanted in June and at this time the previously prepared field is flooded with water to a depth of about three inches. As a rule the Haitian cultivator takes no great care about the regulation of the amount of water in his field. His methods of controlling it are primitive in the extreme and the presence or absence of water at any given period of cultivation depends more on the conditions of his source of supply than on any special care on his part.

There are, therefore, some fields which receive an intermittent supply of water and may, at times of slight rainfall, be dry. These are the fields where many cultivators share the water from a single irrigation ditch. There are such fields in Brochette and Thor. The uncertainty of their water supply prevents extensive breeding. Through some fields the water flows so rapidly that the larvae are unable to maintain themselves. In others there is inadequate provision for flow of water and it becomes stagnant. Here albimanus may find suitable conditions for its growth. Such fields were found at Brochette, Mahotière, and Carrefour.

Those rice fields which are directly supplied from springs are characterized by slight but continuous flow of water and by the frequent presence of algal growth. In such fields anopheline breeding at times becomes very marked. The important stations, 1, 5, and 20 are all of this type. There are other fields with similar continuous supplies of water from irrigation ditches such as stations 19 and 15.

Finally, there are the rice fields which are located on land which is permanently swampy. The coastal area from Lamentine to Mariani is of this description. Such land supports no other crop in the intervals of rice cultivation and provides breeding places for albimanus throughout the year, and during the cultivation of the rice crop the larvae are abundant.

The results of the studies of breeding will show that the period of greatest abundance of larvae, the height of the period of rice cultivation, and that of the principal rainy season were coincident. At this time the catches from the fields exceeded the sum of those captured from all other regions.

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Springs. In the principal area springs were not of such great importance as sites for breeding as in some of the other areas studied. There were numerous springs scattered through the area which were at times sources of grabhamii but breeding in them was subject to wide variations. In the Cul de Sac, District 20, on the other hand, springs were sources of prolific breeding of albimanus. The same fact was observed in some of the other secondary areas which have already been described.

Irrigation ditches. The presence of larvae in irrigation ditches depended upon the rate of flow and the character of the margins. In the principal area relatively few of them harbored immature anophelines. Stations 13 and 15 may be considered representative of this type. Again there were important differences in this regard between the irrigation ditches of the different areas studied.

Seepage areas. Seepage areas probably next in importance to rice fields as sources of anopheline breeding. They differ considerably in origin. The water may come from springs, streams, leaky irrigation ditches or pipes, or it may issue directly from the earth, due to some fissure in the limestone formation. Station 6 was most important with station 20 following. Although in some cases breeding did not reach a high level these deposits enable the species to live over the unfavorable season.

Temporary deposits. Temporary deposits in the area were relatively unimportant. Practically all were formed by rains. It was found that at times there was abundant breeding in puddles formed in depressions between hills of sweet potatoes. Borrow pits were of importance after heavy rains. These were located at Petite Saline, at the extreme edge of the area and were of two types. Some were in grassy soil and others in stony places. Only one station which was regularly studied fell in this group. It was station 7.

Environmental preferences of the anopheline species. In general the two anophelines known in Haiti show distinct preferences in regard to the environment in which they breed. A. albimanus occurs chiefly in the open in still clear water containing an appreciable quantity of vegetation. A. grabhamii, on the other hand, tends to choose deposits of "live" water, especially shaded streams and sometimes springs. Although this species may occur in rapidly flowing streams, it is not likely to be exposed directly to the action of the current. The larvae are more likely to be found in a somewhat sheltered spot such as an eddy or backwash. Such an environment usually contains less vegetation than that sought by A. albimanus and may be entirely free from microscopic plant life. Of course there are numerous exceptions to this generalization for many times A. albimanus larvae have been taken in the environment prefered by A. grabhamii and vice versa. Each species has been noted in the crab-holes in a few instances.

In the principal area albimanus seldom occurs at the higher

altitudes. It is believed that it is not the altitude itself which acts as the hindering factor but rather the fact that the water deposits there are springs and narrow, swift streams which do not offer favorable conditions. A. albimanus larvae were found once in the valley of the Rivière Froide at an elevation of about 1,300 feet, again in the Momance River where it approaches the Rivière Froide at an elevation of about 1,000 feet. They were also taken at higher elevations in the secondary areas, at Galant, La Vallée, and Attalaye.

Temperature seems to exert little influence upon the distribution of the species. There are indications that A. grabhamii may be restricted to water ranging from 66° F. to 80° F. Albimanus is usually found in a medium the temperature of which does not exceed 80° F., though it seems to flourish within the range between 64° F. and 102° F. If temperature be taken as a criterion the latter must be considered the more adaptive form. Temperature readings fluctuate with the time of day and with the depth of the water. Only in very shallow deposits does the thermometer show a reading higher than 100° F.

Hydrogen-ion concentration. No differences in selection on the basis of reaction of the water could be demonstrated. By means of comparator sets with methyl red and bromthymol blue as indicators hydrogen-ion concentration readings ranging from 7.2 to 8.5 were obtained. The majority of the samples were within the range between 8.0 and 8.4. This is the type of reaction which was to be expected in a limestone formation such as that of the principal area.

Turbidity. Few deposits contained water that was not clear. The water at station 6 and 8 was colored at all times and both of these were heavy and steady producers of A. albimanus. The color at station 6 was apparently due to a soluable constituent in the soil, for water placed in a freshly dug depression would quickly assume the light brown shade of other water found in the vicinity.

Salinity. No instances of breeding in sea water could be found for all deposits of this nature in the principal area are affected by tidal action. On one occasion a few anopheline ova were found in such a deposit but no larvae appeared there. The greatest salt content was found at station 6 which is near the shore. Analysis made by Mr. Gault at the Haitian General Hospital showed 0.183 grams of chlorine per 100 mils or 0.3 per cent sodium chloride. Sea water averages about 0.4 per cent sodium chloride.

Influence of laundry soap. Mac Gregor, writing on the anophelines of Mauritius, attributed the lack of breeding in some favorable situations to the action of laundry soap. In many Haitian streams where there is much laundering no larvae can be found. Often, however, these streams have swift currents which in themselves would be unfavorable to the larvae. It must be admitted that the addition of soap and dirt does not render the environment more favorable to

anophelines but in several instances a few larvae of one species or the other were captured in water decidedly discolored by these contaminations.

Vegetation. Vegetation plays a very important role in the environment of anopheline larvae, particularly those of A. albimanus. There are two main classes of important plants those which are entirely aquatic and those which are terrestrial and line the margins of water deposits or happen to be partially covered with water.

Spirogyra or a closely related genus of blue-green algae was constantly encountered. It was usually in springs or quiet deposits but was occasionally found in running water. In the rice fields this plant formed islands about the bases of individual rice stalks. With the growth of these islands A. albimanus would increase in numbers up to a certain point; but when a rank growth developed the larvae would soon disappear. In cases where this plant had begun to deteriorate, few or no larvae of A. albimanus could be found. Under the favorable conditions of the early growth of the islands the larvae could even be taken in running water.

The sensitiveness of A. albimanus to surface conditions is well shown by its relations with Lemna pauciflora, another aquatic plant. In small clumps it furnishes excellent shelter. On the other hand, a heavy stand over the entire surface completely inhibits mosquito production. The thickest growth of Ceratophyllum and Potomogeton does not prevent the development of larvae for they can always find interstices between the branches and divisions where they flourish. No more favorable situation for A. albimanus is known than that provided by the last two plants.

Several workers have reported on the deleterious effects of Chara upon mosquito development. Wherever met with in Haiti it has proved distinctly beneficial. This is particularly true in the coastal rice fields during the first half of the year.

Weeds and grass along margins of streams tend to promote mosquito production. Instances of flooded grass lands have been observed in which with each flood A. albimanus larvae became numerous and remained so as long as the water persisted. Station 6 is, in part, an example of flooded grass lands. Larvae are seldom taken where Polygonum and Tradescantium form a heavy growth above the surface.

Debris. The presence of surface debris is frequently a potent influence governing the development of larvae. Fine floating particles are favored by both species on account of their protection. Immobile larvae among such material can be detected only with difficulty. A few observations indicate that fish also fail to notice them. In addition, algal forms often adher to surface debris and can serve as food. At station 16 a heavy growth of Tradescantium (wandering jew) prevented the occurrence of anopheline larvae in numbers. Some

Eleocharis which grew there was cut at the surface and some of the severed material remained as floating debris. Within a short time, a colony of A. albimanus larvae was concentrated in this spot. A spring at Fourgy, on the Cul de Sac, seldom contains many anopheline larvae owing to the activities of fish. Cutting of a group of Eleocharis was also followed by heavy breeding.

A pool before the inverted siphon in the canal supplying the sugar mill at Bayeux with water has already been mentioned. Among the floating debris of seeds in one part of the pool, breeding of anopheles was heavy. A few feet away, where the surface of the water was thickly covered with leaves there were no larvae. This again shows how sensitive are these larvae to slight variations in surface conditions.

Rainfall. Local rainfall, as such, apparently does not exercise any marked influence upon the mosquito production in the area since the water supply of the most important breeding places is dependent upon other sources. Quite as much influence is exerted by rains many miles away in the mountains as by local showers. It is the water from these distant rains which carries away larvae from many breeding places and also in times of flood fills the rice fields and makes many temporary deposits. The erosive effect of the heavy rains of the middle of November 1925 was so great at stations 1, 5, 13, 15, 21, and 22, that breeding practically ceased. These stations were all connected with irrigation ditches in which the torrents carried every thing before them. Stations which were not dependent upon irrigation were relatively little effected. Because of the large area of breeding places which were rendered unsuitable, A. albimanus concentrated at station 15 in large numbers for oviposition. During the previous year the predominant species at this station and season had been A. grabhamii but this change in surrounding conditions caused A. albimanus to predominate during December, 1925.

Fluctuations in the abundance of the two anophelines under discussion are shown in graphic charts. As in the case of A. quadrimaculatus and A. punctipennis there is in each case an annual season of abundance and in the case of A. grabhamii there is a season of almost complete disappearance from April to December. The period of abundance of this species begins in December and in some breeding places ends in February. During this time its breeding spreads from its usual haunts to the coast, only to withdraw again within a few months. The fluctuations of A. albimanus are not so well defined but there is a definite period of abundance during October, November, and early in December, with subsequent recession. In some localities in the principal area and especially in the Plaine du Cul de Sac breeding continued at a high level throughout the year.

Fish. Fish, especially top minnows, stand out as leading enemies to immature mosquitoes. Along a broadened portion of a rigole at the Thor-Mahotière road efficient control appeared to be accomplished

through this agency. Abundant oviposition occurred in this locality but there were seldom more than a few small larvae taken and they were found where heavy mats of algae prevented the approach of fish. The form apparently effecting control seemed to be a species of Poecilia. There were numerous similar indidents noted in the secondary areas. Such activities of the fish seem to be circumscribed due to their inability or disinclination to pursue larvae among Potomogeton, Ceratophyllum, Chara, grass and weeds, or into narrow channels. Then too, fish have been found in company with hundreds of albimanus larvae among beds of Potomogeton in streams on the Cul de Sac. Others have been noted pointed against the current, notably at Mariani. Dr. Howard has suggested that they possess no carnivorous diet. Experiments to determine the efficiency of fish as larva destroyers were inconclusive. Often they paid no attention to anopheline larvae when put into an aquarium with them. When several days had passed and no other food was available, a dexterity in catching mosquito larvae developed. The smaller the fish, the greater the apparent appetite for larvae and the larger the fish the greater was its tendency to remain below the surface and away from the stratum frequented by the larvae.

Other enemies. The only other enemies of importance noted were predaceous insects. Nymphs of a number of odonate species occur in almost all breeding places. They were seen pursuing larvae on several occasions but the attempts never resulted in success, due in no small part to their inability to progress with rapidity equal to that of the larvae.

Members of the coleopterous families Hydrophilidae and Dytiscidae were frequently observed, Gyrinidae, seldom. Larvae of the first group would seem to be most efficacious. Under laboratory conditions they captured anophelines in spite of the fact that they move more slowly. On one occasion three hydrophilide disposed of several hundred larvae within three days. Usually the procedure consists in waiting for the larva to come within reach, then suddenly shooting forward and catching the quary with formidable mandibles. Frequently the predator, while consuming its prey, keeps its head and a part of the thorax above water. Members of this family seem to be more favorably equipped for competing with Dytiscidae since they show a greater preferende for the surface. Dytiscids may be better adapted for catching Culex. Several instances of their doing so were noted in the field.

In ponds of fair size or of some degree of permanence nymphs and adults of the heteropterous family Belostomidae were usually present. No knowledge of their relations with culicids was ascertained. A nymphal nacaurid was once seen attached to a second instar A. albimanus sucking the body juices.

That Notonectidae (Heteroptera) play some part in maintaining the balance between mosquitoes and their environment is indicated

by the activities of one, apparently a species of Notonecta. At the time of capture it was draining the body juices of a larva of A. albimanus. Subsequently, until its death five weeks later, a daily average of ten larvae was consumed. As a rule this specimen did not attempt to stalk larvae unless they were within a radius of from one to one and one half inches.

A planarian or rhabdocele (free-living flukes) was noted consuming a culicine larva at Le Trou. The only similar instance known to the writer occurred in South America."

The indidence of Adult Anophelines.

"The difficulties in the capture of adult anophelines in the principal area have been discussed in the section of the report on method of operation. The most successful method, as previously indicated, was the use of a horse for bait but the results were so small as to be of little value for purposes of comparison. A table will be presented in which the records of this work will be set forth.

Early attempts to catch mosquitoes in houses were unsuccessful but in August, 1925, this attempt was renewed. There was chosen for this purpose a house in Petite Saline which was very close to a permanent breeding place and in which the people were very friendly. Other houses nearby were inspected but this one constantly yielded the maximum number of adults. This house was visited frequently during August and after the completion of the secondary area in October. The visits were made at different times of day in order to study the habits of the mosquito rather than to make studies of comparative abundance. Adult anophelines were found in this house at all times of the day, up to four o'clock in the afternoon, when they deserted their resting places. During the early hours of the morning they remained along the inner walls of the dwelling, but between eight and nine o'clock they moved upwards into the thached roof where they were found with difficulty.

A decrease in the number of adults which could be found in the catching station occurred in December coincidently with a decrease in breeding in station 6 nearby.

Dissection of adult mosquitoes for oocysts. Ninety-three specimens of adult mosquitoes, all but one A. albimanus, were kept for a period of from five to eight days at the laboratory and were dissected. Two specimens of A. albimanus contained oocysts. It is probable that the percentage would have been materially higher if it had been possible to catch adults near stations 1, 19, 21, 22, 23, and 24 at the time when breeding was at its height.

Position of adult anophelines at rest. While at rest the bodies of both A. albimanus and A. grabhamii are at an angle with the surface

on which they stand as are those of most anopheline adults. A glance shows that the resting postures of the two forms differ. In the case of A. albimanus the body is at an angle of 40° or less with the surface. The front pair of legs lies in a line with the body, the second is well spread and rests against the surface. The third is most likely to be held parallel with the surface and not in contact with it.

With A. grabhamii, the body is at nearly right angles with the surface. Its long legs render it conspicuous. The members of the two posterior pairs are placed closely together. The femora of these pairs are approximately equal to the length of the proboscis and they lie parallel to the surface. Beginning with the tibiae of these legs a gentle arc commences and ends with the tarsi resting parallel against the surface."

Note: The tables to which reference is made in the above report of the Entomologist are not as yet available and consequently are not included in this report.

ACCOMPLISHMENTS FOR THE YEAR.

1. The reorganization of the Service under five divisions, sanitation, quarantine, hospitals, supplies and finance has been continued and further elaborated.

2. Sufficient additional U. S. Naval personnel has been secured to make it possible to place at least one commissioned officer and one enlisted man in each of the ten Public Health districts, an increase of seven over the number employed last year and a total of 36 on duty with this Service at the present time.

3. The enactment of a law authorizing the President of Haiti to commission Haitian physicians as Public Health Officers in this Service in six classes. To date thirteen (13) physicians have been commissioned.

4. Continuation of the employment of recent graduates as internes in the larger hospitals, three having finished the one year term and three others having been employed.

5. Government ownership of all institutions operated by this Service.

6. The following laws submitted for enactment:

(a) Revision of the National Quarantine Law.

(b) Revision of the section of Sanitary Rules and Regulations relating to the reporting of certain diseases.

(c) A law requiring the licensing of all dogs.

(d) An immigration law.

7. Plans drawn for a quarantine station.

8. The International Health Board of the Rockefeller Foundation continued a medical survey of Haiti during the past year.

9. System of medical inspection of school children started. Treatment where indicated.

10. Vaccination of unprotected school children.

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ACCOMPLISHMENTS FOR THE YEAR.

11. Sixteen (16) Rural dispensaries completed or in process of erection.

12. Extensive expansion of rural clinics throughout the Republic.

13. Reorganization of the curriculum of the National Medical School and request for credit of Gdes. 100,000.00 for a new School.

14. Substitution of bismuth preparations for the more expensive arsenicals in the treatment of treponematosis with consequent expansion of this most important work.

15. Gradual substitution of motor transportation for less efficient methods of collecting refuse.

16. Extension of simple sanitary measures to many of the smaller communes.

17. Systematic expansion of all hospitals.

18. Development of laboratory facilities.

CAP-HAITIEN.

A. Sanitation.

1. Considerable reduction of the incidence of malaria particularly among the U. S. Marines, as a result of an active campaign of filling, draining and oiling.

2. General improvements to the public market.

3. Extension of sanitary measures to a few of the smaller communes.

4. Formulation of plans for certain permanent sanitary improvements.

B. Hospital.

1. Completion of and putting into service operating pavilion with X-ray, eye, ear, nose and throat department and dental rooms.

2. Laboratory, morgue and autopsy rooms completed and in operation.

3. Surgical ward given by the American Red Cross completed and in operation.

4. Two ward annexes to main building completed and in operation.

5. Bathroom and dressing room for men completed and in operation.

6. Main building altered, repaired and renovated.

7. Isolation wards almost completed.

8. Animal and poultry pen nearly completed.

9. New kitchen with bake-oven, etc., installed and in operation.

10. Private ward building completed and in operation.

11. Nine old caves repaired and in use as store-rooms, dressing rooms, etc.

12. Three drains for carrying off waste water constructed; also four new pit latrines with cemented sides.

13. Work started on construction of band stand and gardens.

14. System of strict accounting for money received from all sources and also expenditures instituted together with installation of office and clerk at the hospital. Card system giving history, results of laboratory examinations, diagnosis of every patient inaugurated.

15. Equipment of office and staff force with desks, books, etc.

16. Hospital service organized into departments with heads and charges for hospital service systematized by a tariff.

17. Weekly medical meetings instituted where papers are read on current medical topics and cases exhibited.

18. Water from springs piped into tank and buildings and grounds piped for water.

19. Laboratory installed in the dispensary at Grande-Rivière.

20. Operation of 18 rural clinics.

CAYES.

A. Sanitation.

1. General improvements in the sanitary condition of the city of Cayes.

4. Two ward numbers in main building completed and in operation.

5. Bathroom and dressing room for men completed and in operation.

6. Main building painted and renovated.

7. Isolation wards almost completed.

8. Annex one pantry now nearly completed.

9. New kitchen with bake-oven, etc. Installed and in operation.

10. Private ward building completed and in operation.

11. Nine old cows repaired and in use as storeroom, dressing room, etc.

12. Three drains for carrying off waste water constructed also four new pit latrines with concrete slabs.

13. Work started on construction of brick steam and chimney.

14. System of strict accounting for money received from all sources and also expenditures instituted together with installation of office and clerk at the hospital. Card system giving history, results of laboratory examinations, diagnosis of every patient treated.

15. Equipment of office and store with desks, books, etc.

16. Hospital service organized into departments with head and charges for hospital service systematized by a tariff.

17. Weekly medical meetings instituted where doctors discuss current medical topics and cases exhibited.

18. Water from spring pipes into town and building and grounds piped for water.

19. Laboratory installed in the dispensary at Grande-Rivière.

20. Operation of 10 ward clinic.

CAYES.

A. SANITATION.

1. General improvements in the sanitary condition of the city of Cayes.

2. Construction of 468 new private latrines and repair of 155 others.

3. Acquisition of Dodge truck for hauling refuse.

4. New butcher shop.

5. Installation of chlorinator for water supply.

6. Vaccination of 4,500 school children.

7. Opening up old canal which formerly drained part of a swamp adjacent to the city.

B. Hospital.

1. Acquisition of the major portion of the land belonging to the former Hospice Immaculée Conception.

2. Construction of the following:

(a) Dispensary and Nurses' Home.

(b) Main building (2 wards and administration)

(c) Building for morgue, lighting plant, and storeroom.

(d) Operating pavilion.

(e) Kitchens, etc.

3. Construction and operation of rural dispensary at Camp-Perrin.

4. Rural clinics held in 13 places.

GONAIVES.

A. Sanitation.

1. Improvements to the public market.

2. Considerable improvement in mosquito control, new ditching, filling, etc.

B. Hospital.

1. Increase in amount of work done, especially operative and out-patient activities.

2. Two rural dispensaries built and opened at Gros-Morne and Saint-Michel.

HINCHE.

A. Sanitation.

1. Institution of sanitary measures in the town of Hinche and in a few of the smaller communes in that district.

2. Construction of one public and fifty private latrines.

B. Hospital.

1. A new Public Health hospital with a capacity of 100 beds opened.

2. A rural dispensary completed at Cerca-la-Source.

3. Rural clinics opened in 7 places.

JACMEL.

A. Sanitation.

1. Improvements to water supply.

2. Filling of small marshes within the city limits.

B. Hospital.

1. Acquisition of additional land.

2. Construction started on the following:

(a) Dispensary.

(b) Isolation ward.

3. Repairs and additions to main building and sisters' quarters.

4. Two rural dispensaries finishes, two others started and a fifth planned.

5. Rural clinics conducted in 12 places.

2. Two rural dispensaries built and opened at Gros-Morne and Saint-Michel.

HINCHE.

A. Sanitation.

1. Institution of sanitary measures in the town of Hinche and the new of the sanitary commune in that district.

2. Construction of one public and fifty private latrines.

B. Hospital.

1. A new Public Health hospital with a capacity of 150 beds opened.

2. Rural dispensary completed at Grros-Morne.

3. Rural clinics opened in 12 places.

JACMEL.

A. Sanitation.

1. Improvements to water supply.

2. Filling of small marshes within the city limits.

B. Hospital.

1. Acquisition of additional land.

2. Construction started on the following:

(a) Dispensary.

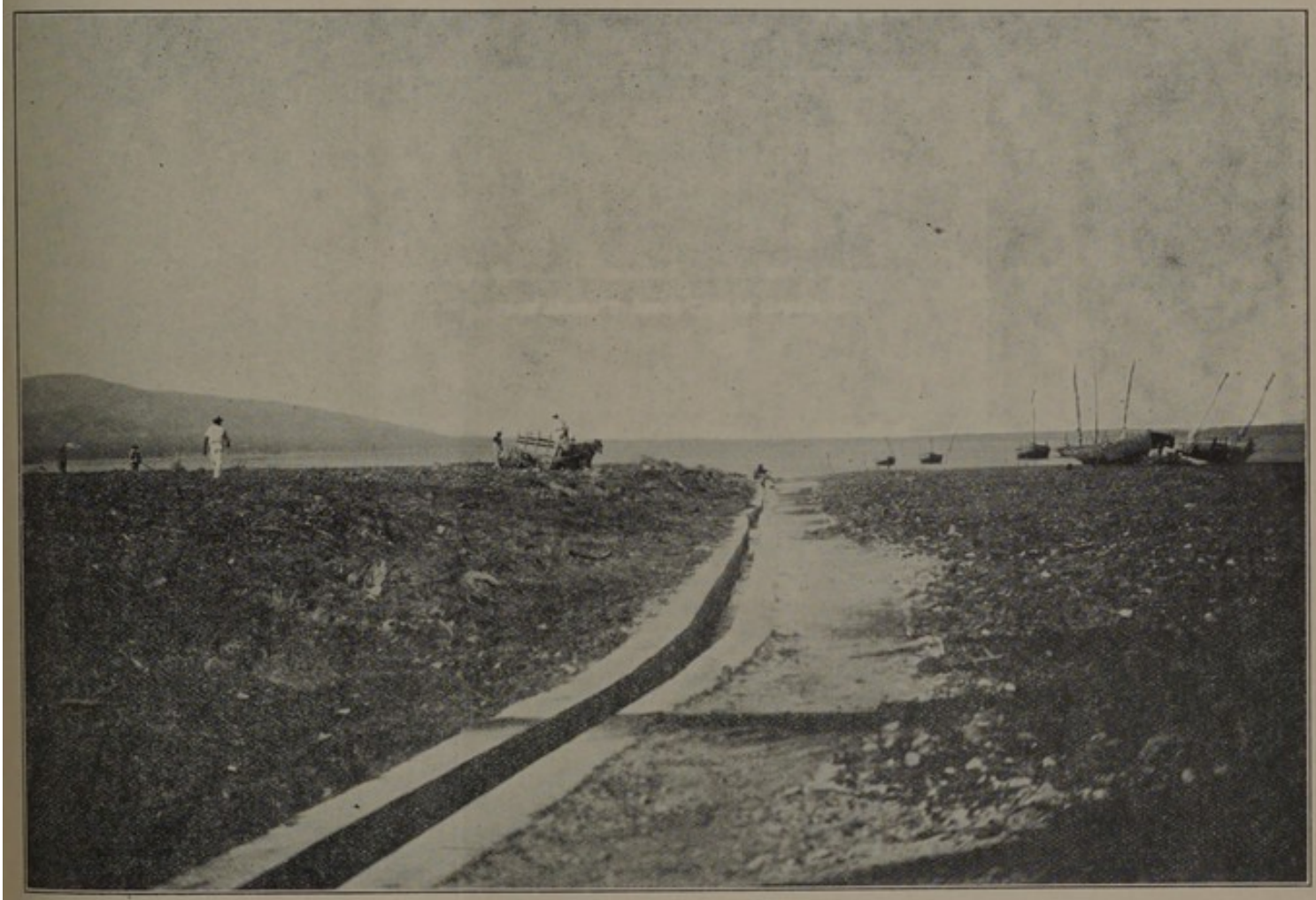
(b) Isolation ward.

3. Repairs and additions to maintaining two others started and a fifth planned.

4. Two rural dispensaries finished, two others started and a fifth planned.

5. Rural clinics conducted in 12 places.

Section of Ravine, Bois-de-Chêne, Port-au-Prince, showing the present control of this one time nuisauce.



The cemeut gutter leads from the ever-present spring. The swamp has been filled with city refuse. Fish abound in the spring and gutter — Port-au-Prince.

JEREMIE.

A. Sanitation.

1. General improvements in sanitation.

2. Plans formulated to improve the water supply in Corail and Anse d'Hainault.

B. Hospital.

1. Equipping of hospital completed.

2. Last of three isolation units completed.

3. Erection of a new kitchen.

4. Rural clinics held in 12 places.

PETIT-GOAVE.

A. Sanitation.

1. Sanitation squads placed in five of the larger towns in the district.

2. New slaughter house erected in Petit-Goave and market place in Grand-Goave.

B. Hospital.

1. Options on site for new hospital.

2. Plans for new hospital.

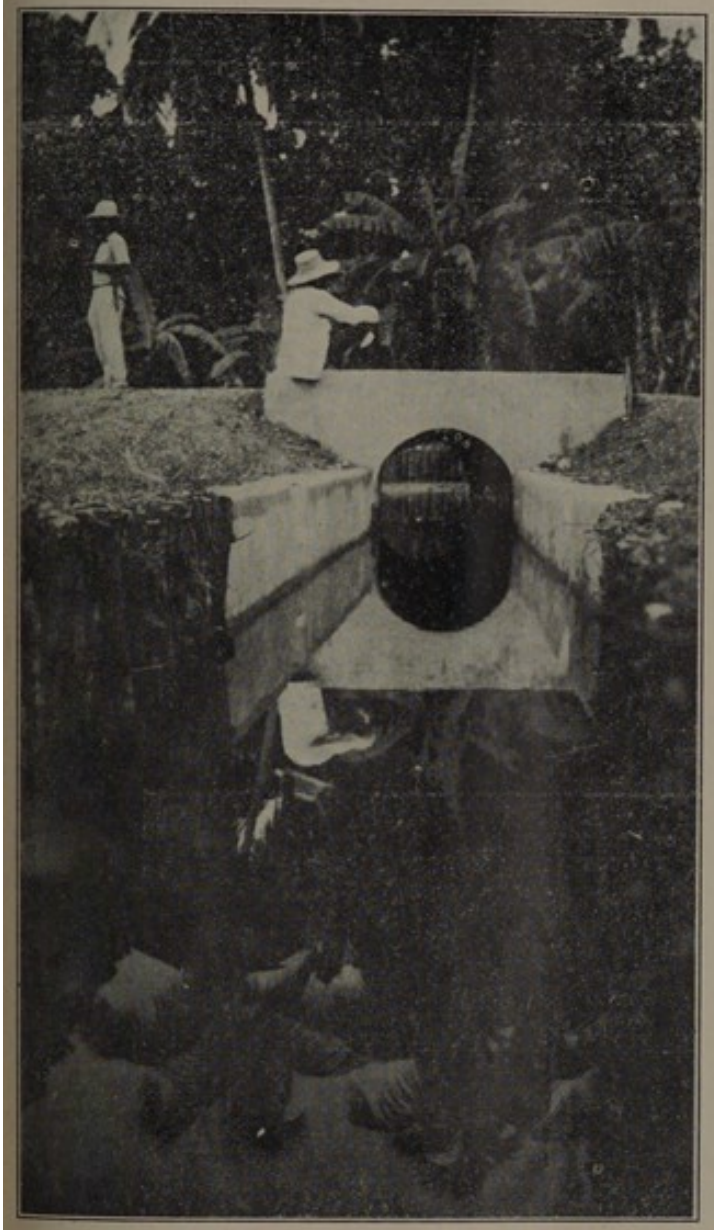
3. Rural clinics opened in 8 places.

PORT-AU-PRINCE.

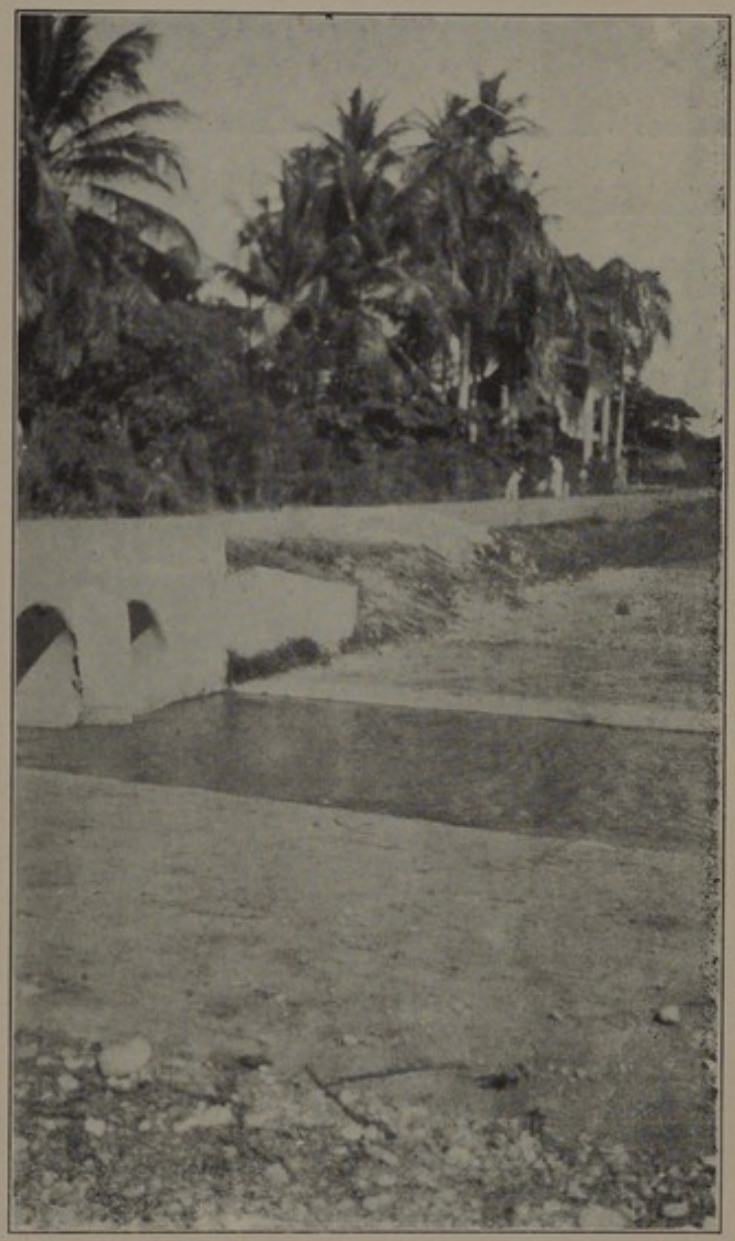
A. Sanitation.

1. Further elaboration of the inspection service of the city of Port-au-Prince.

2. Extension of sanitation to the towns of Léogane, Pétion-Ville, Croix-des-Bouquets, Thomazeau and Arcahaie.



Rural Sanitation, Borpeau, District of Port-au-Prince.



Rural Sanitation, same locality — Concreting of bed of stream used as a watering place for animals.

Swamp at Borpeau, District of Port-au-Prince.

Same after filling and draining.

3. Rural sanitary inspectors placed in each of the four country districts surrounding Carrefour, Croix-des-Bouquets, Croix-des-Missions, and Pont-Beudet.

4. Filling of swampy areas and placing of cement surface gutters along the water front of Port-au-Prince.

5. Beginning made of a water carriage sewage system for Port-au-Prince.

6. Permanent sanitary projects started in country about Port-au-Prince.

B. Hospital.

1. Asile Communal -

(a) Improvements and additions to buildings.

2. Haitian General Hospital -

(a) Daily average of patients increased from 248 in 1924 to 284.

(b) New dispensary completed.

(c) New isolation ward completed.

(d) New chapel 75% completed.

(e) Additional ward started.

(f) House for laboratory animals.

(g) Improvements to grounds.

3. Rural dispensaries installed at La Gonave, Arcahaie, Croix-des-Bouquets, Petion-Ville and Léogane.

4. Rural clinics held in 18 places.

5. Five (5) nurses graduated.

PORT-DE-PAIX.

A. Sanitation.

1. One hundred new private latrines constructed.

2. General improvements in sanitation.

B. Hospital.

1. Completion of the uncompleted hospital turned over to this service last year.

2. Rural dispensaries opened at Jean-Rabel and on the Island of La Tortue.

3. Rural clinics held in 6 places.

SAINT-MARC.

A. Sanitation.

1. Extension of sanitation to Petite-Rivière and Dessalines.

2. Improvement in sanitary control in city of Saint-Marc.

3. Acquisition of Ford truck for hauling refuse.

B. Hospital.

1. Completion of combination operating room and dispensary.

2. Rural clinics held in 12 places.

PLANS FOR THE FUTURE.

Plans for future expansion follow in a general way the tentative table of credits for the development and operation of this service as outlined in the annual report of last year.

It is hoped that the following list of credits will be voted during the early part of the fiscal year 1925-26:

1.	Medical School---------- Gdes.	100,000.00
2.	Salary of the personnel of the Medical School----	29,430.00
3.	General improvements in sanitation----------	500,000.00
4.	Two motor boats----------	38,000.00
5.	X-ray outfit, Haitian General Hospital----------	15,000.00
6.	Supplies, medical and surgical----------	300,000.00
7.	(New equipment & replacement on motor trucks-----	100,000.00
	(Gasoline, oils and motor parts----------	35,000.00
8.	Oil, kerosene and apparatus for sanitation-------	15,000.00
9.	Purchase of land for an Insane Asylum, a Quarantine station and for additions to Hospital at Cayes----------	140,000.00
10.	Nine (9) rural dispensaries----------	45,000.00
11.	Sewage system, Haitian General Hospital----------	51,000.00
12.	New ward, Haitian General Hospital----------	48,000.00
13.	Additions to Hospital, Saint-Marc----------	50,000.00
14.	New Hospital, Petit-Goave, and purchase of land for----------	75,000.00
15.	Combined building, Hinche hospital----------	5,000.00
	Total.....Gdes.	1,546,430.00

A detailed explanation of the need for each of the items in the preceding list is as follows:

No. 1. MEDICAL SCHOOL - Gdes. 100,000.00. The old wooden building which houses the National Medical School was built in 1881 as an exhibition building. The second story was never completed inside and also part of the lower story. It was not designed for a medical school building. White ants have almost completed its destruction and part of it is in danger of falling. It is not worth repairing. However, the grounds on which it is located are the property of the State and are located conveniently to the Haitian General Hospital.

During the past year a much needed reorganization of this School was effected by a joint board consisting of the Dean, the Administrator of the Haitian General Hospital, and a representative of this office.

PLANS FOR THE FUTURE.

Plans for future expansion follow in a general way the tentative table of credits for the development and operation of this service as outlined in the annual report of last year.

It is hoped that the following list of credits will be voted during the early part of the fiscal year 1929-30:

1. Medical School	$ 100,000.00
2. Salary of the personnel of the Medical School	50,000.00
3. General improvements in sanitation	200,000.00
4. Two motor boats	30,000.00
5. X-ray outfit, Haitian General Hospital	15,000.00
6. Supplies, medical and surgical	300,000.00
7. (New equipment & replacement on motor trucks	100,000.00
(Gasoline, oils and motor parts	35,000.00
8. Oil, kerosene and cylinders for sanitation	25,000.00
9. Purchase of land for an Insane Asylum, & Quarantine station and for additions to Hospitals at Cayes	100,000.00
10. Nine (9) rural dispensaries	18,000.00
11. Sewage system, Haitian General Hospital	61,000.00
12. New ward, Haitian General Hospital	48,000.00
13. Additions to Hospital, Saint-Marc	30,000.00
14. New Hospital, Petit-Goave, and purchase of land for	75,000.00
15. Combined building, Miragoane Hospital	15,000.00
Total.....	$ 1,546,430.00

A detailed explanation of the need for each of the items in the preceding list is as follows:

No. 1. MEDICAL SCHOOL ..... $ 100,000.00. The old wooden building which houses the National Medical School will built in 1901 as an exhibition building. The second story was never completed thereto and also part of the lower story. It was not designed for a medical school building. Termites have almost completed its destruction and part of it is in danger of falling. It is not worth repairing. However, the grounds on which it is located are the property of the State and are located conveniently to the Haitian General Hospital.

During the past year a much needed reorganization of this School was effected by a joint board consisting of the Dean, the Administrator of the Haitian General Hospital, and a representative of this office.

To carry out certain features of this reorganization there is badly needed a new school building with properly equipped lecture rooms and laboratories.

The Sanitary Engineer considers this item to be one of the most urgent on this list. This Service is constantly experiencing difficulty in securing properly qualified Haitian physicians to fill new positions. Inadequate facilities for medical education is the cause.

No. 2. SALARY OF THE PERSONNEL OF THE MEDICAL SCHOOL - Gdes. 29,430.oo. This credit is necessary to continue the operation of the present school after January 1, 1926, as made necessary by the proposal to annul the budgetary funds voted for this purpose after January 1st, 1926.

No. 3. GENERAL IMPROVEMENTS IN SANITATION - Gdes. 500,000.oo. So many permanent improvements in sanitation are needed that it would be useless to attempt to enumerate them. Permanent drainage, filling of low land, diking to prevent floods, sewage systems, potable water supplies, etc., are needed to supplant the present expensive temporary methods of sanitation. It is believed that during the coming calendar year steps should be taken to make a beginning of permanent sanitary improvements in as many cities as possible especially in Port-au-Prince, Cap-Haitien, Port-de-Paix, Gonaives and Aux Cayes. The sum of Gdes. 500,000.oo is needed for this purpose and will be distributed in the above mentioned cities according to their needs.

No. 4. TWO MOTOR BOATS - Gdes. 38,000.oo. These two boats are for Port-de-Paix and Jérémie. At the present time the usefulness of several Public Health Officers is considerably limited because of difficulties encountered on trails. For example the dispensary at Colline-des-Chênes is nearly 100 kilometers from Jacmel by trail but may be easily reached by boat to Saltrou and by mule the rest of the way. Clinics are held by all these officers at inaccessible places along the coast. One boat is absolutely essential to reach the 5,000 inhabitants of La Tortue. The long coastline of the district of Jérémie and the lack of roads makes it difficult for the Public Health Officer to visit the various places in the District. A suitable boat would overcome this difficulty in a large measure and also permit communication with the Island of Cafemites. The plan of holding clinics at the same time the Gendarmerie boat makes an inspection trip has proven a failure. Frequently the time planned for the two trips do not coincide and if unforseen circumstances intervene one trip has to be cancelled. The ports of call may not coincide. It is obviously impossible for the Gendarmerie officer to loan the boat as it must at all times be on call for lighthouse inspection purposes.

No. 5. X-RAY OUTFIT, HAITIAN GENERAL HOSPITAL - Gdes. 15,000.oo. The present X-ray equipment of this institution, loaned through the

courtesy of the Secretary of the U. S. Navy consists of a portable bedside set which is not adequate for the large amount and varied kind of X-ray work required at a large hospital. A larger outfit should be installed and the present one transferred to a smaller hospital.

No. 6. SUPPLIES, MEDICAL AND SURGICAL - Gdes. 300,000.oo. Gdes. 300,000.oo was the sum agreed upon on the three year program for the present fiscal year and the experience of the year just ended shows that it will be none too much. With increased expansion of the service in all directions much money is needed for the equipment of new institutions and for the additions to old ones. Rural clinics have developed enormously and now require much larger amounts of drugs and dressings than formerly.

No. 7. NEW EQUIPMENT AND REPLACEMENT ON MOTOR TRUCKS - Gdes. 100,000.oo AND GASOLINE, OILS AND MOTOR PARTS - Gdes. 35,000.oo. These two items may be considered together. The annual budgetary funds are not sufficient to supply what is needed under these two items. This office has several requests from districts for motor trucks to be used in sanitation. The officers in these districts state that the ground can be covered so much more efficiently by motor truck than by wheelbarrows and carts. At times there is a shortage of laborers. Most of the trucks in Port-au-Prince have been in use for several years and have now reached the stage where it is more expensive to keep them repaired than to replace them. It may even be economy to turn the old ones in in exchange for new ones. It has been found necessary to supply official cars in certain places for rural clinic work. It has been found necessary to lay in a supply of Dodge spare parts.

No. 8. OIL, KEROSENE AND APPARATUS FOR SANITATION - Gdes. 15,000.oo. Sanitary measures are being extended to the smaller towns as fast as funds will permit. With money lacking for filling and draining, oiling is the only temporary expedient. Malaria is one of the principal causes of illness and Yellow Fever is a possibility, both mosquito borne diseases.

No. 9. PURCHASE OF LAND FOR AN INSANE ASYLUM, A QUARANTINE STATION AND FOR ADDITIONS TO HOSPITAL AT CAYES - Gdes. 140,000.oo. An insane hospital is most urgently needed. There is no justification for confining these unfortunate people in prisons and yet there are no other places in which to safeguard them. No other civilized State cares for its insane in the same institution with its criminals. The opinion of this office with regard to the location of this institution has changed within the past few months. It is now believed that a location as near as possible to Port-au-Prince will result in a considerable saving, not only in the original outlay but in subsequent annual upkeep. There would thereby result economies in quarters for several kinds of personnel, electric light, water, subsistence, etc. By purchasing several carreaux of land adjacent to the present Hospice Communal it would be possible to have located in the same quarter the poor house, orphan

asylum, hospital for chronic invalids, hospitals for the insane and a hospital for lepers. A sanitarium for the treatment of tuberculosis is not included for the reason that it is believed that this should be located at a higher altitude, for example Furcy.

During the past year the quarantine situation in Haiti was gone into most thoroughly by an officer of the U. S. Public Health Service who was loaned to this Service for several months. He made a complete revision of the maritime quarantine system of Haiti, including a revision of the quarantine law. He was of the opinion that the minimum requirement for protection against the introduction of the quarantinable diseases would be a small quarantine station located near Port-au-Prince. A site was accordingly picked out near the Bizoton Navy yard with deep water quite close in shore and plans drawn for such a station.

The introduction of plague is a very grave menace to Haiti. The entire country is overrun with rats and once plague were imported it would without question spread very rapidly. Rat proofing is beyond the means of most of the inhabitants and the one safeguard is the prevention of the introduction of plague--infected rats and this is possible only through the fumigation of all ships coming fro plague infected ports. This quarantine station will supply the means of ridding such ships of rats. That plague has not been introduced into Haiti long ago is not from any virtue on her part but is simply the result of precautions taken by neighbouring countries. Haiti should be equipped to do her share in maintaining international health.

Item No. 24 of the three year program lists Gdes. 400,000.oo for the year 1927-28 for a Lazaretto for lepers to be located on the Island of La Gonave. Opinion as to the danger of a leper transmitting the disease has been undergoing a change during recent years. The day when it was considered absolutely necessary to segregate lepers on an island far from the main land is passing. In properly equipped institutions a certain percentage of apparent cures are resulting. Just how many lepers there are in this country is not known. Certain it is that many cases "diagnosticated" leprosy by the layman are cases of treponematosis. There are however a few authentic cases of leprosy in the larger institutions of Service d'Hygiène and these should be segregated and treated. A lazaretto should be located adjacent to the site chosen for the hospital for the insane where these unfortunate people could be made comfortable and given the benefit of the recognized treatment for this disease.

The three year program of this Service includes an item of Gdes. 200,000.oo in the year 1926-27 for the completion of the new Hospital at Cayes. It is necessary to purchase additional land in order to properly locate the additional buildings that are planned to make this a first class institution.

No. 10. NINE (9) RURAL DISPENSARIES - Gdes. 45,000.oo. The three year program of development listed 25 rural dispensaries of a simple standard type. Gdes. 34,000.oo were voted last year for the construction of eight of these. After construction had started it was found that owing to the rising cost of labor and material it would not be possible to build a type dispensary for the sum of Gdes. 4,250.oo, but by changing the type of certain ones and by repairing and using in one case an already existing federal building it has been possible to build the entire eight dispensaries. Public Works Department estimates that it will now cost Gdes. 5,000.oo to build a standard dispensary making Gdes. 45,000.oo for nine such structures.

These dispensaries are being located in rural centers to bring medical assistance to large sections of the country which are practically never visited by a Haitian physician and to heal the ills of a class of people usually too poor to pay for even the simplest kind of dressing or medicine. This indeed is the economic condition of the vast majority of Haiti's people. One needs only to visit a rural clinic where as many as a thousand sick have been known to crowd about eager for treatment, to appreciate the amount of illness that goes untreated from year to year.

No. 11. PLUMBING, HAITIAN GENERAL HOSPITAL - Gdes. 51,000.oo. To quote from the statement of last year relative to this item: "For such a large number of people as are gathered together at the Haitian General Hospital, it is impracticable to successfully operate a pit privy or one of the septic tanks. The city's hospital should be the show place of the Republic as far as sanitation is concerned. With the present arrangement this Hospital is not a place we would care to brag about as regards its nightsoil removal system. We have there the insanitary combination of unscreened privies and unscreened wards and mess halls, dysenteric and typhoid patients and the ever-present fly to transfer the contagium. Such a state of affairs would be remedied by a water carriage sewage system". Gdes. 51,000.oo will provide for such a system plus water closets, showers, hand lavatories, and sinks.

No. 12. NEW WARD, HAITIAN GENERAL HOSPITAL - Gdes. 40,000.oo. This item was tentatively agreed upon for this year in the three year program. It is to replace an old ward that is in bad state of repair and in danger of collapsing. On last year's program it appeared as "No. 8, Isolation ward, Haitian General Hospital 1925-26" but by permission of the financial Adviser was substituted for a ward of the same value during the past year and is now nearing completion.

No. 13. ADDITIONS TO HOSPITAL, ST. MARC - Gdes. 50,000.oo. The few old shacks which bear the name of "Hospital" are about ready to fall down. The Department Engineer states that it would be a waste of money to attempt to repair them. A combination operating room and dispensary has just been completed at this place and one large ward or two small ones are urgently needed.

No. 14. NEW HOSPITAL, PETIT GOAVE, PURCHASE OF LAND FOR - Gdes. 75,000. The remarks just made relative to the Hospital at Saint-Marc also apply here. The old building at Petit-Goave is a Hospital in name only. It is really nothing more than a poorhouse. The sanitation situation in Cap-Haitien has so greatly improved that it is proposed to transfer the Assistant Public Health Officer from Cap-Haitien to Petit-Goave about January 1st, 1926, and make him Public Health Officer of that District. It is fully expected that his first request will be for a proper place in which to take care of the sick.

No. 15. COMBINED BUILDING, HINCHE HOSPITAL - Gdes. 5,000.00. There is need of a building to include a morgue, carpenter shop, laundry and servant quarters.

During the two fiscal years following 1925-26 development is planned as follows:-

	Gourdes.
1. Eight (8) rural dispensaries	40,000.00
2. General improvements in sanitation	879,000.00
3. Two (2) motor boats	38,000.00
4. Hospital for the insane	930,000.00
5. New ward, Haitian General Hospital	40,000.00
6. Garage and storehouse, Haitian General Hospital	40,000.00
7. Quarantine station, Port-au-Prince	150,000.00
8. Plumbing, Justinien Hospital	56,000.00
9. Maternity ward, Justinien Hospital	40,000.00
10. Children's ward, Justinien Hospital	40,000.00
11. Isolation ward, Hospital, Hinche	40,000.00
12. Chapel, Hospital, Hinche	10,000.00
13. Additions to Hospital, Gonaives	12,500.00
14. Additions to Hospital, Cayes	200,000.00
15. Repairs, Hospital, Jacmel	7,500.00
16. New ward, Hospital, Saint-Marc	50,000.00
17. Hospital for lepers	100,000.00
18. Supplies, medical and surgical	700,000.00
19. Gasoline, oils and motor parts	90,000.00
20. New equipment and replacement on motor trucks	100,000.00
21. Oil, kerosene and apparatus for sanitation	20,000.00
22. Wire screening for all hospitals	180,000.00
23. Additions to Supply Depot and Garage	26,700.00
24. Additions to the Asile Communal, Port-au-Prince	40,000.00
Total	3,629,700.00

The last six items on the three year program of development, as outlined in the report of last year, have been omitted. These were items for the erection of Public Health offices. It now appears possible to provide space for such offices in new government buildings to be erected from time to time. Provision has been already made for two of these.

While the above program of development is a not too pretentious a one, its realization appears at times an open question, owing to the fact that such a large number of new activities necessitates a corresponding increase in annual maintenance. Just at present this Service is experiencing acutely the embarassment of insufficient funds for equipment and maintenance. Items 18 to 21 inclusive above are in reality an attempt to meet anticipated deficits in annual upkeep. The time has arrived to carefully correlate expansion with maintenance. The Budget of this Service for the next fiscal year should carry as a minimum 2,500,000.oo gourdes.

Summarized plans for the future contemplate the following:-

1. Extension of sanitation, both temporary and permanent, as fast as funds will permit.

2. Enlargement and improvement of all hospitals.

3. Erection of a plant to care for indigents and chronics, viz: the insane, lepers, and other chronic diseases, orphans, etc.

4. The building and operation of a total of 25 or more rural dispensaries.

5. The continued development of an extensive system of rural clinics.

6. Continued co-operation with the International Health Board.

7. The erection of a quarantine station at Port-au-Prince.

8. Further elaboration of inspection of schools.

9. Immunization of the population against smallpox.

10. A system of visiting nurses in the larger cities.

11. Training of Haitian physicians and nurses for Public Health work.

12. Reorganization of the National Medical School.

13. Development of a laboratory for research.

14. Development of a public health laboratory.

VITAL STATISTICS.

Summary for the whole Republic from October 1, 1924 to September 30, 1925.

TOTAL BIRTHS.			TOTAL DEATHS.		
Male	Female	Total	Male	Female	Total
37,946	37,582	75,528	8,602	8,769	17,371

BIRTHS BY MONTH.

	Male	Female	Total
October 1924	3,624	3,682	7,306
November "	2,884	2,866	5,750
December "	3,957	3,865	7,822
January 1925	3,738	3,777	7,515
February "	4,445	4,439	8,884
March "	2,492	2,453	4,945
April "	3,045	2,939	5,984
May "	3,270	3,278	6,548
June "	2,291	2,240	4,531
July "	2,615	2,552	5,167
August "	2,828	2,772	5,600
September "	2,757	2,719	5,476
Total	37,946	37,582	75,528

DEATHS BY MONTH.

October 1924	715	729	1,444
November "	865	842	1,707
December "	851	878	1,729
January 1925	912	906	1,818
February "	708	733	1,441
March "	708	720	1,428
April "	592	583	1,175
May "	574	590	1,164
June "	573	501	1,074
July "	607	591	1,198
August "	808	886	1,694
September "	689	810	1,499
Total	8,602	8,769	17,371

VITAL STATISTICS.

Summary For the Whole Republic From October 1, 1924 to September 30, 1925.

TOTAL BIRTHS.

Male	Female	Total
97,946	97,288	195,234

TOTAL DEATHS.

Male	Female	Total
8,502	8,769	17,271

BIRTHS BY MONTH.

	Male	Female	Total
October 1924	8,254	8,052	16,306
November "	8,364	8,066	16,430
December "	8,265	8,057	16,322
January 1925	8,277	8,098	16,375
February "	8,259	8,065	16,324
March "	8,453	8,292	16,745
April "	8,259	8,045	16,304
May "	8,276	8,070	16,346
June "	8,091	7,960	16,051
July "	8,315	8,142	16,457
August "	8,253	8,072	16,325
September "	8,179	8,057	16,236
Total	97,946	97,288	195,234

DEATHS BY MONTH.

	Male	Female	Total
October 1924	729	715	1,444
November "	842	865	1,707
December "	878	901	1,779
January 1925	956	912	1,868
February "	773	709	1,482
March "	790	750	1,540
April "	883	893	1,776
May "	900	864	1,764
June "	801	803	1,604
July "	891	841	1,732
August "	846	809	1,655
September "	809	669	1,478
Total	8,502	8,769	17,271

Important causes of death whole Republic (1924-25)

Beri-beri	1
Bronchitis	55
Broncho-pneumonia	38
Cancer	27
Cerebral hemorrhage	52
Childbirth	50
Cirrhosis, liver	26
Disease of liver	36
Dysentery	415
Enteritis	110
Epilepsy	6
/Fever	2,781
Gastritis	18
Gastro-enteritis	71
Heart disease	212
Hernia	17
Influenza	22
Intestinal parasites	154
Leprosy	4
Malaria	552
Malnutrition	109
Meningitis	12
Nephritis	193
Plourisy	11
Pneumonia	91
Rheumatism	50
Senility	334
Starvation	2
Still born	20
Syphilis	259
Tetanus	24
Tuberculosis	589
Typhoid fever	48
Tumor	9
Whooping cough	40
From other causes	10,933
Total	17,371

/Reported as such; many cases probably malaria; not diagnosed by competent physician.

Annual death rate.....7.80 per 1,000.

The above annual death rate is obviously much lower than is actually the case. Recently an opportunity presented itself to check the annual death rate of three sections in the North with considerable accuracy. It was found to be as follows:

1. Le Trou 30.7 per 1,000
2. Limonade 22 per 1,000
3. Ste Suzanne 22 per 1,000.

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REPUBLIC OF HAITI

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SANITARY ENGINEER

FOR THE

FISCAL YEAR 1925-1926.

PORT AU PRINCE

DECEMBER 1926.

IMP. MODELE

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SANITARY ENGINEER

For the Fiscal Year 1925-1926

Submitted to the Secretary of State for the Interior

of the Republic of Haiti.

Captain C. S. Butler, (MC) U. S. Navy,

Sanitary Engineer.

Port-au-Prince,
December, 1926.

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ANNUAL REPORT OF THE SANITARY ENGINEER OF HAITI

FOR THE FISCAL YEAR 1925-1926.

Office of the Sanitary Engineer,
Port-au-Prince, Haiti, January 10, 1927.

The Secretary of State for the Interior
of the Republic of Haiti.

SIR:-

There is presented herewith the annual report of the Public Health Service of Haiti for the fiscal year 1925-1926 together with available vital statistics for calendar year 1925.

GENERAL REMARKS.

Early in 1924 the American High Commissioner asked the Treaty Officials heading the several departments connected with the Haitian Government to prepare a program for the development of their several activities. Roughly it was to cover a period of three years. The reason for the preparation of this program was that those responsible for the spending of the income of the Republic might better visualize the problems to be solved and better appraise the relative importance of these problems.

It was thought that when this was done the Treaty Officials would be in better position to adjust the assets of the treasury to the solution of the problems at hand. The wisdom of this course is now apparent. The Public Health Service has been given an equal chance to develop with the several other departments of the Government. Whereas during the fiscal year 1924-25 the total expenditures (outside of new construction) of the Government for all medical purposes was 2,222,385.90 gourdes, during the fiscal year ending September 30, 1926 this total was 3,296,770.56 gourdes. Elsewhere in this report will be found an analysis of receipts and expend-

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itures for the past year. It may be said here however that it is our belief that these funds have been wisely spent and that the Haitian Government has received full value for every dollar voted to the Public Health Service. The weekly conferences of Treaty Officials is a check to extravagance and a ready means for better adjustment of the point of view.

The principal features of the 3-year program of the Public Health Service as given to the American High Commissioner in the Spring of 1924 have remained the same. There have been frequent readjustments of our methods of procedure as better information became available.

Personnel. At the end of the fiscal year 1926 the American personnel connected with the Public Health Service was being paid Gdes. 53,571.85 by the U. S. Government per month. The total cost of this personnel to the Haitian Treasury in salaries was Gdes. 25,844.oo per month.

During the fiscal year 1926 the number of Haitian citizens employed in the Public Health Service has increased from 1,393 to 1,703. In connection with this important matter of personnel it is a pleasure to the Sanitary Engineer to acknowledge the great help given by Admiral Stitt, U. S. Navy, to every one of Haiti's Public Health problems. Not only has the Bureau of Medicine and Surgery of the U. S. Navy Department granted every request made for personnel possessing certain suitable types of ability, but its chief and his staff have given the benefit of their experience upon many technical and special features of the work, an experience and a counsel than which there is none better. In addition the Chief of the Bureau of Medicine and Surgery made a special trip to Haiti during the year in order to give support and effectiveness to his policy with regard to Haiti's Public Health Service. It is now possible, thanks to the Bureau of Medicine and Surgery, to have expert supervision of Hospital Service and Sanitation Service in each of the ten Public Health Districts.

Transportation. It is essential to the several features of Public Health work in Haiti that good and ready transportation be available. This obtains both for the transport of personnel and of material. It is necessary that the Public Health Officers charged with the duty of attending rural dispensaries be able to meet their appointments on time, otherwise the attendance will fall off and the work of the clinic will suffer. It is essential that the trucks for the removal of street refuse and the filling of insanitary and swampy areas be kept adequate to the increasing work placed upon them. During the year 1926 all types of transportation

have been improved. Several towns which hitherto had depended upon mule carts for the removal of street refuse have been supplied with motor trucks. The entire fleet of trucks assigned to this work has been renewed. In addition two motor boats have been purchased and assigned to Public Health districts having isolated settlements which must be reached by water.

Hospital and Dispensary Service. Improvements or additions have been made to every hospital in the Republic and many new rural dispensaries have been constructed or are in process of being constructed. It is the policy of the Public Health Service to get good and adequate titles to all the hospital and dispensary sites. This has been difficult oftentimes to accomplish, but considerable progress has been made and there is every reason to think that it will be an accomplished fact in the near future.

Sanitation. All of the larger towns of Haiti are being rendered safer from the public health standpoint by using street refuse for the filling of swampy areas. This is notably true of Port-au-Prince, Gonaives and Cap-Haitien. During the past three months Cap-Haitien has been freed of malaria by this means. It is the desire of the Sanitary Engineer to furnish adequate facilities for the quick removal of street refuse for every place in the Republic where this is practicable because it serves this double purpose.

An outstanding feature of sanitation during 1926 is the attempt to drain and dry the swamp at Fort-Liberté. It is believed that a considerable area of land may be rendered suitable for agricultural purposes by this means. If this swampy land can thus be rendered productive instead of destructive it will be quite an accomplishment, as the area has had an unwholesome effect upon the development of that section for several centuries.

Provision for the care of the insane and those suffering from leprosy. In the 3-year program above referred to, the need of adequate means to care for these unfortunates was emphasized. The income of the Republic has, up to the present, been insufficient to provide for the removal of the insane from the prisons. Neither has it been adequate to secure an asylum for the lepers. The lepers or, at any rate, a very small percentage of them, are looked after in an unsystematic way in the several hospitals. A beginning, however, was made in these important features by the purchase on the part of the State of a portion of land in the northern section of Port-au-Prince which, it is thought will be adequate in size and convenient in location for the development of both institutions.

Provision should be made for the care of orphans and adults who are incapacitated for work for various reasons. Several of the hospitals are handicapped by having to care for children who are for one reason and another left upon the charity of the State in these institutions. Similarly many adults with no particular disease or with some irremediable condition are left derelict in these hospitals. Provision should be made for these unfortunates under a department of Charities as it is only a question of time until their increasing numbers will seriously hamper the operation of the hospitals.

Education and Special Training. The question of medical education is taken up in another part of this report.

As regards the training of female nurses at the Haitian General Hospital this good work has continued right along. The question of better training for sanitary inspectors has not been lost sight of. It is a very important matter that these men should know what they are about and that their numbers be adequate. The training of them is going forward in each of the Public Health districts. The larger part of this training however, is given in Port-au-Prince.

Provision has been made to take care of the training of midwives at the Haitian General Hospital in connection with the Medical School.

It is our belief that the National Public Health Service has made commendable progress during 1926 and it is our hope that this progress will be accelerated during 1927 to the end that Haiti may become an increasingly more healthful state in which to live.

PERSONNEL.

The following table of the distribution of the personnel shows an increase of 307 above that of last year. There are three less medical officers of the U. S. Navy; one less chief pharmacist's mate of the U. S. Navy and two more pharmacist's mates first class of the U. S. Navy. At the end of this fiscal year there was no medical officer at Port-de-Paix or Gonaives, but since that time a medical officer has been detailed at both places. There is also now a medical officer at Petit-Goave so that there is now at least one medical officer in each district. There is one less medical officer detailed in the Executive Office and one less at the Haitian General Hospital than last year. There are three more commissioned Haitian physicians and one less non commissioned Haitian physician. There are thirteen more Haitian graduate nurses.

(1) HAITIAN STAFF AT THE HOSPITAL, PORT-AU-PRINCE

	Executive Of.	Cap-Haitien	Cayes	Gonaives	Hinche	Jacmel	Jeremie	Petit-Goave	Pro. Health Of. Port-au-Prince	Haitian General Hospital	Supply Depot & Garage	Port-de-Paix	Saint-Marc	TOTAL.
Med. Officers of Navy	2	2	1		1	1	1	1		6			1	16
Chief Pharmacists	1								1		1			3
C. Ph. Mates			1	1	1		1		1	2	1	1	1	10
Pharm. Mates 1 cl.		2				1		1						5
Red Cross Nurses										3				3
Com. physicians		3	1		1	1			1	3		1		16
Non-com. physicians		1		1	1		1			6				10
Dentists										1				1
Pharmacists		1								1				2
Asst.-Pharmacists		2								2				4
Graduate Nurses		8		2	3				1	10			1	25
Nurses		23					3	2		19			2	49
Technicians		3				1				3				7
Sisters		11	7	6	5	6	2		3	14		3	3	58
Chaplains									1	1				2
Ward attendants		24	2		2					10		1		39
Dressers		4	1	1	4	7				9		1	6	27
Ch. San. Inspectors		1	1			1	1	1	3					8
San. Inspectors		7	2	3	2	5	4	7	42			3	6	81
Chief clerks	1	1							1	1	1		1	6
Clerks	1	3	2	2	1		1	1	2	4	2			19
Stenographers	1													1
Chief Mechanics		1									1			2
Asst.-Mechanics		1												1
Appr. Mechanics											10			10
Mechanics		2									3			5
Chauffeurs		4	3	1	1			1	14	4	3		1	32
Watchmen		2			1	3		2		2	1			11
Section bosses		16	12	6	3	4	4	3	33	1		2	6	90
Laborers		115	122	75	53	63	37	65	421	27	5	29	47	1059
Cooks		5		2	2	3	2	2		8		1	2	27
Laundresses		6	1	1	1	7	1	1		15			2	34
Bakers		1			1					1				3
Carpenters		1	2		1		1	1		5	2			13
Painters			1							9	1			11
Masons			2						2	3				7
Blacksmiths		1									1			2
Messengers	1	1	1						1					4
Janitors	1									2		1		4
Servants		8	2	2	1	6	1			18				33
TOTAL	8	251	165	103	83	109	60	88	527	192	32	43	79	1740

The following table is self explanatory:

PUBLIC HEALTH EMPLOYEES.

District of Port-au-Prince.

(a) Executive Office.

Name	Date of Employment	Duty
Captain C. S. Butler (MC) USN.	6-1-24	Sanitary Engineer of Haiti.
Lt. E. Peterson (MC) USN.	6-14-24	Executive Assistant to Sanitary Engineer.
C.Ph. E.C.Eastman, USN.	12-11-24	Asst. to Sanitary Engineer.

(b) Supply Depot & Garage.

C.Ph. G.F.Lyon, USN.	1-14-25	Supply Officer.
C.Ph.M. J.O.Labrie, USN.	8-6-24	Asst.to Supply Officer.

(c) Haitian General Hospital.

Lt-Comdr. R.M.Choisser (MC) USN.	3-15-26	Administrator H. G. H. & in charge of P.H.Laboratory.
Lt-Comdr. P.W.Wilson (MC) USN.	9-20-26	Chief of Medical Service.
Lt-Comdr. E.C.Ebert (MC) USN.	11-13-25	In charge of the Eye,Ear, Nose & Throat service.
Lt. W.F.Kennedy (MC) USN.	1-21-25	Chief of outpatient service.
Lt. (jg) C.D.Middlestadt (MC) USN.	10-2-25	Laboratory.
Lt. (jg) G.C.Thomas (MC) USN.	10-2-25	Laboratory.
C.Ph.M. B.E.Kirwan, USN.	2-2-24	Asst. to Administrator.
C.Ph.M. Peter Angel, Jr. USN.	9-14-25	Laboratory Technician.
Dr. L. Moise	13-3-15	Com. physician 1st cl.
Dr. J. Perrier	2-12-23	" " 2nd "
Dr. J. Buteau	7-30-23	" " 2nd "
Dr. M. Bourand	9-18-23	" " 2nd "
Dr. L. Jourdan	11-1-24	" " 4th "
Dr. D. Anglade	6-1-25	" " 5th "
Dr. C. Valmé	9-1-23	" " 4th "
Dr. L. Hyppolite	9-1-23	" " 4th "
Dr. E. Craig	5-20-25	Non-Com. physician
Dr. E. Pétrus	11-15-25	" " "
Dr. V. Bellevue	10-1-25	" " "
Dr. J.B. Saint Cyr	7-26-26	" " "
Dr. J. Francis	9-1-26	" " "
Dr. L. Torchon	2-1-26	" " "

The following table is self explanatory:

PUBLIC HEALTH SERVICE.

District of Port-au-Prince.

(a) Executive Office.

Name	Date of Employment	Duty
Captain C. S. Butler (MC) USN.	6-1-24	Sanitary Engineer of Haiti.
Lt. R. Peterson (MC) USN.	6-14-24	Executive assistant to Sanitary Engineer.
C.Ph. H.C.Eastman, USN.	12-11-24	Asst. to Sanitary Engineer.

(b) Supply Depot & Garage.

C.Ph. G.F.Lyon, USN.	1-14-25	Supply Officer.
C.Ph.M. J.O.Labrie, USN.	8-6-24	Asst.to Supply Officer.

(c) Relief General Hospital.

Lt-Comdr. H.M.Chaisson (MC) USN.	3-15-25	Administrator H. C. H. & in charge of P.H.Laboratory.
Lt-Comdr. P.W.Wilson (MC) USN.	9-30-25	Chief of Medical Service.
Lt-Comdr. R.C.Ebert (MC) USN.	11-13-25	In charge of the Eye,Ear, Nose & Throat service.
Lt. W.P.Kennedy (MC) USN.	1-21-25	Chief of outpatient service.
Lt. (jg) C.D.Middlesteadt (MC) USN.	10-8-25	Laboratory.
Lt. (jg) C.C.Thomas (MC) USN.	10-2-25	Laboratory.
C.Ph.M. R.E.Kirven, USN.	2-8-24	Asst. to Administrator.
C.Ph.M. Peter Tegel, Jr, USN.	9-14-25	Laboratory Technician.
Dr. L. Nolas	13-3-15	Com, physician 1st cl.
Dr. J. Perrier	2-12-25	" " 2nd "
Dr. J. Bruera	7-30-25	" " 2nd "
Dr. M. Bourand	9-10-25	" " 2nd "
Dr. L. Jourden	11-1-24	" " 4th "
Dr. D. Anglade	6-1-25	" " 5th "
Dr. C. Vaine	9-1-25	" " 4th "
Dr. L. Hyppolite	9-1-25	" " 4th "
Dr. E. Craig	3-20-25	Non-Com. physician
Dr. E. Petrus	11-15-25	" " "
Dr. V. Bailleux	10-1-25	" " "
Dr. J.B. Saint Cyr	7-25-25	" " "
Dr. J. Pradis	9-1-25	" " "
Dr. L. Torchon	8-1-25	" " "

Name	Date of Employment	Duty
Miss E. Moser, A.R.C.N.	6-20-24	Directress Training School for Nurses.
Miss C.E. Authier, A.R.C.N.	8-25-25	Instructress " "
Miss A.H. Von Kurowsky, A.R.C.N.	7-13-26	Instructress " "

(d) Public Health Office

C.Ph. W.C.Van Norden, USN.	1-14-25	Public Health Officer.
C.Ph.M. R.J.Israell, USN.	5-5-25	Asst. Public Health Officer.
Dr. M. Périgord	11-1-21	Com. Physician 2nd. cl.

District of Cap-Haitien.

Lt-Comdr. O.Wildman (MC) USN.	3-15-26	Public Health Officer.
Lt.(jg) H.W.Gillen (MC) USN.	10-2-25	Asst. Public Health Officer.
Ph.M. 1 cl. J.M.Foster, USN.	10-13-24	Laboratory technician.
Ph.M. 1 cl. L.F.Curtis, USN.	12-22-25	" "
Dr. M. Etheart	7-1-24	Com. Physician 3rd cl.
Dr. Th. Holly	10-1-23	" " 4th cl.
Dr. P. Desmangles	1-16-25	" " 4th cl.
Dr. A. Féthière	1-2-26	Non-Com. physician.

District of Cayes.

Lt. M.S.Mathis (MC) USN.	4-9-26	Public Health Officer.
C.Ph.M. J.T.Eads, USN.	10-13-24	Asst. Public Health Officer.
Ph.M. 1 cl. E.H.Hyde, USN.	9-20-26	" " " "
Dr. E. Ledan	1-1-25	Com. Physician 5th cl.

District of Gonaives.

C.Ph.M. J.L.Inge, USN.	10-13-24	Asst. Public Health Officer.
Dr. H. Désir	12-15-25	Non-com. physician.

District of Hinche.

Lt. F.C.Hill (MC) USN.	7-30-25	Public Health Officer.
C.Ph.M. W.E.Burnham, USN.	10-13-24	Asst. Public Health Officer.
Dr. C. Fontus	9-22-22	Com. Physician 5th cl.
Dr. P. Cole	6-22-22	Non-com. physician.

District of Jacmel.

Lt-Comdr. R.P.Parsons (MC) USN.	5-14-25	Public Health Officer.
Ph.M. 1 cl. T.C.Burks, USN.	3-21-26	Asst. Public Health Officer.
Dr. A. Carriès	3-4-23	Com. Physician 3rd cl.

Name	Date of Employment	Duty
Miss E. Moser, A.N.C.	8-20-24	Directress Training School for Nurses.
Miss C.E. Authier, A.N.C.	8-25-25	Instructress " "
Miss A.M. Von Kurowsky, A.N.C.	7-15-25	Instructress " "

(d) Public Health Office

C.Ph. W.C.Von Norden, USN.	1-14-25	Public Health Officer.
C.Ph.M. R.J.Jarrell, USN.	8-8-25	Asst. Public Health Officer.
Dr. M. Perigord	11-1-21	Com. Physician 2nd. cl.

District of Gulf-Haitien.

Lt-Comdr. O.Widdman (MC) USN.	3-15-25	Public Health Officer.
Lt.(jg) H.W.Gillen (MC) USN.	10-2-25	Asst. Public Health Officer.
Ph.M. 1 cl. T.M.Foster, USN.	10-13-24	Laboratory technician.
Ph.M. 1 cl. L.F.Curtis, USN.	12-22-25	" "
Dr. M. Ethnert	7-1-24	Com. Physician 3rd cl.
Dr. Th. Holly	10-1-23	" " 4th cl.
Dr. P. Desmuglos	1-16-25	" " 4th cl.
Dr. L. Péthière	1-2-26	Non-Com. physician.

District of Cayes.

Lt. R.S.Mathis (MC) USN.	4-9-25	Public Health Officer.
C.Ph.M. J.T.Soda, USN.	10-13-24	Asst. Public Health Officer.
Ph.M. 1 cl. E.H.Hyde, USN.	9-20-25	" " " "
Dr. E. Lodan	1-1-25	Com. Physician 5th cl.

District of Gonaives.

C.Ph.M. J.L.Lego, USN.	10-13-24	Asst. Public Health Officer.
Dr. H. Désir	12-15-25	Non-com. physician.

District of Hinche.

Lt. P.C.Hill (MC) USN.	7-30-25	Public Health Officer.
C.Ph.M. W.E.Burnham, USN.	10-13-24	Asst. Public Health Officer.
Dr. C. Fontus	9-28-22	Com. Physician 5th cl.
Dr. P. Cole	6-22-22	Non-com. physician.

District of Jacmel.

Lt-Comdr. H.P.Parsons (MC) USN.	8-14-25	Public Health Officer.
Ph.M. 1 cl. T.C.Burke, USN.	3-21-25	Asst. Public Health Officer.
Dr. A. Curriès	3-4-25	Com. Physician 3rd cl.

Name	Date of Employment	Duty
District of Jeremie.		
Lt.(jg) B.M.Summers (MC) USN.	1-21-25	Public Health Officer.
C.Ph.M. F.O.Miller, USN.	6-22-26	Asst. Public Health Officer.
Dr. J. Papillon	11-1-25	Non-com. physician.
District of Petit-Goave.		
Lt. C.R.Tatum (MC) USN.	5-22-26	Public Health Officer.
Ph.M. 1 cl. H.C.Barrett, USN.	3-12-25	Asst. Public Health Officer.
Dr. D. Dejean	4-1-26	Non-com. physician.
District of Port-de-Paix.		
Ph.M. 1 cl. H.C.Wilcockson, USN.	10-13-24	Public Health Officer.
Dr. R. Léon	12-14-22	Com. Physician 2nd Cl.
District of Saint-Marc.		
Lt-Comdr. R.B.Miller (MC) USN.	3-15-26	Public Health Officer.
C.Ph.M. W.D.A.Robichau, USN.	3-1-25	Asst. Public Health Officer.

The following tables represent the changes in the personnel of the Service during the year:

Reported.

	Date of Employment	Place of Employment.
Dr. V. Bellevue	10-1-25	Port-au-Prince
Lt. (jg) C.D.Middlestadt (MC) USN.	10-2-25	Port-au-Prince
Lt. (jg) G.C.Thomas (MC) USN.	10-2-25	Port-au-Prince
Lt-Comdr. E.C.Ebert (MC) USN.	11-13-25	Port-au-Prince
Dr. E. H. Petrus	11-15-25	Port-au-Prince
Dr. L. Torchon	2-1-26	Port-au-Prince
Lt-Comdr. R.M.Choisser (MC) USN.	3-15-26	Portau-Prince
C.Ph. W.C. Van Norden, USN.	5-22-26	Port-au-Prince
Miss A. H. Von Kurowsky, A.R.C.N.	7-13-26	Port-au-Prince
Dr. J.B. Saint Cyr	7-26-26	Port-au-Prince
Dr. J. Francis	9-1-26	Port-au-Prince
Lt-Comdr. P.W.Wilson (MC) USN.	9-20-26	Port-au-Prince
Lt. (jg) H.W.Cillen (MC) USN.	10-2-26	Cap-Haitien
Ph.M. 1 cl. L.F.Curtis, USN.	12-22-25	Cap-Haitien
Dr. A. Féthière	1-2-26	Cap-Haitien

The following tables represent the changes in the personnel of the Service during the year:

Departed.

Name	Date of Employment	Place of Employment.
Dr. V. Bellevue	10-1-25	Port-au-Prince
Lt. (jg) C.D.Middlestadt (MC) USN.	10-2-25	Port-au-Prince
Lt. (jg) C.C.Thomas (MC) USN.	10-2-25	Port-au-Prince
Lt-Comdr. E.C.Ebert (MC) USN.	11-13-25	Port-au-Prince
Dr. E. E. Petrus	11-15-25	Port-au-Prince
Dr. I. Torchon	2-14-26	Port-au-Prince
Lt-Comdr. J.M.Chotsser (MC) USN.	3-15-26	Port-au-Prince
C.Pym. W.C. Van Norden, USN.	5-22-26	Port-au-Prince
Miss. A. E. Von Kurowsky, A.N.C.N.	7-13-26	Port-au-Prince
Dr. J.B. Saint Cyr	7-26-26	Port-au-Prince
Dr. I. Francis	9-1-26	Port-au-Prince
Lt-Comdr. P.W.Wilson (MC) USN.	9-20-26	Port-au-Prince
Lt. (jg) H.W.Gillen (MC) USN.	10-2-26	Cap-Haitien
Pharm. 1 cl. L.P.Curtis, USN.	12-22-25	Cap-Haitien
Dr. A. Pothière	1-2-26	Cap-Haitien

Detached.

Name	Date of Employment	Duty
District of Jacmel.		
Lt.(jg) D.M.Summers (MC) USN.	1-21-25	Public Health Officer.
C.Pharm. P.O.Miller, USN.	6-22-26	Asst. Public Health Officer.
Dr. J. Papillon	11-1-25	Non-com. physician.
District of Petit-Goave.		
Lt. C.E.Tatum (MC) USN.	8-22-26	Public Health Officer.
Pharm. 1 cl. H.C.Barrett, USN.	3-12-25	Asst. Public Health Officer.
Dr. D. Dejean	4-1-26	Non-com. physician.
District of Port-de-Paix.		
Pharm. 1 cl. H.C.Wilcockson, USN.	10-13-24	Public Health Officer.
Dr. M. Léon	12-14-22	Com. Physician 2nd Cl.
District of Saint-Marc.		
Lt-Comdr. H.B.Miller (MC) USN.	3-15-26	Public Health Officer.
C.Pharm. W.D.A.Robichaux, USN.	3-1-26	Asst. Public Health Officer.

	Date of Employment	Place of Employment
Lt-Comdr. O. Wildman (MC) USN.	3-15-26	Cap-Haitien
Lt. M. S. Mathis (MC) USN.	4-9-26	Cayes
Ph.M. 1 cl. E.H.Hyde, USN.	9-20-26	Cayes
Dr. H. Désir	12-15-25	Gonaives
Ph.M. 1 cl. T.C.Burks, USN.	3-21-26	Jacmel
Dr. J. Papillon	11-1-25	Jeremie
C.Ph.M. F.O.Miller, USN.	6-22-26	Jeremie
Dr. D. Dejean	4-1-26	Petit-Goave
Lt. C.R.Tatum (MC) USN.	5-22-26	Petit-Goave
Lt-Comdr. R.B. Miller (MC) USN.	3-15-26	Saint-Marc.

Detached.

	Date of Employment	Date of Detachment
C.Ph.M. H. Rydeen, USN.	1-1-24	1-2-26
Lt. R.E.S.Kelly (MC) USN.	10-27-24	1-29-26
Dr. M. Schutt	10-1-24	2-1-26
Dr. E. Roc	10-1-25	2-17-26
Lt. E.J.Lanoix (MC) USN.	12-12-24	3-15-26
Lt-Comdr. W.L.Irvine (MC) USN.	1-15 -23	3-15-26
Lt. (jg) G.F.Cooper (MC) USN.	3-1-25	3-31-26
Lt-Comdr. R.H.Laning (MC) USN.	6-15-22	4-1-26
C.Ph.M. E.E.Dungan, USN.	10-13-24	4-6-26
Lt-Comdr. J.G.Powell (MC) USN.	5-15-23	5-12-26
Miss Tessa de Alberti, A.R.C.N.	6-10-25	5-30-26
Dr. W. Théard	12-15-22	5-31-26
Lt-Comdr. L.M.Schmidt (MC) USN.	9-15-25	6-22-26
C.Ph. H.C.Roe, USN.	6-20-23	6-24-26
C.Ph.M. E.E.Miller, USN.	10-13-24	7-25-26
Lt-Comdr. A.L.Clifton (MC) USN.	3-15-26	8-3-26
Miss A. Buchanan, A.R.C.N.	5-20-24	8-8-26
Dr. Th. Télémaque	6-15-26	8-10-26
Lt-Comdr. R.R.Gasser (MC) USN.	10-22-24	9-8-26
Lt. (jg) E.J.Cure (MC) USN.	10-2- 25	9-15-26.

Date of Employment	Place of Employment
Lt-Comdr. O. Wildman (MC) USN.	3-15-26	Cap-Haitien
Lt. M. S. Mathis (MC) USN.	4-3-26	Cayes
Th.M. 1 ci. E.M.Hyde, USN.	9-20-26	Cayes
Dr. M. Désir	12-15-25	Gonaives
Th.M. 1 ci. T.C.Burke, USN.	3-21-26	Jacmel
Dr. J. Tapillon	11-1-26	Jeremie
C.Ph.M. E.O.Miller, USN.	6-22-26	Jeremie
Dr. D. Dejean	4-1-26	Petit-Goave
Lt. C.M.Tatum (MC) USN.	5-22-26	Petit-Goave
Lt-Comdr. J.B. Miller (MC) USN.	3-15-26	Saint-Marc.

Detached.

Date of Employment	Date of Detachment
C.Ph.M. H. Lydeen, USN.	1-1-24	1-2826
Lt. H.E.S.Kelly (MC) USN.	10-27-24	1-29-26
Dr. M. Schutt	10-1-24	2-1-26
Dr. E. Roe	10-1-25	2-17-26
Lt. E.J.Lamoix (MC) USN.	12-13-24	3-15-26
Lt-Comdr. W.L.Irvine (MC) USN.	1-15 -23	3-15-26
Lt. (jg) O.P.Cooper (MC) USN.	3-1-25	3-31-26
Lt-Comdr. H.H.Dunning (MC) USN.	6-15-22	4-1-26
C.Ph.M. M.E.Dungan, USN.	10-13-24	4-6-26
Lt-Comdr. J.G.Towell (MC) USN.	5-13-23	5-12-26
Miss Teresa de Alberti, N.C.N.	6-10-25	5-30-26
Dr. V. Théard.	12-15-22	5-31-26
Lt-Comdr. L.M.Schmidt (MC) USN.	9-15-25	6-22-26
C.Th. H.C.Roe, USN.	6-20-23	6-24-26
C.Ph.M. E.E.Miller, USN.	10-13-24	7-25-26
Lt-Comdr. A.L.Clifton (MC) USN.	3-15-26	8-3-26
Miss A. Buchanan, N.C.N.	5-20-24	8-8-26
Dr. Th. Télémaque	6-15-25	8-10-26
Lt-Comdr. H.L.Gasser (MC) USN.	10-22-24	9-8-26
Lt. (jg) H.J.Cure (MC) USN.	10-2- 25	9-15-26.

LAWS AND REGULATIONS.

The following laws of interest to the Public Health Service were enacted during the past year.

1) Law transferring the National School of Medicine and Pharmacy to the Department of Interior, Section of the Public Health Service.

L A W

B O R N O

President of the Republic.

In view of article 55 of the Constitution;

In view of article 1 of the law of 18 October 1901 on Public Instruction;

In view of the law of 16 September 1906 on medical teaching, and that of 15 September 1906 on teaching of law;

Considering that the teaching of law has its normal place under the Department of Justice, where a more efficient control over the legal studies may be instituted;

Considering that the development of medical education constitutes a paramount duty for public authorities;

That the Public Health Service has at its disposal various facilities which can be utilized to marked advantage in the operation of a medical school;

Upon the report of the Secretaries of State for Public Instruction, Justice, Interior and Finance;

And upon the advise of the council of Secretaries of State;

HAS PROPOSED

And the Council of State has voted the following law:

Article 1. Beginning from August 1st, the teaching of medicine will be transferred to the Department of Interior, Section of the Public Health Service, that of law to the Department of Justice.

The credits allotted to article 676 of the Budget of the Department of Public Instruction for superior teaching are consequently cancelled for the months of August and September.

Article 2. An extraordinary credit of four thousand five hundred and eighty gourdes is allotted to the Department of Justice to Cover the salaries of the personnel of the National School of Law during the months of August and September of the present fiscal year.

Article 3. An extraordinary credit of FIFTY THOUSAND gourdes is allotted to the Department of the Interior for material and supplies of the Medical School.

It is further allotted to this Department an extraordinary credit of six thousand five hundred and forty gourdes to cover the salaries of the personnel of the Medical School during the months of August and September of the present fiscal year.

Article 4. Pending the time until a special law on the salaries of the Medical School personnel will be voted, these salaries will be fixed by the Secretary of State for the Interior upon the recommendation of the Sanitary Engineer with the approval of the Secretary of State for Finance in accord with the Financial Adviser.

Article 5. The ways and means of the credits allotted will be taken from the Public Treasury.

Article 6. The present law repeals all laws or dispositions of law contrary to it; and will be executed by the Secretaries of State for Public Instruction, Justice, Interior and Finance, as far they are respectively concerned.

Given at the Legislative House, at Port-au-Prince, the 16th of July 1926, the 123rd Year of the Independance.

President: Em. J. Thomas.
Secretaries: H. Pasquier & D. Charles, ad hoc.

2) Presidential regulations governing the administration of the Medical School.

"ARRETE"

BORNO,

President of the Republic.

In view of Article 75 of the Constitution;

In view of the Law of 16 July 1926, transferring the School of Medicine and Pharmacy to the Department of the Interior, Section of the Public Health Service.

"A R R E T E"

Article 1. The School of Medicine and Pharmacy confers upon students of both sexes who have followed regularly the courses of the School and passed successfully the examinations provided for in articles 7, 8, 9 and 10 of the present "arrete", the degrees of Doctor of Medicine, Doctor of Dental Surgery, Pharmacist and Midwife.

Article 2. All applications for admission must be made in person to the Dean of the School between September 10 and 20 each year. Such request should be accompanied by the following documents: 1. A certificate of secondary education of the second degree (2nd part); 2. A certificate of good moral character; 3. A health certificate delivered by a member of the school staff following a medical examination; 4. A copy of the birth certificate; 5. A written authorization from his legal guardian, if applicant is under age.

Article 3. A candidate to the degree of Doctor of Medicine who only has a certificate of secondary education (1st part) must, in order to be admitted to the school, pass the examination required for the certificate of philosophy (physical and natural sciences) before a board consisting of a director of public instruction as President, and having as members the dean of the Medical School or his representative and three professors in secondary classical schools, all of them to be designated by the Department of Public Instruction.

Article 4. The candidate for the degree of Doctor of Dental Surgery, or Pharmacist, must, in order to be admitted to the school, have a certificate of secondary education (1st part) or in the absence of such a certificate, must pass an entrance examination before the board referred to in the preceding article.

With regard to the candidates for midwife, the "Brevet Supérieur" shall be evidence of sufficient preliminary education. In

"ARRETE"

DONNE,

Président de la République.

In view of Article 75 of the Constitution;

In view of the Law of 16. July 1920, transferring the School of Medicine and Pharmacy to the Department of the Interior, Section of the Public Health Service.

"A R R E T E"

Article 1. The School of Medicine and Pharmacy confers upon students of both sexes who have followed regularly the courses of the School and passed successfully the examinations provided for in Articles 7, 8, 9 and 10 of the present "Arrete", the degrees of Doctor of Medicine, Doctor of Dental Surgery, Pharmacist and Midwife.

Article 2. All applications for admission must be made in person to the Dean of the School between September 30 and 20 each year. Such request should be accompanied by the following documents: 1. A certificate of secondary education of the second degree (2nd part); 2. A certificate of good moral character; 3. A health certificate delivered by a member of the school staff following a medical examination; 4. A copy of the birth certificate; 5. A written authorization from his legal guardian, if applicant is under age.

Article 3. A candidate to the degree of Doctor of Medicine who only has a certificate of secondary education (1st part) must, in order to be admitted to the school, pass the examination required for the certificate of philosophy (physical and natural sciences) before a board consisting of a director of public instruction as President, and having as members the dean of the Medical School or his representative and three professors in secondary classical schools, all of them to be designated by the Department of Public Instruction.

Article 4. The candidate for the degree of Doctor of Dental Surgery, or Pharmacist, must, in order to be admitted to the school, have a certificate of secondary education (1st part) or in the absence of such a certificate, must pass an entrance examination before the board referred to in the preceding article.

With regard to the candidates for midwife, the "Brevet Supérieur" shall be evidence of sufficient preliminary education. In

the absence of such a certificate the applicants must pass an entrance examination.

Article 5. The program of didactic and practical teaching shall be prepared (subjects, schedule of courses, examinations) at the beginning of each year, by the Dean of the Medical School, in accord with the Chief of the Public Health Service of his representative, and will be submitted to the Department of the Interior.

Article 6. At the end of each year, the student, after having taken his inscriptions at the fixed periods, must successfully pass an examination on the subjects of the year in order to be admitted to follow the courses of the subsequent year.

Article 7. To obtain the degree of Doctor of Medicine, the candidate must pass satisfactorily through four years of theoretical and practical instruction in the school and a fifth or intern year at the Haitian General Hospital, after which he will take his last examination. At least 850 hours will be devoted to instruction during each one of the four years; and during the twelve months of the fifth or intern year, the student shall perform satisfactory work.

Article 8. To obtain the degree of Doctor of Dental Surgery the candidate must pass satisfactorily through three years of theoretical and practical instruction. The courses of the first year are the same as those given to the first year students in the school of medicine. During the second year at least 480 hours will be devoted to theoretical and practical teaching. During the third year, practical teaching will be given in dental clinics recommended by the Dean of the Medical School and approved by the Chief of the Public Health Service; after the completion of the third year the student shall take his last examination at the School in order to obtain his degree of Doctor of Dental Surgery.

Article 9. To become a graduate in pharmacy the candidate must pass satisfactorily through three years of theoretical and practical instruction. Four hundred and ninety four (494) hours shall be devoted to these studies during the first year and at least 418 hours during the second year. During the third year, practical teaching will be given in pharmacies recommended by the Dean of the School and approved by the Chief of the Public Health Service. After the completion of the third year the student shall take his last examination at the school in order to qualify as a pharmacist.

Article 10. To become a midwife the candidate must pass satisfactorily through three years of practical and theoretical instruction, the first two years at the Nurses' Training School of the Haitian General Hospital, Port-au-Prince, and the third year in the obstetrical department of said hospital. At the end of the third year the examination will be held at the School of Medicine and Pharmacy.

Article 11. The diplomas of Doctor of Medicine, Doctor of Dental Surgery, Pharmacist and Midwife will be issued by the "Chief of the University", upon the report of the Dean of the Medical School forwarded by the Chief of the Public Health Service to the Department of the Interior which will transmit it, as well as the "procès-verbal" of the board of examiners to the Department of Public Instruction.

The board of examiners shall be composed of members of the school personnel assisted by a director of public instruction.

Article 12. The Dean of the Medical School shall maintain proper discipline at the institution. If he deems that the work and conduct of a student are not satisfactory he will notify the Chief of the Public Health Service who will make report of the fact to the Secretary of State for Interior who will decide whether or not the student must be excluded from the School.

Article 13. The appointment and discharge of the personnel of the School of Medicine and Pharmacy are governed by the Law of December 5, 1924, dealing with the personnel of the Public Health Service.

Article 14. The present "arrete" will be executed by the Secretaries of State for Interior and Public Instruction.

Given at the National Palace, at Port-au-Prince on the 9th day of September 1926, the 123rd year of the Independance.

BORNO.

Fombrun, Secretary of State for Interior.

3) Law dealing with the registration of Dogs.

LOUIS BORNO

President of the Republic.

In view of article 55 of the Constitution;

Considering that, due to the large number of ownerless dogs at large and the subsequent danger to the public, it is necessary to limit the number of dogs;

Upon the proposition of the Secretary of State for Interior;

And with the advise of the council of the Secretaries of State;

HAS PROPOSED

And the Council of State has enacted the following law:

Article 1. No person shall be permitted to keep a dog or dogs unless he or she has made a declaration at the Bureau of Police and has obtained the necessary authorization.

Article 2. The declaration will be made according to the way fixed by the Bureau of Police and will carry the name and address of the owner, a brief description of the dog and all other information that the Bureau of Police may require; said declaration to be registered in a book kept for this purpose.

Article 3. A license, signed by the Chief of Police or his representative and bearing the seal of the Bureau of Police, date of issuance and name and address of the owner, will be delivered to the owner upon presentation of a receipt from the Communal Receiver, showing the payment of a tax of THREE gourdes.

Article 4. In case of sale or transfer of the dog, its owner will be obliged so to advise the Bureau of Police giving the name and address of the one to whom the sale or transfer has been made and also the date of the transaction.

Article 5. Licenses may be inspected any time during the year by the Chief of Police.

Article 6. Every dog must carry at all times securely fastened to a collar about his neck a metal license tag, of such size and shape and bearing such seal and number as may be prescribed by the Gendarmerie.

Article 7. This tag will be issued gratuitously by the Gendarmerie upon presentation of the license. It will remain the property of the Commune and must be turned over to the Commune upon the death of the dog.

Article 8. In case of loss or damage of a tag it will be immediately replaced at the expense of the interested party.

Article 9. All dogs found without proper license tags will be captured by the police and placed in the communal pound. If after 48 hours such dogs are not claimed by the proper owners and provided with license tags the commune shall dispose of them in such manner as the Public Health Service may see fit. To secure the release of a dog which has not been properly licensed prior to capture, the owner must pay a fine of THREE gourdes.

Article 10. The funds collected in execution of the above articles 8 and 9 will be turned over to the communal treasury.

Article 11. There will be allotted every year in the budgets of the communes a sum sufficient for the manufacture of the license tags, and their accessories, the payment of dog catchers, the maintenance of the pound, the feeding of the animals, the service of control and any other expenses necessary for carrying out the dispositions of this law.

Article 12. The communal councils are required to take all steps necessary to protect the public against the danger of roaming ownerless dogs.

Article 13. The present law, which will be effective from September 1st, 1926, repeals any laws or dispositions of law contrary to it and will be executed by the Secretary of State for the Interior.

President: Em. J. Thomas.
Secretaries: Dr. G. Beauvoir, Em. Destin, ad hoc.

The above law has served as basis for the various communes for the introduction of specific ordinances on this subject. The majority of the communes have passed the following ordinance.

4) CITY OF PORT-AU-PRINCE.

Ordinance of the Communal Commission.

In view of article 50, paragraph 2, of the Law of 6 October 1881 on the communal councils;

In view of the law of 4 August 1926, regulating possession and circulation of dogs;

Considering that the roaming of dogs about the commune constitutes a public danger and that it is necessary to limit their number;

ORDINANCE.

Article 1. Fifteen days after the promulgation of the present ordinance, any dogs, in order to roam within the limits of the city, its suburbs or its rural sections shall be muzzled or kept on a leash.

Article 2. Any dog, found without muzzle roaming about in the above mentionned areas will be captured and sent to the pound.

Article 3. Any dog suspected of having rabies shall be sent to the pound for disposition by the Public Health Service.

The owner of the suspected animal is required, even in the absence of definite instruction from the administration, to carry out this order.

Article 4. Within the city limits or its suburbs, as in any other thickly populated area within the commune, the muzzle of a licensed dog may be removed between the hours of 6 p.m. and 4 a.m. provided that during that time, the animal is not in any place other than at his owner's or keeper's house.

Article 5. In the rural sections of the commune, where dogs are used as watch dogs of farms, factories, storehouses, cattle, etc. the muzzle may be removed between the hours of 6 p.m. and 6. am.

Article 6. Any owner or keeper of a dog who violates the above regulations will be punished in accordance with articles 394 and 397 of the Penal Code, without prejudice of the action for damage.

Article 7. The present ordinance, after approval of the Secretary of State for the Interior, will be executed by the Communal Administration, the Public Health Service and the Bureau of Police of this city.

Given at the Communal House, this day, Sept.13,1926.

Ch. de Delva - President;
Seen and approved:
Fombrun, Secretary of State for the Interior.

5) Modification of the Personnel Law.

L A W

B O R N O,

President of the Republic.

In view of articles 55 and 75 of the Constitution;

In view of article 13 of the Treaty of 16 September 1915, between Haiti and the United States;

In view of the law of 24 February 1919, on the National Public Health Service;

Considering that paragraph (a) of article 1, of the law of December 4, 1924, fixes the salaries of Public Health Officers of 1st class from G. 875.oo to 1,000.oo and that the gradual development of the said service makes it necessary to increase their salaries as it seems fit;

Upon the report of the Secretary of State for the Interior;

And upon the advise of the Council of Secretaries of State;

HAS PROPOSED

And the Council of State has voted the following law:

Article 1. Paragraph (a) of Article 1, of the law of 5 December 1924, relative to the salaries of Public Health Officers is modified as follows:

A. Public Health Officers of 1st class - G. 875.oo To 1,250.

Article 2. The present law repeals all laws or dispositions of law contrary to it and will be published and executed by the Secretaries of State for Interior and Finance.

Given at the Legislative House, in Port-au-Prince, on August 8, 1926, the 123rd year of the Independance.

President: Em. J. Thomas.
Secretaries: Dr. G. Beauvoir, H. Pasquier.

6) Ratification of Pan American Sanitary Code.

On June, 1926, the Pan American Sanitary Code was ratified by the Republic of Haiti.

5) Modification of the Personnel Law.

L A W

H O N D O,

President of the Republic.

In view of Articles 55 and 75 of the Constitution;

In view of Article 13 of the Treaty of 15 September 1915, between Haiti and the United States;

In view of the law of 24 February 1919, on the National Public Health Service;

Considering that paragraph (a) of Article 1, of the law of November 4, 1924, fixes the salaries of Public Health Officers of 1st class from G. $75.00 to 1,000.00 and that the gradual development of the said service makes it necessary to increase their salaries as it seems fit;

Upon the report of the Secretary of State for the Interior;

And upon the advice of the Council of Secretaries of State;

HAS PROPOSED

And the Council of State has voted the following law;

Article 1. Paragraph (a) of Article 1, of the law of 5 December 1924, relative to the salaries of Public Health Officers is modified as follows:

A. Public Health Officers of 1st class - G. $75.00 To 1,250.

Article 2. The present law repeals all laws or dispositions of law contrary to it and will be published and executed by the Secretaries of State for Interior and Finance.

Given at the Legislative House, in Port-au-Prince, on August 8, 1926, the 123rd year of the Independance.

President: Dr. J. Thoms.

Secretaries: Dr. G. Beauvoir, H. Desgeloz.

6) Modification of Pan American Sanitary Code.

On June, 1926, the Pan American Sanitary Code was ratified by the Republic of Haiti.

DIVISION OF FINANCE AND SUPPLIES.

The funds available for the Public Health Service are the yearly maintenance appropriations or budgets, the extraordinary credits and supplemental credits, which are voted to increase one or more of the yearly maintenance budgetary articles (Funds) when such is necessary.

The yearly maintenance budgets are to meet expenditures incurred during the fiscal year for which they are voted. At the end of the year the sum total of all obligations in each budgetary article is transferred to a liquidation account and the obligation must be met before December 31st. All unobligated balances revert to the national treasury.

All money received for treatment in hospitals, laboratory examinations, etc. is deposited to the credit of the budgetary fund voted for the maintenance of hospitals. All money received for sanitation and quarantine work (such as removing dead animals; inspection of incoming ships at night, etc.) is deposited to the credit of the budgetary fund voted for the maintenance of sanitation and quarantine work. All money received from the sale of supplies to other departments is deposited to the credit of the budgetary fund voted for the purchase of supplies and equipment.

Each commune donates five percent of the communal receipts to the Public Health Service which amount is deposited to the Credit of the budgetary fund voted for sanitation and used for that purpose in the commune which made the donation.

All money deposited by a district to the credit of a budgetary fund automatically increases the monthly allotment to that district under that specific budgetary fund, and any balance remaining at the end of the year is made available during the succeeding fiscal year.

As stated in the report of last year the method of reporting expenditures was changed during the fiscal year 1924 to 1925 and the present system has operated successfully during the fiscal year 1925 to 1926. Analysis of expenditures have been prepared for maintenance funds only (Budgetary Articles) as Extraordinary Credits are voted for a specific purpose. In the analysis of expenditures it will be noted that the expenditures are divided into Personnel and class numbers. Class numbers below 100 represent expenditures for expendable supplies and those from 100 and above

expenditures for non-expendable material. Following is a list of the items of expenditure which are represented by class numbers as indicated.

01 Drugs and medicinal preparations:
Medicines
Antiseptics and disinfectants
Tablets
Biologicals.

02 Hospital and Surgical supplies:
Surgical instruments and appliances (expendable)
Surgical dressings
Hospital and nursing appliances (expendable)
Bedding and linen (expendable).

03 Laboratory, X-Ray and other supplies:
Dispensary and laboratory equipment (expendable)
X-Ray apparatus and supplies (expendable)
Microscopical supplies and accessories (expendable)
Chemical reagents and laboratory supplies
Laboratory animals.

04 Stationery and office supplies:
Plain paper in sheets; and supplies (excluding toilet paper)
Printed forms and letter heads (when charge is made)
Envelopes, mailing jackets, tubes and filing folders
Cards, guides and tags
Carbon and ink coated papers
Blotting paper
Blank books
Handwriting supplies such as pencils, penholders, pens, eradicators and erasers, desk pads, blotter holders, etc.
Supplies for office devices, such as typewriter ribbons, brushes, inking pads, metal seals, eyelets and staples, supplies for duplicating machines.
Paper fasteners, and clips, glue, paste, mucilage, pins, twine, tape, rubber bands, sealing wax, etc.
Inks and miscellaneous office supplies, such as sponges, desk calendar pads, etc.

05 Cleaning and toilet supplies:
Soaps, soap powders, and liquids (excluding laundry soap, etc.)
Chemical cleansers

expenditures for non-expendable material. Following is a list of the items of expenditure which are represented by class numbers as indicated.

01 Drugs and medicinal preparations:
Medicines
Antiseptics and disinfectants
Tablets
Biologicals.

02 Hospital and Surgical supplies:
Surgical instruments and appliances (expendable)
Surgical dressings
Hospital and mural appliances (expendable)
Bedding and linen (expendable).

03 Laboratory, X-Ray and other supplies:
Diagnostic and laboratory equipment (expendable)
X-Ray apparatus and supplies (expendable)
Microscopical supplies and accessories (expendable)
Chemical reagents and laboratory supplies
Laboratory animals.

04 Stationery and office supplies:
Plain paper in sheets; and supplies (excluding toilet paper)
Printed forms and letter heads (when change is made)
Envelopes, mailing jackets, tubes and filing folders
Cards, guides and tags
Carbon and ink coated papers
Blotting paper
Rough books
Handwriting supplies such as pencils, pen-holders, pens, erasers and correctors, desk pads, blotter holders, etc.
Supplies for office devices, such as typewriter ribbons, brushes, inking pads, metal seals, eyelets and staples, supplies for duplicating machines.
Paper fasteners, emblems, clips, glue, paste, mucilage, pins, twine, tape, rubber bands, sealing wax, etc.
Inks and miscellaneous office supplies, such as sponges, desk calendar pads, etc.

05 Cleaning and toilet supplies:
Soaps, soap powders, and liquids (excluding laundry soap, etc.)
Chemical cleansers

Disinfectants, fungicides, germicides, vermicides, insectisides and other prepared animal poisons
Toilet paper
Sponges, fabrics, brooms and brushes and other cleaning and toilet supplies.

06 Provisions:
Self explanatory.

07 Forage and other supplies for animals:
Self explanatory.

08 Laundry supplies:
Soap and other supplies used for laundry work.

09 Transportation service:
Gasoline
Oil and grease
Automobile soap; cleaning supplies
Spark plugs and other accessories.

10 Fuel:
Charcoal, wood, etc.

11 Furnishing of electricity:
The cost of furnishing all electricity.

12 The cost of furnishing all water where a charge for same is made.

13 Kitchen, dining room and household supplies:
China, glassware, salt and pepper shakers, inexpensive cooking utensils and household supplies.

14 Mechanics, engineers and electricians supplies:
Lubricants, packing, caulking and gaskets, polishing and abrading supplies, waste, and wipers, electricians and welding supplies.
Refrigeration supplies. Plumbers supplies. Minor tools and supplies not carried as non-expendable.
Machine shop supplies - Carpenter's supplies, such as nails, screws, minor tools, etc.

15 Material:
Includes expenditures for materials which may be used for any of several purposes, the determination of which purpose they will be applied to not having

been made at the time of purchase. Materials purchased for constructing or repairing buildings or for the manufacture of equipment are to be charged directly to the purpose for which expenditure is made, if known. For example, if at the time of purchase the materials are bought for manufacturing a body for a truck it will be charged to class 23; if purchased for repairing a building it will be charged to class 19; but if at the time purchase is made it can not be allocated to a specific project, being purchased for stock, it will be charged to class 15.

16 Supplies for mosquito control:
Includes expenditures for all expendable supplies, such as oil, etc., used for the purpose of controling mosquito breeding.

17 Supplies used in quarantine work:
Expenditures for all expendable supplies used in quarantine work such as sulphur, alcohol, flour, sodium cyanide, sulphuric acid, etc. which are purchased primarily for fumigation.

18 Miscellaneous supplies and services not listed elsewhere:
Self explanatory.

19 Repairs to buildings:
Includes all expenditures for material and supplies when purchased for the purpose of repairs to and minor alterations of buildings. Buildings include all permanent fixtures and equipment for furnishing light, power, etc. Also sewers, awnings, etc. For example, if at the time of purchase a wash bowl was bought for replacing a broken bowl it would be charged to this class; bought for stock it would be charged to class 14.

20 Repairs to water systems, sewers, ditches:
Repairs and minor improvements to water systems, sewers, ditches. Includes all expenditures for the purchase of supplies or materials (expendable) allocated at time of purchase; also the cost of all work performed by other departments or outside contract.

21 Repairs to bridges, piers and wharves:
Same as class 20.

22 Repairs to any equipment:
Repairs and minor improvements to any equipment except motor vehicles.

23 Repair to motor vehicles:
Spare parts for and repairs to ambulances and trucks, including, painting or repairing body, overhauling motor or electrical equipment or special work required to maintain the vehicle in running condition. Includes all expenditures under this class for the purchase of all supplies and materials for repairs when allocated at time of purchase; also cost of all work done by other departments or outside contract.

24 Repairs to road, ground, etc.:
Includes all expenditures for materials, supplies or labor performed by other departments or outside contract for repairs and minor improvements to roads, sidewalks, etc. Expenditures for purchase of trees, seeds, fertilizer, etc.

25 Special and miscellaneous repairs and improvements:
Includes all expenditures for repairs and minor improvements not elsewhere classified.

26 Rent for buildings:
Self explanatory.

27 Hire animals:
Self explanatory.

28 Street Cleaning; garbage and rubbish removal.

29 Removal of nightsoil:
Includes all expenditures for above purposes except for equipment and other non-expendables.

30 Burial expenses:
Includes expenditures for caskets, embalming supplies etc.

31 Transportation of personnel and effects of personnel:
Self explanatory.

32 Rental of Telephones; long distance calls and telegrams.

33 Duty on imported articles.

100 Hospital, dispensary and laboratory equipment:
Includes all expenditures for equipment that is peculiar to hospital, laboratories or dispensaries.

101 Kitchen, dining room and household utensils and equipment:
Includes all expenditures for equipment that is peculiar to this department.

102 Furniture, furnishings and fixtures:
Includes expenditures for furniture used in hospital offices, and living quarters of the hospital staff, such as chairs, beds, tables, desks, floor coverings; storehouse fixtures; desk equipment, receptacles, wastebaskets, bins, scales, etc. porch shades, awnings, mirrors, etc.

103 Office machines and devices:
Typewriters; adding machines, multigraphes, etc.

104 Light; power, water and refrigerating and electrical equipment; Generators; motors; any refrigerating equipment.

105 Machinery and tools:
Any non-expendable machinery or tools.

106 Transportation and carrying equipment:
Ambulances; mules; trucks; wagons; harness, etc.

107 Fire preventing and fire fighting equipment:
Fire extinguishers; hose and reels, etc.

108 Mosquito control equipment:
Oil sprayers, etc.

109 Street cleaning; garbage and rubbish removal equipment.

110 Nightsoil removal equipment:
Any equipment which is purchased especially for the above purposes.

111 Library and reference books:
Self explanatory.

112 Sundry equipment:
Includes expenditures for equipment not listed elsewhere.

113 Quarantine equipment:
Includes expenditures for equipment purchased especially for this work such as buckets, dish pans, scales, etc.

The following maintenance funds were voted for the fiscal year 1925-1926:

Budgetary

Article No.	Gourdes.
301 - Administration, Supplies, Equipment----	549,000.00
311 - Sanitation and Quarantine----------	828,000.00
331 - Maintenance of Hospitals----------	873,000.00
Total.....	2,250,000.00

Expenditures of Budgetary Funds 1924 to 25 and 1925 to 26.

The total expenditures of Budgetary funds are shown in the following tables:

113 Sundry equipment:
Includes expenditures for equipment not listed elsewhere.

113 Quarantine equipment:
Includes expenditures for equipment purchased especially for this work such as buckets, dish pans, scales, etc.

The following maintenance funds were voted for the fiscal year 1925-1926:

Budgetary

Article No. Source.

301 - Administration, Supplies, Equipment---- $49,000.00

311 - Sanitation and Quarantine---------- 839,080.00

331 - Maintenance of Hospitals---------- 672,000.00

Total.....$1,560,080.00

Expenditures of Budgetary Funds 1924 to 25 and 1925 to 26.

The total expenditures of Budgetary funds are shown in the following tables:

EXPENDITURES - FISCAL YEAR 1924-25

DISTRICTS.	79 Gourdes	80 Gourdes	81 Gourdes	82 Gourdes	83 Gourdes	84 Gourdes	Total Gourdes
Cap-Haitien	4,000.00	1,500.00	120,515.75	122,676.95			248,692.70
Cayes			73,549.88	46,978.00			120,627.88
Gonaives			29,049.00	24,735.00			53,784.00
Hinche			8,090.00	23,895.56			31,985.56
Jacmel			45,776.00	48,992.00			94,768.00
Jeremie			37,365.00	22,510.50			59,875.50
Petit-Goave			43,680.00	18,700.00			62,380.00
Port-au-Prince	11,750.00	402,385.26	297,620.50	325,380.53	21,537.00	2,700.00	1,061,373.29
Port-de-Paix			30,785.00	16,150.00			46,935.00
Saint-Marc			28,935.00	22,024.99			50,959.99
TOTAL	15,750.00	403,885.26	715,466.13	672,043.53	21,537.00	2,700.00	1,831,381.92

79 - Salary of Sanitary Engineer and one Pharmacist
80 - Administration and Supplies
81 - Sanitation and Quarantine
82 - Hospitals
83 - Training School
84 - Charities

	79	80	81	82	83	84	Total
	Courdes	Courdes	Courdes	Courdes	Courdes	Courdes	Courdes
Cap-Haitien	4,000.00	1,800.00	120,516.75	1,254.65			240,632.70
Cayes			78,049.60	46,978.00			120,627.60
Gonaives			29,049.00	24,738.00			53,764.00
Hinche			6,090.00	25,998.66			31,988.66
Jacmel			45,776.00	48,992.00			94,768.00
Jeremie			37,866.00	22,810.80			59,876.80
Petit-Goave			43,680.00	19,700.00			63,380.00
Port-au-Prince	11,750.00	408,385.26	297,650.50	356,380.65	21,587.00	2,700.00	1,098,353.29
Port-de-Paix			30,765.00	16,150.00			46,915.00
Saint-Marc			28,936.00	22,024.99			50,960.99
TOTAL	15,750.00	403,885.26	718,466.15	672,043.55	21,587.00	2,700.00	1,831,381.02

79 - Salary of Sanitary Engineer and one Pharmacist
80 - Administration and Supplies
81 - Sanitation and Quarantine
82 - Hospitals
83 - Training School
84 - Charities

EXPENDITURES OF BUDGETARY FUNDS

FISCAL YEAR 1925-26.

DISTRICTS	301 Gourdes	311 Gourdes	331 Gourdes	Total Gourdes
Cap-Haitien	6,000.00	142,976.64	209,469.63	358,446.27
Cayes		100,018.37	62,210.97	162,229.34
Gonaives		40,538.99	37,737.20	78,276.19
Hinche		20,626.94	58,982.25	79,609.19
Jacmel		53,058.51	57,702.63	110,761.14
Jeremie		42,020.27	32,064.50	74,084.57
Petit-Goave		56,835.06	21,569.00	78,404.06
Port-au-Prince	569,725.27	423,364.94	468,362.85	1,461,453.06
Port-de-Paix		35,795.87	14,756.00	50,551.87
Saint-Marc		41,926.92	36,644.09	78,571.01
TOTAL	575,725.27	957,162.31	999,499.12	2,532,386.70

301 - Administration and Supplies.

311 - Sanitation and Quarantine.

331 - Maintenance of Hospitals.

Following is an Analysis of expenditures in the case of each of the above Budgetary Funds:-

EXPENDITURES OF BUDGETARY FUNDS

FISCAL YEAR 1925-26.

DISTRICTS	301 Courdes	311 Courdes	331 Courdes	Total Courdes
Cap-Haitien	6,000.00	142,976.64	209,469.63	358,446.27
Cayes		100,018.37	52,210.97	152,229.34
Gonaives		40,558.99	37,737.80	78,276.79
Hinche		20,626.94	59,982.85	79,609.79
Jacmel		53,038.51	57,702.63	110,741.14
Jeremie		42,050.27	32,064.50	74,064.57
Petit-Goave		56,836.06	21,967.00	78,803.06
Port-au-Prince	569,728.27	455,364.04	468,062.85	1,461,455.06
Port-de-Paix		55,705.87	14,786.00	70,491.87
Saint-Marc		41,336.32	36,644.09	78,971.01
TOTAL	575,728.27	967,162.81	999,199.13	2,538,390.70

301 - Administration and Supplies.

311 - Sanitation and Guarantine.

331 - Maintenance of Hospitals.

Following is an Analysis of expenditures in the case of each of the above Budgetary Funds:-

ANALYSIS OF EXPENDITURES - ARTICLE 301 (1925-26)

DISTRICTS	Personnel	01	02	03
Cap-Haitien	6,000.00			
Port-au-Prince	122,480.42	122,897.35	41,934.77	3,447.67
Total	128,480.42	122,897.35	41,934.77	3,447.67

DISTRICTS	04	05	06	07
Cap-Haitien				
Port-au-Prince	12,991.03	1,684.30		52.55
Total	12,991.03	1,684.30		52.55

DISTRICTS	08	09	10	11
Cap-Haitien				
Port-au-Prince		82,340.40		1,110.60
Total		82,340.40		1,110.60

DISTRICTS	12	13	14	15
Cap-Haitien				
Port-au-Prince		356.80	96.55	4,175.10
Total		356.80	96.55	4,175.10

ANALYSIS OF EXPENDITURES - UNITS 301 (1955-56)

DISTRICTS	Peshawar	01	02	03
Cap-Haitian	6,000.00			
Port-au-Prince	122,480.45	122,807.35	41,954.77	3,447.67
Total	128,480.45	122,807.35	41,954.77	3,447.67

DISTRICTS	04	05	06	07
Cap-Haitien				
Port-au-Prince	12,901.03	1,684.30		82.85
Total	12,901.03	1,684.30		82.85

DISTRICTS	08	09	10	11
Cap-Haitien				
Port-au-Prince		82,340.40		1,110.60
Total		82,340.40		1,110.60

DISTRICTS	12	13	14	15
Cap-Haitien				
Port-au-Prince		356.80	96.85	4,178.10
Total		356.80	96.85	4,178.10

Analysis of Expenditures - Article 301 Cont'd.

DISTRICTS	16	17	18	19
Cap-Haitien				
Port-au-Prince	19,265.04	125.00	15,441.19	
Total	19,265.04	125.00	15,441.19	

DISTRICTS	20	21	22	23
Cap-Haitien				
Port-au-Prince			110.55	35,741.33
Total			110.55	35,741.33

DISTRICTS	24	25	26	27
Cap-Haitien				
Port-au-Prince	20.00			
Total	20.00			

DISTRICTS	28	29	30	31
Cap-Haitien				
Port-au-Prince	1,757.55			2,873.35
Total	1,757.55			2,873.35

Analysis of Expenditures - Article 301 Cont'd.

DISTRICTS	16	17	18	19
Cap-Haitien				
Port-au-Prince	19,265.04	125.00	15,441.19	
Total	19,265.04	125.00	15,441.19	

DISTRICTS	20	21	22	23
Cap-Haitien				
Port-au-Prince			110.55	35,741.33
Total			110.55	35,741.33

DISTRICTS	24	25	26	27
Cap-Haitien				
Port-au-Prince	20.00			
Total	20.00			

DISTRICTS	28	29	30	31
Cap-Haitien				
Port-au-Prince	1,757.55			3,873.35
Total	1,757.55			3,873.35

Analysis of Expenditures - Article 301 Cont'd.

DISTRICTS	32	33	100	101
Cap-Haitien				
Port-au-Prince	8,043.30	1,000.00	25,620.90	75.00
Total	8,043.30	1,000.00	25,620.90	75.00

DISTRICTS	102	103	104	105
Cap-Haitien				
Port-au-Prince	2,959.30	1,092.75		3,578.55
Total	2,959.30	1,092.75		3,578.55

DISTRICTS	106	107	108	109
Cap-Haitien				
Port-au-Prince	48,651.30			5,457.55
Total	48,651.30			5,457.55

DISTRICTS	110	111	112	113
Cap-Haitien				
Port-au-Prince	2,945.50	991.90		
Total	2,945.50	991.90		

Analysis of Expenditures - Article 301 Cont'd.

DISTRICTS	98	99	100	101
Cap-Haitien Port-au-Prince	8,048.30	1,000.00	25,850.30	75.00
Total	8,048.30	1,000.00	25,850.00	75.00

DISTRICTS	102	103	104	105
Cap-Haitien Port-au-Prince	2,959.30	1,032.75		3,378.55
Total	2,959.30	1,032.75		3,378.55

DISTRICTS	106	107	108	109
Cap-Haitien Port-au-Prince	48,651.30			6,457.65
Total	48,651.30			6,457.65

DISTRICTS	110	111	112	113
Cap-Haitien Port-au-Prince	2,965.50	991.30		
Total	2,965.50	991.30		

Analysis of Expenditures - Article 301 Cont'd.

Districts	114	Total	Personnel	Material
Cap-Haitien		6,000.00	6,000.00	0.00
Port-au-Prince		569,725.27	128,480.42	447,244.85
Total		575,725.27	128,480.42	447,244.85

DISTRICTS	Rents
Cap-Haitien	0.00
Port-au-Prince	0.00
Total	0.00

Amounts are in gourdes. One gourde is equivalent to $ 0.20.

ANALYSIS OF EXPENDITURES - ARTICLE 311 (1925-26)

DISTRICTS.	Personnel	01	02	03	04
Cap-Haitien	97,680.77				
Cayes	85,936.19				42.75
Gonaives	37,382.05				
Hinche	16,172.33				
Jacmel	43,571.70			45.50	
Jeremie	35,899.72				30.00
Petit-Goave	46,210.35				
Port-au-Prince	378,469.62		47.00		29.50
Port-de-Paix	27,052.88				
Saint-Marc	37,316.54				
Total	805,692.15		47.00	45.50	102.25

DISTRICTS.	05	06	07	08	09
Cap-Haitien	16.56	408.50	360.00	897.01	8,923.51
Cayes	.94		1,165.09		2,680.37
Gonaives			10.00		186.92
Hinche	2.69		746.85		
Jacmel	680.00		5,432.00		15.00
Jeremie	591.00		2,694.79		19.50
Petit-Goave	94.56	3,024.30	52.00		96.00
Port-au-Prince		25,759.90	1,814.70	97.50	145.00
Port-de-Paix	72.33		1,587.10	312.75	16.85
Saint-Marc	17.50		149.60		256.28
Total	1,475.58	29,192.70	14,013.03	1,307.26	12,339.43

DISTRICTS.	10	11	12	13	14
Cap-Haitien	46.00				4,355.70
Cayes					792.00
Gonaives			7.00		15.00
Hinche					
Jacmel					
Jeremie	9.49				6.40
Petit-Goave	105.70				17.70
Port-au-Prince		1,225.40			200.55
Port-de-Paix					
Saint-Marc					
Total	161.19	1,225.40	7.00		5,387.35

ANALYSIS OF EXPENDITURES - AMOUNTS PAID (1938-46)

DISTRICTS	Personnel	01	02	03	04
Cap-Haitien	97,680.77				
Cayes	85,236.19				42.75
Gonaives	39,382.05				
Hinche	16,172.83				
Jacmel	43,571.70			45.50	
Jeremie	35,899.72				30.00
Petit-Goave	46,210.35				
Port-au-Prince	378,469.62		47.00		29.50
Port-de-Paix	27,089.89				
Saint-Marc	37,216.84				
Total	809,699.56		47.00	45.50	102.25

DISTRICTS	05	06	07	08	09
Cap-Haitien	16,758	436.50	360.00	807.01	8,923.51
Cayes			1,185.09		2,680.37
Gonaives			10.00		186.92
Hinche			748.85		
Jacmel			5,432.30		15.00
Jeremie			2,894.79		19.50
Petit-Goave			52.00		96.00
Port-au-Prince			1,914.70		145.00
Port-de-Paix			1,547.00		16.85
Saint-Marc			144.60		256.28
Total					

DISTRICTS	10	11	12	13	14
Cap-Haitien	4,000.00				4,358.70
Cayes					732.00
Gonaives			7.00		15.00
Hinche					
Jacmel					
Jeremie			9,449		6,410
Petit-Goave			105.70		17.70
Port-au-Prince					800.55
Port-de-Paix					
Saint-Marc					
Total			7.00		

Analysis of Expenditures - Article 311 Cont'd.

DISTRICTS.	15	16	17	18	19
Cap-Haitien		160.00		359.93	10,663.36
Cayes		7.50		1,489.00	1,265.89
Gonaives	3.05			15.80	74.45
Hinche				73.70	1,251.50
Jacmel					112.85
Jeremie	80.00			135.20	1,024.19
Petit-Goave	1,293.40			521.47	2,060.59
Port-au-Prince		76.00	105.00	2,526.64	3,452.15
Port-de-Paix	287.90			49.00	1,452.49
Saint-Marc		5.00		43.95	684.80
Total	1,664.35	278.50	105.00	5,213.89	22,042.27

DISTRICTS.	20	21	22	23	24
Cap-Haitien	1,993.50		637.60	70.00	1,477.50
Cayes	800.00		60.85	1,127.50	
Gonaives	73.82	1,054.43	138.50	77.15	
Hinche	575.00		5.00		
Jacmel	1,147.06		792.00		
Jeremie			50.13		15.00
Petit-Goave	544.26		138.01		13.00
Port-au-Prince	627.70		146.30	90.00	176.10
Port-de-Paix	311.73		375.63		
Saint-Marc	2,671.75		15.00	10.00	
Total	8,744.82	1,054.43	2,359.02	1,374.65	1,681.60

DISTRICTS.	25	26	27	28	29
Cap-Haitien	10.00		9,874.25	4,225.00	344.00
Cayes	929.50	1,200.00	357.50		
Gonaives		500.00	530.50	150.25	
Hinche			222.00	1,577.87	
Jacmel			289.00		
Jeremie	191.25	900.00	10.00	77.90	
Petit-Goave	70.63	150.00	1,999.55	243.54	
Port-au-Prince	2,535.30	750.00		149.00	
Port-de-Paix	205.75	1,020.00	1,766.71	463.11	60.00
Saint-Marc		650.00	5.00	23.50	
Total	3,942.43	5,170.00	15,054.51	6,910.17	404.00

Analysis of Expenditures - Article 311 Cont'd.

Analysis of Expenditures - Article 311 Cont'd.

DISTRICTS.	30	31	32	33	100
Cap-Haitien	52.50	189.95			
Cayes		50.00			
Gonaives					
Hinche					
Jacmel					
Jeremie	20.50	16.00			
Petit-Goave					
Port-au-Prince			610.00		
Port-de-Paix					
Saint-Marc					
Total	73.00	255.95	610.00		

DISTRICTS.	101	102	103	104	105
Cap-Haitien					52.00
Cayes		60.00			
Gonaives					
Hinche					
Jacmel					
Jeremie					
Petit-Goave					
Port-au-Prince	40.00	520.70			
Port-de-Paix					
Saint-Marc					18.00
Total	40.00	580.70			70.00

DISTRICTS.	106	107	108	109	110
Cap-Haitien	110.00		6.00		3.00
Cayes	2,053.29				
Gonaives				320.87	
Hinche					
Jacmel	972.50				
Jeremie	299.00				
Petit-Goave	150.00				
Port-au-Prince				25.00	
Port-de-Paix	701.28				
Saint-Marc	30.00				
Total	4,316.07		6.00	345.87	3.00

Analysis of Expenditures - Article 311 Cont'd.

DISTRICTS.	30	31	32	33	100
Cap-Haitien	52.50	189.35			
Cayes		80.00			
Gonaives					
Hinche					
Jacmel					
Jeremie	20.50	16.00			
Petit-Goave					
Port-au-Prince		810.00			
Port-de-Paix					
Saint-Marc					
Total	73.00	255.35	810.00		

DISTRICTS.	101	103	104	105
Cap-Haitien				52.00
Cayes		60.00		
Gonaives				
Hinche				
Jacmel				
Jeremie				
Petit-Goave				
Port-au-Prince	40.00	520.70		
Port-de-Paix				18.00
Saint-Marc				
Total	40.00	580.70		70.00

DISTRICTS.	106	107	108	109	110
Cap-Haitien	110.00		6.00		8.00
Cayes	2 053.29			320.87	
Gonaives					
Hinche					
Jacmel	972.80				
Jeremie	209.00				
Petit-Goave	450.00			25.00	
Port-au-Prince					
Port-de-Paix	701.25				
Saint-Marc	30.00				
Total	4 516.02		6.00	345.87	8.00

Analysis of Expenditures - Article 311 - Cont'd.

DISTRICTS.	111	112	113	Tr.to acct: Asile Com.	Total
Cap-Haitien		60.00			142,976.64
Cayes					100,018.37
Gonaives					40,538.99
Hinche					20,626.04
Jacmel					53,056.51
Jeremie					42,020.07
Petit-Goave					56,035.06
Port-au-Prince		71.25	6.00	3,668.63	423,364.94
Port-de-Paix		60.36			55,795.87
Saint-Marc					41,826.92
Total		191.61	6.00	3,668.63	957,162.31

	Personnel	Material	Rents	Tr.to acct: Asile Com.	
Cap-Haitien	97,680.77	45,295.87			
Cayes	85,936.19	12,882.18	1,200.00		
Gonaives	37,702.05	2,656.94	500.00		
Hinche	16,172.33	4,454.61			
Jacmel	43,571.70	9,486.81			
Jeremie	35,899.83	5,220.35	900.00		
Petit-Goave	46,210.35	10,474.71	150.00		
Port-au-Prince	370,469.52	40,476.69	750.00	3,668.63	
Port-de-Paix	27,052.88	7,722.09	1,020.00		
Saint-Marc	37,316.54	3,960.73	650.00		
Total	805,692.15	142,631.53	5,170.00	3,668.63	

Amounts are in gourdes. One gourde is equivalent to $0.20.

Analysis of Expenditures - Article XII - Cont'd.

ANALYSIS OF EXPENDITURES - ARTICLE 331 - (1925-26)

DISTRICTS.	Personnel	01	02	03	04
Cap-Haitien	111,269.04	799.10	56.65	76.00	90.10
Cayes	30,412.20				
Gonaives	20,904.44	22.00	779.50	29.00	27.00
Hinche	33,515.32		388.65		30.85
Jacmel	30,425.29		200.10	1.50	30.00
Jeremie	19,153.92	137.50	169.80	29.00	
Petit-Goave	8,068.30				6.00
Port-au-Prince	261,781.75	10,060.75	8,946.94	172.15	367.90
Port-de-Paix	8,775.00		20.00		
Saint-Marc	23,205.84	115.75	95.45		3.00
Total	547,511.10	11,145.10	10,657.09	307.65	554.85

DISTRICTS.	05	06	07	08	09
Cap-Haitien	152.55	62,352.24	213.35	1,167.40	229.00
Cayes	2.50	23,674.00	331.00	539.30	
Gonaives	7.00	12,295.30	41.95	388.00	9.00
Hinche	349.23	7,295.66	70.10	402.60	55.25
Jacmel	4.00	18,853.46	73.00	1,653.00	
Jeremie	18.05	9,668.50		316.50	
Petit-Goave	272.70	8,395.20	272.75	47.95	55.00
Port-au-Prince	496.15	94,403.58	1,057.51	5,004.65	2,878.41
Port-de-Paix		3,207.60		413.90	
Saint-Marc	22.10	9,058.94	336.45	336.25	105.75
Total	1,324.28	249,205.38	2,396.11	10,269.55	3,332.41

DISTRICTS.	10	11	12	13	14
Cap-Haitien	1,602.25	6,333.75	283.50	559.40	6,846.86
Cayes	585.10			14.20	
Gonaives	221.65	122.50		50.50	17.00
Hinche	563.25			481.79	238.02
Jacmel	659.00	38.50		276.50	12.80
Jeremie	765.81			118.50	8.30
Petit-Goave	190.00				259.95
Port-au-Prince	5,490.62	5,386.42	33.00	484.95	4.60
Port-de-Paix	144.90		150.00	36.00	
Saint-Marc	411.50		75.25	157.75	
Total	10,634.08	11,881.17	541.75	2,179.59	7,387.53

ANALYSIS OF EXPENDITURES - VARIOUS AGT - (1928-29)

DISTRICTS.	Personnel	01	02	03	04
Cap-Haitien	111,269.04	793.10	86.65	76.00	90.10
Cayes	30,412.30				
Gonaives	20,904.44	22.00	779.80	20.00	27.00
Hinche	33,315.32		386.65		30.85
Jacmel	30,425.29		200.10	1.50	30.00
Jeremie	19,153.92	137.80	169.80	29.00	
Petit-Goave	8,088.30				6.00
Port-au-Prince	261,781.75	10,060.75	6,246.94	172.15	367.20
Port-de-Paix	8,775.00		80.00		
Saint-Marc	23,208.84	1 8.75	98.45		3.00
Total	557,811.10	11 145.10	10,557.09	307.65	564.65

DISTRICTS.	05	06	07	08	09
Cap-Haitien	152.85	62,362.25	819 35	1,107.40	289.00
Cayes	2.30	23,674.00	331.00		839.30
Gonaives	7.00	12,295.30	41.05	386.00	9.00
Hinche	349.25	7,205.65	70.10	402.60	55.25
Jacmel	4.00	18,855.75	73.00	1,852.00	
Jeremie	13.05	9,550.80		816.80	
Petit-Goave	272.70	8,305.30	272.75	47.05	88.00
Port-au-Prince	496.18	94,405.88	1,087.81	8,004.65	2,978.49
Port-de-Paix		3,207.60		413.00	
Saint-Marc	22.10	9,055.95	330.65	736.25	103.75
Total	1,324.28	249,205.38	8,396.11	10,969.85	3,352.49

DISTRICTS.	10	11	12	13	14
Cap-Haitien	1,602.25	6,353.75	283.50	589.40	6,045.45
Cayes	365.10			14.20	
Gonaives	221.65	122.50		50.50	17.00
Hinche	863.95			481.70	238.05
Jacmel	689.00		30.50	276.50	12.80
Jeremie	765.81			118.50	8.30
Petit-Goave	190.00				289.95
Port-au-Prince	5,490.62	5,966.45	33.00	404.25	4.60
Port-de-Paix	144.00		150.00	36.00	
Saint-Marc	411.80		75.25	187.75	
Total	10,684.08	11,881.17	841.75	2,149.29	7,365.55

Analysis of Expenditures - Article 331 - Cont'd.

Districts.	15	16	17	18	19
Cap-Haitien				3,721.95	11,061.98
Cayes				667.14	3,787.43
Gonaives	10.50			76.25	2,372.43
Hinche	3,672.12			282.28	6,510.14
Jacmel	31.00			965.00	2,307.48
Jeremie				298.95	962.23
Petit-Goave	686.60		14.50	1,073.17	801.75
Port-au-Prince				2,525.78	20,870.35
Port-de-Paix				676.40	1,000.00
Saint-Marc				461.96	1,096.05
Total	4,400.22		14.50	10,748.88	49,869.84

DISTRICTS.	20	21	22	23	24
Cap-Haitien	508.85		48.00		557.00
Cayes				9.00	727.50
Gonaives				135.00	
Hinche	632.10				981.32
Jacmel	10.00		22.00		
Jeremie			50.00		
Petit-Goave	579.75		12.10		
Portaau-Prince	22.50		528.97	4,667.00	1,237.75
Port-de-Paix			43.00		
Saint-Marc	57.75		13.00		562.80
Total	1,810.95		717.07	4,811.00	4,066.37

DISTRICTS.	25	26	27	28	29
Cap-Haitien	132.00	480.00	28.00		
Cayes		895.00	475.70		
Gonaives				1.50	
Hinche	1,095.00	1,065.00	145.00		
Jacmel	950.00		985.00		
Jeremie	85.00				
Petit-Goave	20.00	170.00	300.00		
Port-au-Prince	85.50	3,617.00		4,227.40	
Port-de-Paix		960.00			50.00
Saint-Marc		120.00	5.00		
Total	2,367.50	7,307.00	1,938.70	4,228.90	50.00

Analysis of Expenditures - Article 331 - Cont'd.

Analysis of Expenditures - Article 331 - Cont'd.

DISTRICTS.	30	31	32	33	100
Cap-Haitien	288.00	28.05			60.40
Cayes					
Gonaives	181.90	6.00			9.00
Hinche	.60				60.00
Jacmel					
Jeremie		137.00			120.94
Petit-Goave					
Port-au-Prince		1,298.75		678.87	14,652.50
Portde-Paix	64.20	80.00			
Saint-Marc		2.50			190.00
Total	454.70	1,572.30		678.87	15,092.84

DISTRICTS.	101	102	103	104	105
Cap-Haitien	119.70	385.51			19.00
Cayes	84.00			6.00	
Gonaives		109.78			
Hinche	223.00	564.97		325.00	30.00
Jacmel		30.00			
Jeremie				24.50	
Petit-Goave		100.00			35.50
Port-au-Prince	72.25	9,925.05	868.85		789.40
Port-de-Paix		35.00			
Saint-Marc	76.50	8.00		81.50	
Total	575.45	11,158.31	868.85	437.00	873.90

DISTRICTS.	106	107	108	109	110
Cap-Haitien					
Cayes					
Gonaives					
Hinche				5.00	
Jacmel	175.00				
Jeremie					
Petit-Goave	147.78				
Port-au-Prince	5,260.90	28.75			
Port-de-Paix					
Saint-Marc	15.00				
Total	5,598.68	28.75		5.00	

Analysis of Expenditures - Article 351 - Cont'd.

Analysis of Expenditures - Article 331 - Cont'd.

DISTRICTS.	111	112	113	114	Total
Cap-Haitien					209,469.63
Cayes					62,210.97
Gonaives					37,737.20
Hinche					58,982.25
Jacmel					57,702.63
Jeremie					32,064.50
Petit-Goave		60.00			21,569.00
Port-au-Prince	175.10	252.80			468,362.85
Port-de-Paix					14,756.00
Saint-Marc					36,644.09
Total	175.10	312.80			999,499.12

DISTRICTS.	Personnel	Material	Rents
Cap-Haitien	111,269.04	97,720.59	480.00
Cayes	30,412.20	30,903.77	895.00
Gonaives	20,904.44	16,832.76	
Hinche	33,515.32	24,401.93	1,065.00
Jacmel	30,425.29	27,277.34	
Jeremie	19,153.92	12,910.58	
Petit-Goave	8,068.30	13,330.70	170.00
Port-au-Prince	261,781.75	202,964.10	3,617.00
Port-de-Paix	8,775.00	5,021.00	960.00
Saint-Marc	23,205.84	13,318.25	120.00
Total	547,511.10	444,681.02	7,307.00

Amounts are in gourdes. One gourde is equivalent to $0.20.

Analysis of Expenditures - Article 321 - Cont'd.

DISTRICTS:	111	112	113	114	Total
Cap-Haitien					
Cayes					
Gonaives					
Hinche					
Jacmel					
Jeremie					
Petit-Goave		60.00			
Port-au-Prince	176.10	252.90			
Port-de-Paix					
Saint-Marc					
Total	176.10	312.90			

DISTRICTS.	Personnel	Material	Rents	
Cap-Haitien	111.26	97.72	180.00	
Cayes	30.42	30.03	225.00	
Gonaives	20.30	16.03		
Hinche	33.23	24.40	1.06	
Jacmel	30.46	27.27		
Jeremie	19.16	12.91		
Petit-Goave	8.06	12.43	120.00	
Port-au-Prince	261.75	202.10	3.61	
Port-de-Paix	8.77	5.02	90.00	
Saint-Marc	23.20	13.31	120.00	
Total	547.81	444.68	5.30	

Amounts are in gourdes. One gourde is equivalent to $0.20.

It will be noted that the total amount expended in each Budgetary Fund was considerably more than the amount voted which is explained by the following table of amounts deposited by the various districts.

TABLE OF DEPOSITS 1925-26

DISTRICTS	301 Gourdes	311 Gourdes	331 Gourdes	Total Gourdes
Cap-Haitien		12,376.68	71.684.13	84,060.81
Cayes		9,660.00	1,286.00	10,946.00
Gonaives		3,109.06	3,978.96	7,088.02
Hinche		4,393.64	397.25	4,790.89
Jacmel		4,258.47	1,936.00	6,194.47
Jeremie		2,153.50	439.50	2,593.00
Petit-Goave		2,615.09	1,419.00	4,034.09
Port-au-Prince	26,782.04	84,522.91	40,784.08	152,089.03
Port-de-Paix		4,932.54		4,932.54
Saint-Marc		7,118.67	5,665.75	12,784.42
Total	26,782.04	135,140.56	127,590.67	289,513.27

The following table is self explanatory:

	Gourdes		Gourdes
Total Budgetary Funds	2,250,000.00	Total Expenditures	2,532.386.70
Total Deposits	289,513.27	Balance of deposits trans. to next year	6,567.69
		Reverted to Treasury	57.43
		In liquidation	501.55
TOTAL	2,539,513.27		2,539,513.27

One gourde is equivalent to $0.20

It will be noted that the total amount expended in each Budgetary Fund was considerably more than the amount voted which is explained by the following table of amounts deposited by the various districts.

TABLE OF DEPOSITS 1928-29

DISTRICTS	301 Gourdes	311 Gourdes	331 Gourdes	Total Gourdes
Cap-Haitien		2,376.60	71,688.13	84,060.01
Cayes		9,660.00	1,286.00	10,946.00
Gonaives		3,109.06	3,278.88	7,388.02
Hinche		4,393.64	397.25	4,790.89
Jacmel		4,258.47	1,936.00	6,194.47
Jeremie		2,152.50	439.50	2,592.00
Petit-Goave		2,615.09	1,419.00	4,034.09
Port-au-Prince	26,782.04	84,852.01	40,784.08	152,089.03
Port-de-Paix		4,032.54		4,832.54
Saint-Marc		7,119.67	5,668.75	12,784.42
Total	26,782.04	135,140.56	127,990.67	289,913.27

The following table is self explanatory:

	Gourdes		Gourdes
Total Budgetary Funds	2,259,000.00	Total Expenditures	2,522,386.70
Total Deposits	289,913.27	Balance of deposits Trans. to next year	6,667.69
		Reverted to Treasury	87.43
		In liquidation	501.55
TOTAL	2,539,913.27		2,539,913.27

One Gourde is equivalent to $0.20

The following table is based on the total amount of funds expended from Article 331 (Maintenance of Hospitals) of the Budget and the value of equipment and supplies received from the Supply Depot on requisitions.

Due to lack of funds available for the employment of sufficient trained personnel in the various districts it has been absolutely impossible to institute any system of cost accounting. No consideration has been given to the value of stores or equipment on hand at the beginning or end of the fiscal year.

DISTRICTS.	Daily average of patients.	Subsistence per patient per day.	Maintenance per patient per day from Article 331.	Received from Supply Depot on Requisitions.	Total maintenance per patient per day including salaries of personnel.
		Gourdes	Gourdes	Gourdes	Gourdes
Cap-Haitien	144	1.18	3.98	68,918.80	5.29
Cayes	106	0.61	1.60	44,754.04	2.76
Gonaives	50	0.92	2.06	11,719.10	3.03
Hinche (b)	15	1.33	10.77	25,494.10	15.43
Jacmel	56	0.92	2.82	42,737.98	4.91
Jeremie	26	0.66	3.37	18,729.81	5.35
Petit-Goave	46	0.50	1.28	13,711.10	2.10
Port-au-Prince	316	0.82	4.06	96,083.92	4.89
Port-de-Paix	18	0.47	2.24	33,137.29	7.28
Saint-Marc	36	0.70	2.78	40,781.08	5.89

The following table is based on the total amount of funds expended from Article 331 (Maintenance of Hospitals) of the Budget and the value of equipment and supplies received from the Supply Depot on requisitions.

Due to lack of funds available for the employment of sufficient trained personnel in the various districts it has been impossible to institute any system of cost accounting. No consideration has been given to the value of stores or equipment on hand at the beginning or end of the fiscal year.

DISTRICTS.	Beds.	Patients admitted.	Out-Patients.	Deaths.	Gross Revenue.
Cap-Haitien	144	1.18	3.38	69,919.80	8.38
Cayes	106	0.61	1.60	44,754.34	2.76
Gonaives	50	0.32	2.06	17,719.10	3.03
Hinche (b)	15	1.33	10.77	25,494.10	15.43
Jacmel	56	0.92	2.82	48,797.38	4.34
Jeremie	26	0.86	3.37	19,729.01	5.39
Petit-Goave	46	0.50	1.38	13,311.10	2.10
Port-au-Prince	316	0.48	1.05	98,083.92	4.89
Port-de-Paix	10	0.47	2.24	33,137.39	7.38
Saint-Marc	36	0.70	2.70	40,781.08	5.89

Explanatory notes: Amounts are in gourdes. One gourde is equivalent to $0.20.

(a) Sisters, nurses, nurses under training (Port-au-Prince) and a part of the hospital staff are also subsisted at each hospital, but the average number of patients only is used in computing the subsistence per day.

(b) Hinche:- Hospital was opened for patients November 23, 1926 (two months after beginning of fiscal year). Attention is invited to table of "Daily average of Patients".

(c) Original equipment was furnished, by the Supply Depot on requisitions for new hospital at Port-de-Paix and for enlargement of hospitals at Cayes, Jacmel, and Saint-Marc.

(d) The sum of Gourdes 2,952.30 was paid by the hospital at Port-au-Prince for equipment and supplies furnished to other hospitals. This sum deducted from the total cost of maintenance of this hospital would make the total maintenance per patient per day Gourdes 4.63 instead of Gourdes 4.89. The maintenance of the Training School for Nurses and equipment for and maintenance of the Public Health Laboratory are also included in the maintenance of the Port-au-Prince hospital.

A comparison of the Budgets 1924 to 1925 and 1925 to 1926 is shown in the following table:

		1924 to 1925	1925 to 1926
Administration and Supplies	Gdes.	507,996.00	549,000.00
Maintenance of Hospitals		689,798.04	873,000.00
Sanitation & Quarantine		576,000.00	328,000.00
Training School for Nurses		32,988.00	
Charity		3,600.00	
Salary of Sanitary Engineer and one Pharmacist		21,000.00	
Total.....	Gdes.	1,831,382.04	2,250,000.00

A comparison of the Supplemental Credits voted in 1924 to 1925 and 1925 to 1926 is shown in the following table:

		1924 to 1925	1925 to 1926
Sanitation (/)	Gdes.	139,466.25	0.00

(/) This Supplemental Credit did not increase the total of the Budget for the year, being met by cancellation of certain balances and reduction of balances in other credits.

A comparison of the Budgets 1924 to 1925 and 1925 to 1926 is shown in the following table:

	1924 to 1925	1925 to 1926
Administration and Supplies	Cdns. 807,905.00	549,000.00
Maintenance of Hospitals	689,790.04	873,000.00
Sanitation & Quarantine	577,000.00	329,000.00
Training School for Nurses	85,986.00	
Charity	3,600.00	
Salary of Sanitary Engineer and one Pharmacist	21,000.00	
Total.....	Cdns. 1,031,282.04	2,250,000.00

A comparison of the Supplemental Credits voted in 1924 to 1925 and 1925 to 1926 is shown in the following table:

	1924 to 1925	1925 to 1926
Sanitation (*)	Cdns. 130,464.25	0.00

(*) This Supplemental Credit did not increase the total of the Budget for the year, being met by cancellation of certain balances and reduction of balances in other credits.

The Extraordinary Credits voted in 1924 to 1925 and 1925 to 1926 are shown in the following tables:-

EXTRAORDINARY CREDITS 1924-1925:	Gourdes.
Medical and Surgical supplies	250,000.oo
Material and apparatus for sanitation	15,000.oo
Equipment and replacement of trucks	25,000.oo
Permanent sanitary improvements	71,000.oo
Rural dispensaries	34,000.oo
Reservoir, sewage system, new wards, chapel and repairs at Haitian General Hospital, Port-au-Prince	194,000.oo
Isolation ward, Justinien Hospital, Cap-Haitien	40,000.oo
Completion of Hospital, Port-de-Paix	100,000.oo
Enlargement of Hospital, Saint-Marc	15,000.oo
Repairs to and enlargement of Hospital at Cayes including purchase of land	200,000.oo
Dispensary; repairs to and enlargement of Hospital at Jacmel and isolation ward	95,000.oo
TOTAL	1,039,000.oo

The Extraordinary Credits voted in 1924 to 1928 and 1929 to 1958 are shown in the following tables:-

EXTRAORDINARY CREDITS 1924-1928:

	Credits.
Medical and Surgical supplies----------	$280,000.00
Material and apparatus for sanitation----------	$15,000.00
Equipment and replacement of trucks----------	$25,000.00
Permanent sanitary improvements----------	$71,000.00
Rural dispensaries----------	$34,000.00
Reservoir, sewage system, new wards, chapel and repairs at Haitian General Hospital, Port-au-Prince----------	$194,000.00
Isolation ward, Justinian Hospital, Cap-Haitien----------	$40,000.00
Completion of Hospital, Port-de-Paix----------	$100,000.00
Enlargement of Hospital, Saint-Marc----------	$15,000.00
Repairs to and enlargement of Hospital at Cayes including purchase of land----------	$200,000.00
Dispensary; repairs to and enlargement of Hospital at Jacmel and isolation ward----------	$94,000.00
TOTAL----------	$1,030,000.00

EXTRAORDINARY CREDITS 1925 to 1926.

Credit No.	Name.	Amount Gourdes	Bal.9-30-26 Gourdes.
1086	Permanent Sanitary Improvements-------	500,000.00	264,145.01
1087	Purchase of motor boats---------------	38,000.00	0.00
1088	X-Ray apparatus-----------------------	15,000.00	4,005.60
1089	Medical and Surgical supplies---------	300,000.00	29,188.90
1090	Equipment and replacement of trucks---	100,000.00	0.00
1091	Gasoline, oil and spare parts for motors----------	35,000.00	0.00
1092	Purchase of land for insane hospital & Quarantine station & addition to hospital, Cayes----------	140,000.00	118,127.00
1093	Mosquito oil, Kerosene & Sanitation apparatus----------	15,000.00	0.00
1094	Rural dispensaries (9)----------	45,000.00	10,071.21
1095	Plumbing, Haitian General Hospital----	51,000.00	51,000.00
1096	New Ward, Haitian General Hospital----	48,000.00	48,000.00
1097	Additions to Hospital, Saint-Marc-----	50,000.00	47,324.05
1098	Hospital and land at Petit-Goave------	75,000.00	60,149.41
1099	Combined building at Hinche Hospital--	5,000.00	5,000.00
1120	Material & Supplies for Medical School	50,000.00	48,977.37
1121	Salary of personnel, Medical School---	6,540.00	0.00
1127	Construction of new Medical School----	300,000.00	296,170.98
1128	Improvements to Haitian Gen. Hospital-	156,000.00	156,000.00
1129	Improvements to Hinche Hospital-------	26,500.00	26,500.00
1130	Operating rooms at St. Marc, Gonaives and Cayes----------	100,000.00	100,000.00
1131	Additions to Hospital at Port-de-Paix-	55,000.00	55,000.00
1132	Repairs, Jacmel Hospital--------------	9,000.00	9,000.00
1133	Repairs, painting, dispensary, basin and shower at Jeremie Hospital-------	33,000.00	33,000.00
1134	Rural dispensaries--------------------	144,000.00	144,000.00
1135	Additions to Supply Depot & Garage----	26,500.00	25,120.00
1159	Purchase of land for rural dispensaries	10,600.00	6,176.05
1160	Improvements to Hospitals at St. Marc, and Petit-Goave----------	74,000.00	74,000.00
1161	Payment of customs duties------------	25,000.00	24,096.12
	Total.....	2,433,140.00	1,635,051.70

Note:- Extraordinary Credits are available for two years after the date they are voted. Many of the above credits were voted recently.

EXTRAORDINARY CREDITS 1935 to 1936.

Credit No.	Items.	Amount Granted.	Bal. 9-30-36 Granted.
1096	Permanent Sanitary Improvements	500,000.00	264,145.01
1097	Purchase of motor boats	38,000.00	0.00
1098	X-Ray apparatus	15,000.00	4,008.60
1099	Medical and Surgical supplies	300,000.00	29,100.90
1100	Equipment and replacement of trucks	100,000.00	0.00
1101	Gasoline, oil and spare parts for motors	35,000.00	0.00
1102	Purchase of land for insane hospital & quarantine station & add'n to hospital, Cuyas	140,000.00	118,127.00
1103	Mosquito oil, Kerosene & Sanitation apparatus	15,000.00	0.00
1104	Rural dispensaries (9)	45,000.00	10,071.21
1105	Plumbing, Haitian General Hospital	81,000.00	81,000.00
1106	New Ward, Haitian General Hospital	48,000.00	48,000.00
1107	Additions to Hospital, Saint-Marc	30,000.00	42,324.05
1108	Hospital and land at Petit-Goave	75,000.00	60,140.41
1109	Combined building at Hinche Hospital	5,000.00	5,000.00
1110	Material & Supplies for Medical School	80,000.00	40,377.37
1121	Salary of personnel, Medical School	6,540.00	0.00
1127	Construction of new Medical School	300,000.00	296,120.08
1128	Improvements to Haitian Gen. Hospital	186,000.00	186,000.00
1129	Improvements to Hinche Hospital	26,800.00	26,800.00
1130	Operating rooms at St. Marc, Gonaive and Cuyas	100,000.00	100,000.00
1131	Additions to Hospital at Port-de-Paix	56,000.00	56,000.00
1132	Repairs, Tecnal Hospital	9,000.00	9,000.00
1133	Repairs, painting, dispensary, basin and shower at Jeremie Hospital	33,000.00	33,000.00
1134	Rural dispensaries	164,000.00	164,000.00
1135	Additions to Supply Depot & Garage	25,800.00	25,120.00
1139	Purchase of land for rural dispensaries	10,000.00	5,176.05
1140	Improvements to Hospitals at St. Marc, and Petit-Goave	74,000.00	74,000.00
1141	Payment of customs duties	25,000.00	24,096.15
	Total	3,433,140.00	1,638,081.70

Note:- Extraordinary Credits are available for two years after the date they are voted. Many of the above credits were voted recently.

The work performed in both the Supply Depot and the Garage has increased correspondingly with the general expansion of the Service. A Pharmacist (Haitian) and two additional packers are needed in order that the stores may be moved promptly. Two additional laborers for use in the Garage and the yard are also needed.

The available storeroom space for medical supplies is inadequate. The storerooms proper should be enlarged to practically double their present dimensions.

The machine shop, carpenter's shop and paint shop have been remodeled, concrete floors placed and additional windows installed, thus affording fairly well lighted work rooms.

An Oil storage shed has been constructed, and work is now progressing on 14 new stalls for housing trucks and a shed for the storage of packing materials and miscellaneous stores.

DIVISION OF SANITATION.

The work in sanitation has progressed quite favorably during the year throughout the Republic. But as yet only the surface has been scratched. To be sure, in the larger centers of population the progress has been quite substantial. This holds particularly true of Port-au-Prince, Cap-Haitien, Gonaives, Petit-Goave, Portde-Paix, Les Cayes, Saint-Marc, Jacmel and Jeremie. In these cities and towns the control of mosquito breeding has received particular attention as have other measures of sanitation such as nightsoil disposal, food inspection, prevention of infectious diseases, inspection of school children, street cleaning and general sanitary property inspections.

In the rural districts the problem is somewhat different. The personnel and the funds at our disposal do not permit us to carry on in these sections in the same manner as in the larger centers of population. But notwithstanding these facts we are slowly including more and more the rural areas in our routine activities. The district of Port-au-Prince was pretty well covered during the previous year but improvements have been marked; during the year the rural sections of Les Cayes, Petit-Goave, Cap-Haitien, Saint-Marc and Hinche have received some attention.

In these areas the activities of the sanitation division are primarily confined to control of mosquito breeding and nightsoil disposal.

Malaria in Haiti. The malaria situation in Haiti may probably be best described by quoting from an article by Butler and Peterson dealing with this subject: "Like most tropical countries Haiti has suffered terrifically from malaria in the past and there are still considerable areas of the Republic the rich soil of which is rendered almost valueless by reason of this disease.

In the early settlement of the Antilles malaria and yellow fever punished the colonists severely. It is not possible to say whether malaria was found in the New World or whether the colonists brought the parasites with them and found competent vectors in the different countries colonized.

The fact that in Haiti the only efficient mosquito host of malaria is Anopheles albimanus, a species not found in Europe, might be taken to indicate that the colonists brought their parasites with them and found the vector on the ground. Clinical evidence makes it

DIVISION OF SANITATION.

practically certain that all three types of human malaria existed in Europe before the discovery of America. It is unlikely that the Old World and the New World have developed independently three identical species of a single genus of Protozoa. Albimanus is an efficient transmitter of all three species of human plasmodia.

But whether human malaria was indigenous to Haiti or was brought from Europe is immaterial. We do know that the combination of malaria and yellow fever rendered many of the efforts at colonization futile. These diseases were often confused as regards diagnosis and generally operated together during the rainy season, at any rate as far as the non-immune Europeans were concerned.

The ruins of the approaches to the French Colonial Palace at Cap-Haitien may symbolize what perhaps was the most complete if not the most picturesque defeat that Napoléon Bonaparte ever sustained. It was here that General Leclerc, brother-in-law of Napoléon, died on November 2nd, 1802. Less than one year previously Leclerc had landed in Haiti with a big army and a big fleet to back up this army. His instructions from the First Consul were to subdue completely Revolutionary Saint Domingue and to reinslave the natives who had previously been given their freedom. In less than a year malaria and yellow fever had decimated the French Army. Leclerc himself was stricken with yellow fever on October 23rd, when just recovering from a malarial attack. He died eight days later.

These two diseases killed off the non-immune French recruits about as fast as they could be sent over. So that in the end the French were obliged to abandon their principal colony having been beaten rather by disease than by the natives. It was planned to carry into effect a successful campaign of only three weeks. Instead the campaign lasted two years and ended in disaster (1).

The relief map of Haiti shows what a completely crumpled mass of land it is. Recall that the area of the Republic is only 10,200 square miles. It is smaller than the State of Maryland. About one fifth of this area consists of coastal plains and the flood plains of small rivers. There is one relatively large, well-watered plateau the elevation of which is approximately 1200 feet, called the central plain. For such a small country the coast line of the Republic of Haiti is enormous. One cannot get more than 65 miles from the sea at any place in the Republic. The population of the mountainous interior is in constant communication with the coastal towns. This has its bearing upon the spread of malaria to inland communities situated at sufficiently low elevations as to permit of the breeding of A. albimanus. Albimanus breeds up to elevations of 2,500 feet.

In the small area of the Republic there is a great variety of climate. One may find considerable tracts of desert where the rainfall is practically nil and on the other hand cool elevated sections where the rainfall is excessive. The rainy season extends from May to October inclusive and there are two peaks to the curve one usually in May and the other in October. The late summer and winter is the period of greatest malaria incidence. It will be seen from the charts that the curve of malaria incidence also has two peaks. These lag behind the rainfall peaks by about two months.

It has been shown by Dr. Wm. A. Hoffman of the Haiti Survey of the International Health Board that Anopheles albimanus breeds all over the Republic wherever collections of water may occur. It breeds all over the central plain and in the Western and Southern part of the plain of the Cul-de-Sac. The greatest elevation at which Hoffman found albimanus breeding was at La Vallée (about 2,500 feet). There is undoubtedly indigenous malaria at this place. We do not believe that indigenous malaria occurs much above this elevation any where in Haiti. Aside from this the several hundred miles of coast-line and all the river valleys breed albimanus and show a greater or less incidence of malaria. All the way from Fort-Liberté on the North to Anse-à-Pitres on the south'east, malaria occurs. The determining factor is the amount of rainfall. From Fort-Liberté and Ouanaminthe at the international boundary in the North, all the way West to Port-de-Paix there is abundant rainfall and a high incidence of malaria. From this last mentioned town around the coast-line of the Northwest peninsula and back east to the town of Gonaives there is a condition of semi-aridity and the malaria incidence is low. From Gonaives East to Port-au-Prince, while the rainfall is on the whole less than on the North coast, yet there are several rivers which enter the gulf of Gonaives along this stretch, and there is considerable irrigation but malaria is not such a factor in morbidity as is the case on the North coast from Fort-Liberté to Bayeux. The coast from Port-au-Prince to Jérémie which includes most of the North coast of the Southern Peninsula is perhaps the most malarious part of Haiti. The rainfall over this entire coast is considerable, many streams come down from the mountains and there is much irrigation in certain districts. There are several undrainable swamps along this stretch of coast. Southeast of Jérémie at a mountain town called Plymouth the greatest rainfall for any place in Haiti is recorded. This was an annual rate of 167 inches (2). As we go West from Jérémie around the West end of the Southern Peninsula there is a relatively high malaria rate and as we go East from Tiburon to Les Cayes the amount of precipitation and the malaria incidence increase.

Cayes is the wettest city in the Republic (rainfall from 80 to 85 inches annually). The surrounding country is flat and

there is much irrigation. The plain of Cayes (some 300 square miles) acts like a vast sponge and the whole area is intensely malarious. As we go East from Cayes to Jacmel there is a considerable amount of desert country which tells its own story as regards malaria. The district around Jacmel is well watered by streams and rivers and has a rather high malaria rate. East from Jacmel to Anse-à-Pitres at the Dominican border the amount of rainfall is small but just North of this band of coast-line and only a few miles away is the highest mountain ridge in Haiti (Morne La Selle). Several streams empty into the Caribbean along this stretch of coast. There are several marshes here also caused by the ground water coming to the surface at several places. At the extreme East a good sized river (R. Pedernales) flows into the sea. There is relatively much malaria along this coast. Some of the local names are rather suggestive as for example Adieu au Monde (Good Bye World) and Saltrou (Dirty Hole).

The place of least rainfall in the Republic is Môle St. Nicolas at the extreme end of the Northwest Peninsula. Here the annual precipitation is only 21.7 inches on an average and this quickly runs into the sea or sinks into the earth to never reappear.

The greatest annual rainfall for any inland station for which recent records are available is Mirebalais which is only about 250 feet above the sea. Here the average rainfall is 106 inches. It may be stated that the rainfall in the mountain regions is about 50% greater than in the plains adjacent to them.

In some of the larger cities marked progress is being made with regard to the elimination of malaria by means of mosquito control. As explained above malaria is most commonly found along the coast-line of Haiti and also on the various plateaus in the higher regions. There are many sections in Haiti where for years to come the only measure that can be applied against this disease will be the administration of quinine to those actually sick. Small towns and villages may be found built right in the middle of swampy areas, apparently the primeval homes of Anopheles albimanus.

A system of inspection of school children, commenced primarily as a check up on vaccination, was made to include examination for spelenic enlargements. The importance of this work is evident when it is realized that there are some schools in the rural sections of Haiti that show from 50 to 60 per cent of malarial infection as determined by the splenic index. The following table is enlightening.

RECORD OF SPLENIC INDEX AMONGST SCHOOL CHILDREN.

Place.	Period Ending	Number Examined	Number of enlarged spleens	Splenic Index
District of Port-au-Prince				
Port-au-Prince - 30 schools	July 1925	5414	132	2.4
Ganthier - 2 schools	" "	87	2	2.3
Thomazeau - 2 schools	" "	62	5	8.06
Manneville - 2 schools	" "	39	0	0
Dumay - 2 schools	" "	149	12	8.05
Croix-des-Missions - 2 schools	" "	97	5	5.15
Petion-Ville - 2 schools	" "	341	3	0.88
Carrefour - 1 school	" "	42	6	14.28
Léogane - 2 schools	" "	427	152	35.59
District of Petit-Goave				
Petit-Goave - 4 schools	" "	353	84	23.79
Anse-à-Veau - 4 schools	" "	283	169	59.41
District of Saint-Marc				
Saint-Marc - 7 schools	" "	1039	154	14.82
Bocozelle - 2 schools	" "	49	21	22.85
Ferrier - 1 school	" "	11	5	45.45
District of Jacmel				
Bainet - 1 school	" "	13	1	7.69
Bas Gris-Gris - 1 school	" "	28	3	10.71
Cotes-de-Fer - 2 schools	" "	76	16	21.05
St. Antoine - 1 school	" "	31	8	25.80

Place.	Period ending	Number Examined	Number of enlarged spleens	Splenic Index
District of Jéremie				
Jérémie - 1 school	July 1925	313	73	23.32
District of Cayes				
St. Louis du Sud - 1 school	" "	19	19	100
District of Petit-Goave				
Petit-Goave - 1 School	Apr. 1926	116	56	48.27
Anse-à-Veau - 1 School	" "	97	25	25.77
District of Saint-Marc				
Saint-Marc - 2 schools	" "	474	40	8.43
District of Jacmel				
Jacmel - 6 schools	" "	655	160	24.43
District of Jérémie				
Jérémie - 3 Schools	" "	226	24	10.61
District of Hinche				
Hinche - 3 schools	" "	179	22	12.29
Maissade - 3 schools	" "	61	17	27.87
Mirebalais - 5 schools	" "	113	24	21.24

This record of splenic index amongst school children shows more exactly what was spoken of above that the incidence of malaria follows the rain curve provided no control measures are in operation. The low rate in Port-au-Prince is due largely to the control measures in effect. At Ganthier the rainfall is small and there is practically no mosquito breeding. Léogane and Petit-Goave are situated near the coast with large areas of swampy tracts in the vicinity. Anse-à-Veau with a spleen rate of 59.41 not only has a considerable rainfall but

Place.	Period ending	Number Examined	Number of Infected glands	Splenic Index
District of Jérémie				
Jérémie - 1 school	July 1926	315	73	23.33
District of Cayes				
St. Louis du Sud - 1 school	" "	19	19	100
District of Petit-Goave				
Petit-Goave - 1 School	Apr. 1926	116	56	48.27
Anse-à-Veau - 1 School	" "	97	25	25.77
District of Saint-Marc				
Saint-Marc - 2 schools	" "	474	40	8.43
District of Tiburon				
Tiburon - 6 schools	" "	655	160	24.43
District of Jérémie				
Jérémie - 3 Schools	" "	226	24	10.61
District of Hinche				
Hinche - 3 schools	" "	179	22	12.29
Malassade - 3 schools	" "	61	17	27.87
Mirebalais - 5 schools	" "	113	24	21.24

also has an undrainable swamp in its environs. Saint Louis du Sud is located in a swamp and until quite recently bred albimanus in practically every street of the town.

PORT-AU-PRINCE. The city of Port-au-Prince has a population of about 120,000 people. It is located at the foot of a series of ranges which form a big watershed for the city. During heavy rains the water is thrown down over the city transforming the streets in the lower sections into small streams.

The biggest part of the city lends itself very well to natural drainage as evidenced by the number of large ravines or gullies that run from the hillsides down to the shore. During the rains these ravines are transformed into regular rivers. In addition these gullies are continually fed from springs on the hillsides and by waste water from nearlying properties so that even during the dry season certain sections contain water constantly.

The subsoil water crops out in a number of springs along the shoreline of the city proper and for miles on each side of town. In many sections regular swamps are formed which in some instances are utilized as rice paddies.

During the spring of 1924 one of the writers (E.P.) made an extensive anopheline survey of Port-au-Prince and vicinity and Anopheles albimanus, the malaria transmitter par excellence of the West Indies, was found to breed practically all over the city. The various springs and swampy tracts along the shore line were the worst offenders. One could go into any property along the shore and find small springs overgrown with weeds and teeming with anopheline larvae. In a certain number of these springs there were present mosquito-destroying fish (Poecilia sphenops), and (Gambusia dominicencis) but the luxuriant aquatic vegetation caused fish and mosquito larvae to live happily together. The large ravines running through the town and numerous gutters were also found to be prolific breeding places.

In the suburban section of the city large springs with numerous swampy areas are common as for example along the entire shore line between Port-au-Prince and Léogane on one side and at Cazeau, Bon Repos and the intervening area on the other. The Cul-de-Sac Plains that are under sugar cultivation and properly irrigated did not show an excessive breeding.

The aim of the Public Health Service was to rid the town proper of anopheline breeding and to extend this work as far as economically possible along the shore line on each side in order to protect the city as much as possible.

(2) CEMENT DRAINS LOWER SECTION OF PORT-AU-PRINCE

The gullies and gutters in town proper were cleaned out and kept so in order to give the water free flow. The large ravine through the center of town presented a problem indeed, on account of its large size and the numerous obstructions encountered. At present this ravine gives a continuous flow to the water at all times due to weekly grading and cleaning.

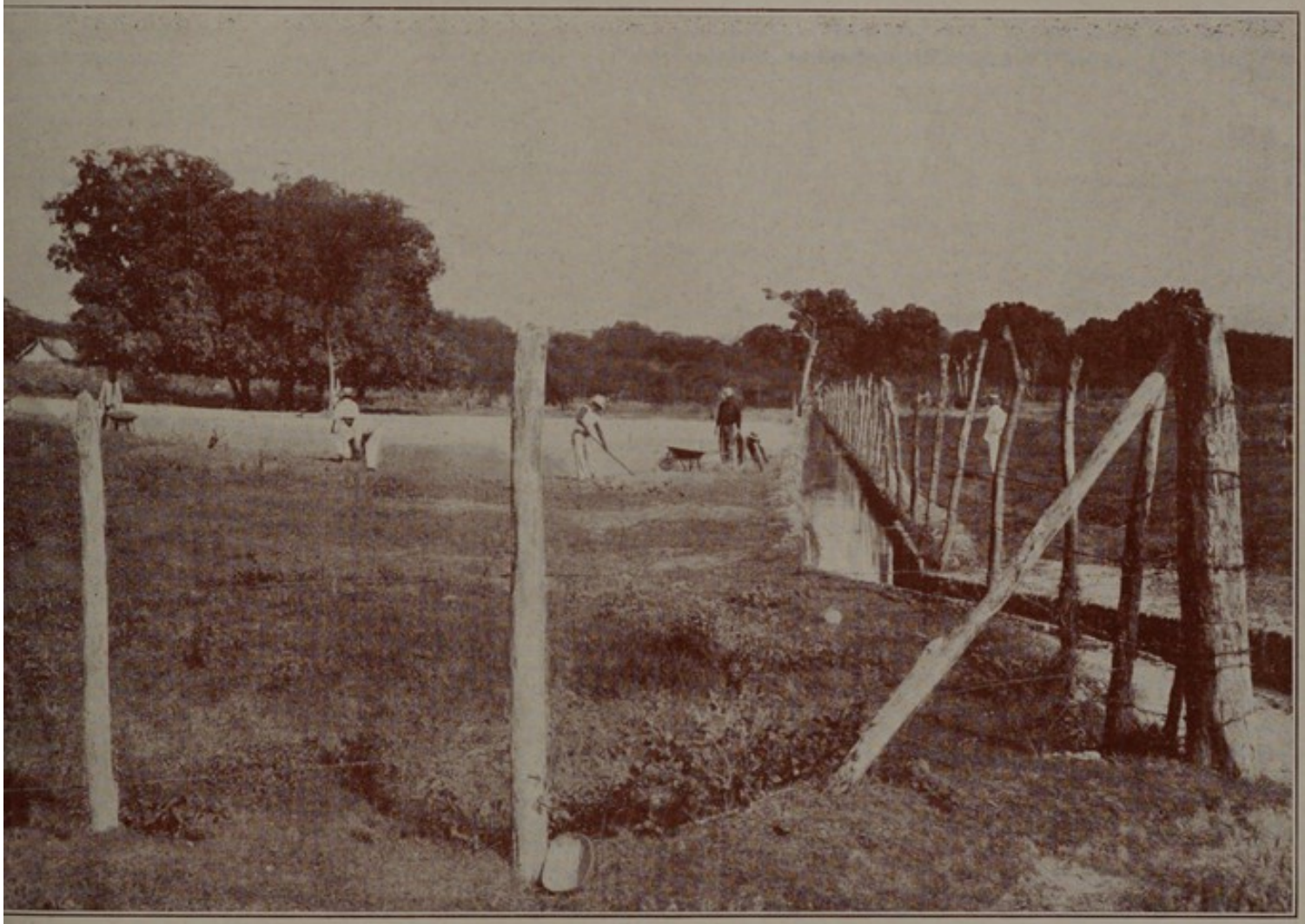
The swampy sections along the shore line of the city proper have been filled in, cement drains have been built along the streets, rock drains, a ditch filled with rocks and covered with dirt, have been made by the hundreds with the result that as far as mosquito breeding is concerned this part of the city is in excellent condition. At present the extensive swampy areas to the Southeast of town are receiving particular attention. This section along the shore is quite extensive and constitutes a big swamp with fresh water in the upper part and tide water in the lower. It was entirely overgrown with bushes and other vegetation. The simple expedient of cutting down all vegetation caused a rapid drying up of large areas. In the upper part numerous rice paddies and potato patches were found. The local method of producing these vegetables includes damming up water for the purpose of continuous watering and as a consequence we have continuous mosquito breeding. These practices have been stopped in the vicinity of the city. The area is now being drained by the introduction of a series of canals. The bottom and part of the sides are lined with 1/3 sections of 32" cement pipes thus permitting free drainage from the upper layer of the soil and at the same time allowing free flow from the spring proper. Small circumscribed areas are too low for drainage and will be filled.

About 2.5 miles north of Port-au-Prince there is a large spring called Cazeau that for many years has been responsible for untold number of anopheline mosquitoes as has the spring at Bon Repos about 1 mile further out. For the purpose of demonstration and giving a good example to the surrounding country the Public Health Service has undertaken to clean up these areas. At Cazeau spring there was a question of filling the lowlying area and straightening out the drainage ditch. At Bon Repos the actual swamp was about 10 acres in size, supplied by water from springs several miles distant. By the introduction of a series of well placed open ditches and rock drains the swamp was drained into a main drainage canal which, after having been straightened out, took care of the situation nicely. The response of the various farmers has been good indeed. They appreciate this work not only because of improved sanitation but also because of reclaiming land. (See pictures 4a, b, c).

(3) SURFACE DRAINAGE OF LARGE SWAMP NEAR PORT-AU-PRINCE

(4a) SPRING AT BON REPOS

(4b) STRAIGHTENING OUT THE COURSE OF THE DITCH AT BON REPOS



(4c) FILLING THE SWAMP AT BON REPOS

In the region of the Haitian American Sugar Company just to the North of town large inundated areas were found, caused by overflowing of a stream. The lower part of the stream was filled with dirt, which practically acted as a dam, thus allowing a large amount of water to be diverted and run along the sides of the railroad bed traversing this section. The old river bed was cleaned out and the water is now running freely. The banks of the stream are free from vegetation and the water is teeming with mosquito fish.

Effect of work accomplished. It has been interesting indeed to watch the effect of this work upon the incidence of malaria in Port-au-Prince. The incidence of this disease amongst U. S. Marines stationed in Port-au-Prince has been used as a criterion of the results obtained. From previous experience in Haiti it is known that the incidence of malaria is particularly high during the months of November, December and January, and June and July. For the purpose of analysis the cases have been divided as to the probable source of infection. The three main groups are:

1) City proper, including Barracks, Military Police, Headquarters, Field Hospital, etc.

2) Hasco region, including Observation Squadron, Signal Company, Transport Company and Rifle Range.

3) Camp General Russell (near Pont-Beudet, 14 miles north of Port-au-Prince.

The accompanying tables showing the incidence of malaria among U. S. Marines in the Port-au-Prince district are self explanatory and shows the gradual reduction of cases up to the present time. The disease has practically ceased to be a problem for the city proper.

It will be noted that on these charts the incidence for malaria is not given for July - December 1925.

During this period an undue number of so called "malaria infections" was reported. On investigation it was found that proper methods were not used in the laboratory diagnosis. A control of the diagnosis was instituted whereby the incidence was reduced to zero in January, 1926, a month when the occurrence of malaria should be at its highest.

Malaria Incidence among U. S. Marines
in Port-au-Prince District.

	PORT-AU-PRINCE			HASCO			CAMP GEN. RUSSELL			
1924	Comp.	No. of cases	Annual rate per 1000	Comp.	No. of cases	Annual rate per 1000	Comp.	No. of cases	Annual rate per 1000	Rain-fall (mm)
Jan.	548	30	429.56	232	13	655.17	273	10	428.10	37.4
Feb.	593	11	233.45	232	0	0	268	13	610.52	18.5
Mar.	686	3	51.48	238	1	49.45	93	0	0	54.6
Apr.	635	3	57.48	325	1	37.41	121	0	0	255.1
May	715	2	32.92	224	3	113.03	141	0	0	143.6
June	620	0	0	222	5	274.00	197	0	0	154.7
July	637	5	92.41	192	18	1103.80	273	3	131.72	128.7
Aug.	638	2	36.87	205	4	229.70	278	1	42.33	173.3
Sept	594	2	40.95	210	5	289.66	267	1	45.54	100.5
Oct.	607	3	58.18	196	6	360.40	271	1	43.43	175.9
Nov.	625	3	58.40	192	9	552.91	271	2	89.27	135.4
Dec.	694	0	0	217	4	217.00	102	2	230.78	0.5

Malaria Incidence among U. S. Marines
in Port-au-Prince District.

Malaria Incidence among U. S. Marines
in Port-au-Prince District.

	PORT-AU-PRINCE			HASCO			CAMP GEN. RUSSELL			
1925	Comp.	No. of cases	Annual rate per 1000	Comp.	No. of cases	Annual rate per 1000	Comp.	No. of cases	Annual rate per 1000	Rain-fall (mm)
Jan.	530	2	44.22	264			271	3	130.33	1.8
Feb.	563	0	0	290	0	0	272	2	95.84	177.8
Mar.	614	0	0	321	1	36.66	191	3	184.92	121.8
Apr.	604	0	0	287	4	169.54	177	0	0	179.6
May	639	0	0	291	5	161.27	166	0	0	75.3
June	653	1	18.62	310	1	39.22	74	2	340.94	44.4
July	679	-	-	311	-	-	Abandoned			86.8
Aug.	652	-	-	273	-	-	"			99
Sept	572	-	-	286	-	-	"			202.5
Oct.	621	-	-	280	-	-	"			123.9
Nov.	602	-	-	294	-	-	"			64.7
Dec.	621	-	-	251	-	-	"			11.2

Polaria Incidence among U. S. Marines
in Port-au-Prince District.

	PORT-AU-PRINCE			HAITI			CAMP GEN. MUSSEL		
	Annual			Annual					
	No. of Patients			No. of Patients			No. of Patients		Rate
1925.	Census	1000	Comp.	Census	1000	Comp.	Census	1000	Comp.
Jan.	530	2	64.22	264			271	3	130.82
Feb.	563	0	0	292	0	0	272	2	95.64
Mar.	614	0	0	321	1	36.66	123	3	104.32
Apr.	604	0	0	297	4	169.64	177	0	0
May	639	0	0	301	5	161.27	166	0	0
June	653	1	10.62	310	1	39.22	74	2	340.54
July	679	-	-	311	-	-	Abandoned		86.8
Aug.	652	-	-	273	-	-	"		99
Sept.	572	-	-	286	-	-	"		202.8
Oct.	621	-	-	280	-	-	"		123.9
Nov.	602	-	-	294	-	-	"		64.7
Dec.	621	-	-	291	-	-	"		11.2

Malaria Incidence among U. S. Marines
in Port-au-Prince District.

	PORT-AU-PRINCE			HASCO			
1926	Comp.	No. of cases	Annual rate per 1000	Comp.	No. of cases	Annual rate per 1000	Rainfall (mm)
January	619	0	0	247	2	95.30	34.5
February	626	0	0	250	0	0	5.6
March	659	0	0	271	0	0	41.
April	610	0	0	286	0	0	133
May	605	0	0	300	2	78.46	253
June	597	1	20.36	325	1	37.41	149
July	606	0	0	311	1	39.09	100
August	605	0	0	305	1	39.86	147
September	622	0	0	295	1	41.22	168

Malaria Incidence among U. S. Marines
in Port-au-Prince District.

1926	PORT-AU-PRINCE				HAITI			
	Corp. Cases	Corp. Deaths	Corp. Annual rate per 1000	Corp. Deaths per 1000	Corp. Cases	Corp. Deaths	Corp. Annual rate per 1000	Rainfall (mm)
January	613	0	0		247	2	95.50	34.5
February	656	0	0		250	0	0	8.6
March	659	0	0		271	0	0	41.
April	610	0	0		286	0	0	135
May	605	0	0		300	2	78.46	253
June	597	1	20.46		328	1	37.41	149
July	606	0	0		311	1	39.09	100
August	605	0	0		305	1	39.86	147
September	612	0	0		295	1	41.22	169

CAP-HAITIEN. The malaria situation amongst the U. S. Marines in Cap-Haitien presents some very interesting figures. As seen from the charts a severe epidemic started in November, 1924, with an annual rate per 1,000 of 695.58, reached its height in January, 1925, with an annual rate of 2,826.99 per 1,000 to fall to its normal level in May.

As seen in the chart, there was an unusual rainfall during September, October and November, 1924. This resulted in the formation of large swampy areas practically all around the Marine Camp. No particular efforts were made to control the situation until January, 1925. The rains abated during December, January and February, giving the Public Health Service a chance to initiate effective measures immediately.

An Anopheles survey in January revealed the presence of larvae of Anopheles albimanus in the newly formed swampy regions and even throughout the city in gutters and drains fed by fresh water springs.

The Marine Camp is located toward the south end of town in close proximity to an extensive swamp extending along the shore of La Rivière du Haut duCap. The anophelíne breeding going on in this section undoubtedly is responsible for the "normal" incidence of malaria amongst the Marines at Cap-Haitien, the natives of the region supplying the parasites in abundance.

A systemtic scheme of drainage and filling has now been commenced throughout the town and near lying swamps.

Anti-mosquito work is also being carried on at various other places, notably Les Cayes, Jacmel, Petit-Goave, Saint-Marc, Gonaives, Port-de-Paix and Hinche.

The funds available for this purpose are not large but they enable us to make a beginning. The results obtained show that the money spent is money well spent indeed and before many years have passed it is hoped that every commercial port in Haiti will be free from the malarious scourge.

Incidence of Malaria among U. S. Marines in Cap-Haitien.

1924	Comp.	No.of cases	Annual rate per 1000	Rainfall (mm)
January	311	33	1249.32	3.7
Februaryn	356	12	424.24	155.5
March	442	8	213.10	21.8
April	465	6	151.95	91.7
May	396	2	60.20	96.1
June	401	2	58.70	31.9
July	392	10	300.35	25.
August	388	1	30.59	34.6
September	427	4	113.95	199.3
October	427	4	113.95	134.3
November	421	24	695.58	510.9
December	506	32	744.60	81.7
1925				
January	429	103	2826.99	13
February	437	37	1103.70	76.7
March	407	13	299.23	177.9
April	384	5	158.41	177.5
May	329	4	143.13	122.8
June	297	2	82.59	79
July	299	5	196.92	68.9
August	288	1	40.86	15
September	195	3	187.12	82.5
October	171	2	137.66	92
November	193	3	189.11	161.2
December	193	4	243.98	105
1926				
January	192	2	122.60	97.5
February	189	2	137.93	90
March	194	2	121.34	197.4
April	197	1	61.72	161.6
May	190	3	185.89	184
June	185	2	131.51	51
July	193	0	0	34
August	191	0	0	27
September	183	0	0	99

REFERENCE: 1. T. Lothrop Stoddard,
The French Revolution in San Domingo, Houghton Mifflin Co., Boston and New York, 1918.
2. Quoted by Woodring, Brown and Burbank,
Geology of the Republic of Haiti,
p.50 from Moreau de St-Mery. "

Incidence of Malaria Among U. S. Marines in Cap-Haitien.

1924	Strength	No. of cases	Annual rate per 1000	Malaria (rate)
January	1521	20	1315.32	32.7
February	356	12	404.24	185.5
March	442	8	213.16	21.8
April	465	4	191.95	91.7
May	396	2	60.20	96.1
June	401	2	80.70	31.5
July	392	10	300.35	63
August	388	1	30.59	64.8
September	427	4	113.95	209.3
October	427	4	113.95	134.5
November	421	24	695.88	810.9
December	396	12	744.50	81.7

1925				
January	429	103	4726.99	15
February	437	37	1103.70	72.7
March	407	13	299.25	177.9
April	384	6	150.41	177.6
May	389	4	143.15	129.8
June	297	2	82.59	70
July	293	5	196.92	69.9
August	288	1	40.65	15
September	195	2	187.12	82.6
October	171	2	137.64	82
November	193	3	209.11	181.2
December	193	4	243.98	105

1926				
January	196	2	122.40	97.6
February	189	2	137.93	90
March	194	2	121.94	197.4
April	197	1	61.72	161.6
May	190	3	165.89	184
June	185	2	131.81	81
July	193	0	0	34
August	191	0	0	27
September	193	0	0	39

REFERENCE: I. T. Lothrop Stoddard,
The French Revolution in San Domingo, Houghton
Mifflin Co., Boston and New York, 1918.
2. Quoted by Woodring, Brown and Burbank,
Geology of the Republic of Haiti,
p.80 from Moreau de St-Mery."

Intestinal diseases of infectious nature.- The various intestinal infectious diseases are quite common in Haiti and constitute an important group of causes of death. The frequency of these diseases is quite easy to understand when it is realized how the majority of the population have not the slightest notion of sanitary measures. To be sure the Service is at all times trying to instill new conceptions into the minds of the people with regard to the importance of at least primitive sanitation. As has been stated before in the larger centers of population our attempts to bring about a change for the better are bearing fruit indeed. It works very much slower in rural sections.

Dr. W. A. Evans in the Chicago Tribune has said: "The fundamental work of a Health Department is to change customs and habits. The battle against specific diseases as such is incidental". This is indeed a true word. Our aim to control intestinal infectious diseases depends for its realization upon our success in changing certain customs and habits of the people. For instance, the control of hookworm infection could be accomplished by the habit of wearing shoes or by the general acceptance of a sanitary habit in disposal of nightoil. Typhoid fever and dysentery could be controlled by acquisition of such habits as boiling all water before drinking, cooking all vegetables, washing the hands before eating, proper disposal of excreta or by acquiring the custom of getting vaccinated every three or four years.

During the past year no widespread epidemic of acute intestinal infection has occurred. Towards the end of the fiscal year a few cases of typhoid fever appeared in Port-au-Prince. Five cases of this disease were admitted at the Haitian General Hospital during the month of September. During the same month it was found that an undue number of cases of so called intestinal fever were present in the city. The inference was obvious that the diagnosis of intestinal fever without question included some cases of typhoid. An appeal was made through the local news papers to report all cases of intestinal fever to the Public Health Service. The profession was offered the facilities of the Public Health Laboratory at the Haitian General Hospital for the purpose of establishing a positive diagnosis in all cases of suspected typhoid. Eighteen cases were reported during the month. Of these 15 proved by means of the Widal reaction to be positive; two of these cases didd.

It is very difficult to determine if the present incidence of typhoid fever is unusual or not. During the last few years cases have been admitted off and on to the Haitian General Hospital. As the hospital gets more and more popular amongst the mass of the

people the Service will get a better idea of the morbidity affecting them. This increased popularity of the hospital is, according to our idea, the reason for the increased number of cases seeking aid at the Hospital. Due to the fact that 'intestinal fever" is not a reportable disease the profession at large has failed to realize the actual presence of typhoid fever. The present flare up, however, will act as a reminder.

The analysis of the cases reported shows an even distribution throughout the city with a certain concentration in the southern section. Everything points toward a widespread source of infection, namely the water supply. The city of Port-au-Prince is supplied with water from seven surface springs located in three different localities. The output of these springs is naturally dependent upon the rainfall. In the beginning of the year 1926, the flow was very low. The rains started in April and the amount of rainfall for Port-au-Prince up to present time has been as follows: April 133 mm., ~~July~~ May 253 mm., June 149 mm., July 100 mm. , August 147 mm., and September 168 mm. It is to be noted that these figures represent only Port-au-Prince. The rains in the hills have been much heavier but the figures give an idea as to the general tendency. It was not until June that output from the springs began to increase. From July on the flow has been excellent. With the increase in flow the water began to show a marked increase in bacterial contents and the gas producers were numerous indeed. This condition has kept up until the end of the fiscal year. Springs that in April showed absolute absence of gas producing bacteria were in the month of July as heavily contaminated as the others.

In this connection it gives this office extreme pleasure to report that chlorinating apparatuses have been ordered in order to sterilize the water supply of Port-au-Prince. When installed this city will be one of the few places in the West Indies that can offer safe drinking water.

In order to prevent the spread of the disease in Port-au-Prince, the Public Health Service instituted various measures, numerous statements have been published in the local newspapers urging the boiling of all water and milk used for drinking; etc.

When a positive case was found, particular instruction was given to the family as to the proper care of excreta, etc., and all immediate contacts were vaccinated. The general public were advised as to the protection offered by vaccination. In addition the employees of the various state and communal offices and bureaus received the prophylactic treatment.

Dogs and Rabies. Dogs are numerous in Haiti. Occasionally a case of human rabies develops with the usual result. During the past year three individuals died from this disease: One in the southern part of Haiti in the vicinity of Cotes-de-Fer, one at Les Cayes and one in Port-au-Prince. The last two were brought to the hospitals of the respective cities in the last stages of the disease. The first one died at his home in the country.

During the last few years the Public Health Service has tried to introduce a law dealing with the registration and control of dogs. The 4th of August, 1926, a law on this subject was enacted by the Legislative Body. The copy of this law may be found in another chapter of this report.

The danger from being bitten by rabid dogs is being spread broadcast throughout the Republic. The information of our being able to prevent the occurrence of the disease in victims of dog bites by administration of anti-rabic vaccine is also spreading. Numerous requests for this treatment are coming in not only from victims of bites of rabid dogs but from numerous individuals accidently bitten by dogs which are not sick. In all cases attempts are made to catch the dogs and keep them under observation in order to determine if they are rabid or not. In many cases it is impossible to catch them because of lack of information of their whereabouts. This throws a tremendous monetary burden on the State due to the fact that the vaccine then must be administered.

The following incident is illuminating. A truly rabid dog (as far as appearance was concerned) bit two people in an inland town. The medical officer advised that the two victims go into Port-au-Prince to receive preventive treatment. The roads, however, were found to be absolutely impassible due to recent torrential showers. The two persons were frantic (they had heard of the recent death of an individual bitten by a rabid dog). The medical officer telephoned into Port-au-Prince requesting that an airplane be sent out with the necessary vaccine. This request was forwarded immediately to the proper authorities and next morning at 6:30 an airplane was speeding to this place with the vaccine on board.

The new "dog law" will be placed in effect October 1, 1926. In some of the larger cities all dogs will be vaccinated against rabies at time of registration.

Measles. Measles is well known in Haiti, occurring from time to time. Since the first cases of this year appeared in the northern coast towns of Haiti last October the disease spread rapidly throughout the Republic. It appeared in Gonaives in November and in Port-au-Prince in December. One of the last sections to be attacked was

the Jacmel district. This fact clearly demonstrates the old dictum that disease follows the routes of travel. When new routes are opened new channels are given for disease to creep in. The first case of measles seen in Jacmel this year came to that city from Port-au-Prince traveling via automobile, shortly after the new road was opened. The disease rapidly spread throughout the southern coast towns. In May the disease was on the wane. No figures approximating the truth can be given as to the actual incidence of the disease because the people look upon it lightly and very seldom call in a doctor for treatment of this condition.

This year's epidemic has been comparatively mild although in some sections it was quite severe. During January, February and March ten deaths were reported from this disease.

Smallpox. No case of smallpox occurred in Haiti during the past year. The various vaccination campaigns are described in the reports from the individual districts.

Prostitution. This scourge presents a very peculiar problem in Haiti. As yet no laws have been enacted that would tend to cope with this situation. The police, of course, have a certain amount of control from the standpoint of vagabondage and nuisance. There is no system of licensing or inspection of prostitutes to give a false sense of security. During the last year there has been some discussion in the press as to the danger of prostitution, a discussion that tends to awaken the social conscience of the people. During the coming year the Public Health Service will try again to introduce some legal measures that will aim to control this evil.

Municipal Engineering. Municipal engineering in Haiti is for all practical purposes the final expression of permanent sanitary improvements. For this reason this Office has the most intense interest in the successful solution of these problems. Amongst others they are:-

1. Proper and sufficient water supply.

2. Water carriage sewage system.

3. Surface drainage.

4. Public markets.

It is unnecessary to bring forth arguments from a sanitary point of view to show the importance of these improvements. The question arises why is there not more general interest shown in

attempts to bring about changes in these deplorable conditions. The cause is that there is so much work to be done in Haiti that the various Government departments have their hands full to carry on as it is.

This office believes that the only way to solve this problem is to create a committee, if you please, of municipal sanitary engineering, whose particular duty it would be to consider facts and figures as to the relative importance of these various projects and the best means to accomplish them.

There are three factors that play their individual parts in the development of this scheme: namely, finance, engineering and sanitation. Proper sanitation demands that these improvements be instituted. The engineers are willing to do them provided funds be made available.

The city of Port-au-Prince is probably next to Havana, Cuba, the most important city in the West Indies, and as such it should stand out as an example of a perfectly sanitated city, to which tourists are glad to come feeling assured that infectious diseases are reduced to a minimum.

A healthful water supply and a water carriage sewage system would have a tremendous bearing on the incidence of intestinal infections, proper surface drainage on that of mosquito-borne diseases and sanitary public markets -- not only for fruits and vegetables but also for meat, milk, and fish -- on that of diseases transmitted through food.

In a city like Les Cayes the problem is of course surface drainage, a question that should receive the proper consideration from the Government at the earliest opportunity.

Cap-Haitien has felt the want of water; a condition that never should be allowed to exist again. The same holds true of Jérémie.

The Radio and Public Health. The installation of Broadcasting Station H. H. K. in Port-au-Prince with a number of public redeiving sets throughout the country side represents one more important step in the development of this country. The Public Health Service is going to take advantage of the marked possibilities that thus have been opened for the purpose of spreading health propaganda to the mass of the people. This scheme of education is comparatively new. It is just during the last year or two that such a country as the United States has attempted to develop this particular feature.

The percentage of illiteracy among the Haitian rural population is particularly high and the material for broadcasting must necessarily be elementary. "Few new ideas at the time, simple in thought, simple in expression" will be our motto.

The subjects to be treated are without limit. For instance the cause affiprevention of such diseases as intestinal infections and worms, malaria, filariasis, tuberculosis and lockjaw, mosquito control, personal hygiene, flies and their relation to disease, propaganda against superstition, vaccination against smallpox, wounds and their care, care of children, importance of proper night-soil removal, the rural clinics, etc. etc.

With the future development of the technical side of the Radio and with the extension of public receiving sets throughout the country side there will be no limit to the number of people who will be in a position to listen to our health talks, and naturally some kind of impression is bound to be made on the population.

PORT-AU-PRINCE. The personnel of the Sanitation Division of the Port-au-Prince district consists of the following:-

1 Chief Pharmacist, U.S.N. Public Health Officer.
1 Haitian Physician, Asst. to Public Health Officer.
2 Clerks
1 Messenger
2 Chief Sanitary inspectors
32 Sanitary inspectors
11 Rural sanitary inspectors
14 Chauffeurs
1 Watchman
1 Mechanic
41 Section bosses
463 Laborers.

Inspection Service. During the year sixty six thousand nine hundred and fifty six property inspections were made, an average of about two hundred and twenty five properties inspected every working day. Notices to abave nuisances sent to property owners and tenants numbered fourteen thousand two hundred and seventy four. Of this number the bureau's requests were complied with in thirteen thousand eight hundred and sixty seven cases. The remainder four hundred and seven cases were cited to the "Juge de Paix". Of the cases cited two hundred and twenty two were cancelled by this office as the work requested was satisfactorily accomplished; forty one were cancelled by the "Juge de Paix" for the same reason; eighteen were condemned

to execute the work and a fine imposed and no action taken in the one hundred twenty seven remaining cases.

The number of sanitary inspectors has been increased over last year from twelve inspectors and three controllers to eighteen inspectors and three controllers. Additional rural sanitary inspectors were appointed for Gressier and Cabaret. It would be a natural presumption that with two hundred and twenty five daily property inspections a city of the size of Port-au-Prince is very well policed. But special investigations in response to complaints received, and checking conditions in the various zones do not bear this out. Inspectors are prone to favor certain parts of their zone and neglect the more inaccessible and more squalid sections that are most in need of their attention. The present system leaves too much to the honesty, faithfulness and capacity for work to the individual inspector. The zones are necessarily large and contain many thickly populated and squalid districts and considerable is left to the inspectors "judgment" as to how he should cover his zone.

Therefore it is realized that in order to accomplish desired results with the caliber of material at hand, their daily work must be sharply defined. With this in view a survey of the city is being made and when completed a property card for every property in Port-au-Prince will be on file containing the following data:

Property address	Owner's name
Tenant's name	Number of people
Latrine (kind & condition)	Bassin
Number & condition of faucets	Barrels, other receptacles
Water (mosquito larvae)	Wells or springs
Stables	Drains
Condition of yard	Chicken coop
Ditches in yard	Garbage
Ditches in street	Remarks.

Zones will be divided into districts representing one day's work for one inspector, determined by actually covering the ground within the hours alloted for work.

The date of each inspection with a brief summary of conditions as found will be entered on the back of each card. Cards will be filed under zones and subdivided into districts. A duplicate set will be filed alphabetically under name of owners. Inspectors leave their zones at 3:00 p.m. and go to the office to prepare notices to property owners and tenants and each will make his entries on property cards.

Notices made out by inspectors are checked over by controllers and the Chief Inspector and presented to the Public Health Officer for signature the following morning. Names and addresses of those to whom notices are sent are filed under the date when the work should be completed and a re-inspection of the property then made by the controller of that zone.

This system is already in effect in Léogane, Croix-des-Bouquets and Arcahaie, these being the largest of the outlying communes.

This system will enable the Public Health Officer to get a very clear idea of the amount and nature of the work done in the country districts in a comparatively short time. Twelve or fifteen properties are inspected and later checked with the cards. Unsanitary conditions not noted on cards is proof conclusive of neglect and carelessness.

The work of gathering the necessary data in Port-au-Prince to prepare these cards is enormous, but at the close of the fiscal year it is about 60 per cent completed. Incidentally a fairly accurate census of Port-au-Prince will be available from data contained on these cards.

Control of Mosquito Breeding. During the year efforts have been concentrated on freeing the city and its environs of the malaria vector Anopheles albimanus.

The projects of draining the large swamps at Bon Repos on the Arcahaie road and the one on the road to Cazeau were completed during the year. These swamps, each the size of several city blocks formerly teeming with anopheles larvae, now present the appearance of well graded ravines with a clean staked canal flowing through them. Both of these canals are now fairly teeming with mosquito destroying fish.

An approximated total of thirty five thousand loads of refuse have been hauled during the year, the majority of which has been utilized to fill a large swamp near the shoreline at the lower

(5) FILLING THE LAST SWAMP WITHIN THE LIMITS OF PORT AU PRINCE

end of Rue du Magasin de l'Etat. Here anopheles larvae were constantly present as recent as July of this year. Vegetation has been cut, rock canals constructed, and a thin layer of refuse applied over the entire area. This formerly constituted the nearest anopheles breeding grounds to the residential section of the city. This will continue to be the main dump of city refuse during the ensuing year, at the end of which it is believed that this property will be converted inro properly drained useful land. The long area along the shore line south of that described above is being drained by cement surface gutters. This work is being done by the Public Works Department by means of funds appropriated to the Public Health Service and is now nearing completion.

Surface Gutters. Extensive fills have also been made in the yards of residents in the squalid sections along the shore line. In the section known as Croix-des-Bossales and Fort St. Clair many houses were almost constantly under water and in others the yards were filled with water and mud for weeks following a few successive rains. Fillings with street sweepings and gravel were made and surfaced with cinders obtained from the Railroad Company. After this work was completed it was very gratifying to note the new pride in their homes and environs evident amongst the people of these districts.

Mosquito control in the vicinity of Hasco, near which the Aviation Station and Motor Transport Company of the First Brigade are located, is very difficult.

This district is situated in the outskirts to the north of the city and contains many pools and small fresh water swamps. During the last few months several of these pools have been eliminated by fillings and mosquito destroying fish supplied to others. Many of these pools, maintained for the watering of stock, are not constant and therefore fish cannot be used. These are oiled once a week. But there are undoubtedly many pools in this uncultivated overgrown area that have not as yet been located.

About ten thousand eight hundred gallons of oil, fifteen hundred gallons of kerosene, and six hundred gallons crude creosote were used during the year in mosquito control and disinfection. In addition about three thousand four hundred and fifty gallons of crank case oil was obtained from various garages, without charge, and diluted with kerosene and used for the same purpose.

Street cleaning. In April, 12 new one and one half ton Dodge trucks were put in service to replace the old fleet of one ton Ford trucks. The increased efficiency of the truck service

(6) CURBS AND GUTTERS IN PORT-AU-PRINCE

was noticeable at once as the first month showed an increase of more than one hundred loads over the previous month. This also made possible the extension of truck service to Léogane, Gressier, Carrefour, Croix-des-Bouquets, Pont-Beudet, Croix-des-Missions and Pétion-Ville.

The advantage of these new and larger trucks is evident in this important service as time lost for repairs during the year has been negligeable.

Large reinforced concrete trash boxes have been constructed to replace the old wooden ones. Nineteen such boxes were constructed in Port-au-Prince, nine in Léogane, eight in Croix-des-Bouquets and one each in Gressier and Carrefour. It is a part of next year's program to build ten such boxes in Arcahaie and probably ten additional ones in Port-au-Prince.

All streets are cleaned daily and tri-weekly garbage and trash service furnished to residents of the entire city.

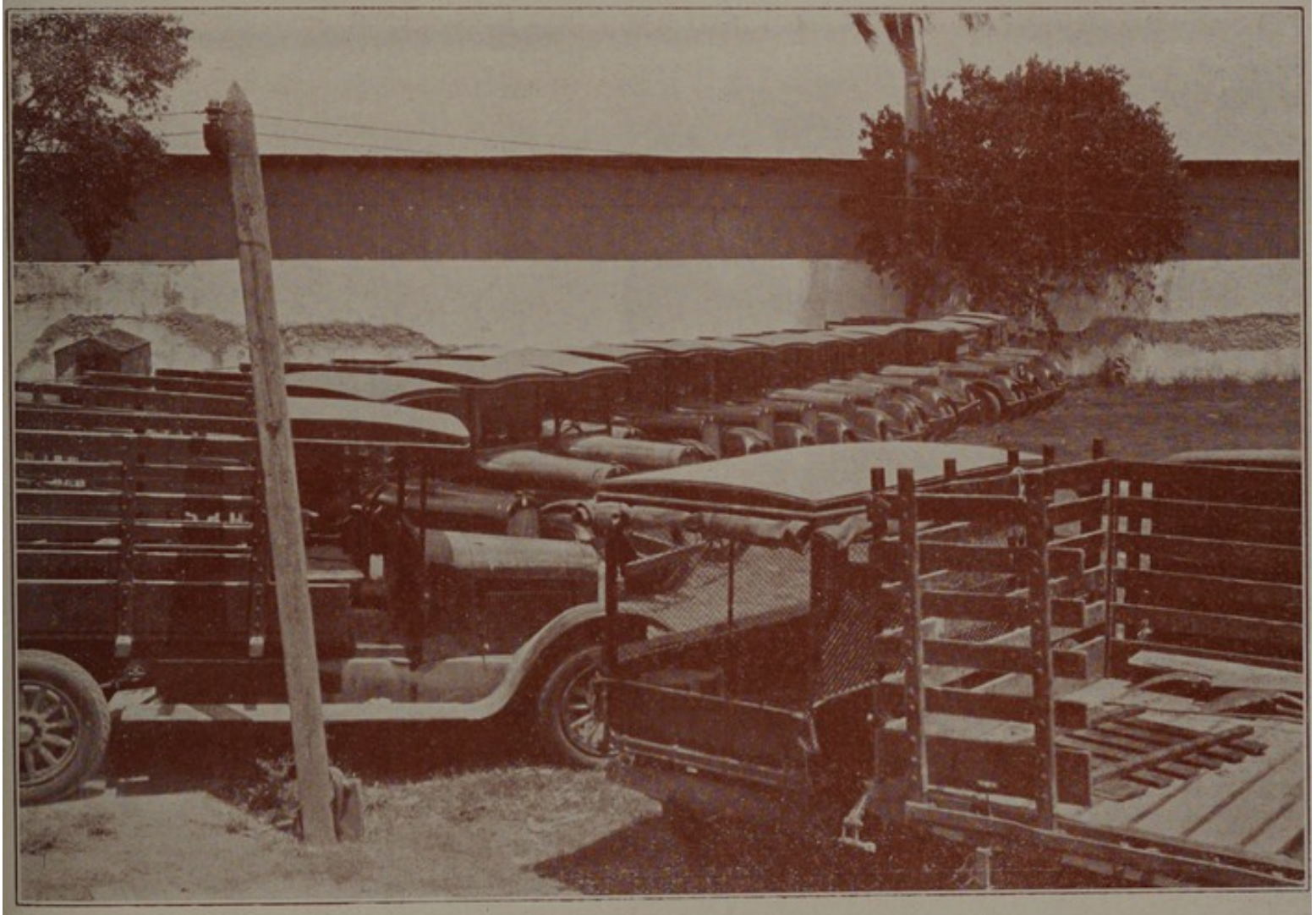
Three hundred sixty five men, thirty six chiefs of gangs, and one chief inspector and three assistants are employed in this work.

Markets and Abattoir. Four inspectors and fifty two laborers are employed in keeping the many markets and the abattoir in a sanitary condition.

The stall in the north Iron market, where cooked food is prepared and sold, has been re-screened and painted. The Commune has made funds available for rescreening and painting the ten stalls in the south Iron market and for painting both the north and south Iron markets. It is estimated that this work will cost twenty five thousand gourdes (25,000.oo) and the work will be done early in the ensuing year by this Service.

The markets and the abattoir are constantly supervised by inspectors and in addition a veterinary inspects and passes on all animals killed at the abattoir.

Nightsoil removal. It is the custom in Port-au-Prince for property owners requiring latrines to be cleaned to hire men to do the work who transport the nightsoil in boxes on their heads to the sea. This work is done at night and frequently the morning gives evidence that the carrier has tired before he reached his proper destination. The futility of any attempt of proper supervision with this custom in vogue is obvious.



(7) NEW TRUCK EQUIPMENT STREET CLEANING SERVICE, PORT-AU-PRINCE

(8) STREET CLEANING FORCE, PORT-AU-PRINCE

It is impossible for this department to extend nightsoil removal service to private individuals as the present equipment for such work is entirely too meagre.

Infectious Diseases. This district has been surprisingly free of communicable diseases up to the last month of the year when several cases of typhoid fever were reported including five deaths from that disease. Publicity of the presence of this disease was given the public through means of the press and local doctors were urged to cooperate by reporting all suspects. A specimen of blood is being taken from every suspect, and all contacts given a course of anti-typhoid treatment. Latrines are disinfected with cresol and lime and members of families where cases exist are warned regarding the contagious nature of the disease and instructed how to properly handle the patients' excreta. All employes of this department, consisting of over five hundred men have been given the initial dose of anti-typhoid proplylactic.

Dogs. A dog pound has been constructed at the Park Communal for use after October 1st. when the new dog law goes into effect. This pound has a cement floor and a wooden roof covered with roofing paper and is divided into 12 kennels each 3 feet by 3 feet eight inches. The divisions were made with a view towards making a suitable place for caring for dogs suspected of having rabies.

There have been several cases of rabies amongst the dogs in Port-au-Prince during the year which it is believed will be largely remedied upon the enforcement of the new dog law.

A lethal chamber has also been constructed for destroying dogs with cyanide gas.

Rats. A total of six hundred twenty nine rats were trapped and sent to the laboratory of the Haitian General Hospital for examination. No rodent plague has been found.

Rural sanitation. The extent to which the division of sanitation in this district has invaded the rural sections may best be judged by the personnel employed in the various villages. One Chief Sanitary Inspector has been detailed to rural sanitation alone. The personnel situation is as follows:

Léogane:	1	Sanitary Inspector
	1	Section boss
	12	Laborers.

Arcahaie:	1	Sanitary Inspector
	1	Section boss
	9	Laborers.
Petion-Ville:	1	Sanitary Inspector
	1	Section boss
	8	Laborers.
Croix-des-Bouquets:	1	Sanitary Inspector
	1	Section boss
	13	Laborers (10 paid by Commune)
Thomazeau:	1	Sanitary Inspector
	5	Laborers (paid by Commune)
Cabaret:	1	Sanitary Inspector.
Gressier:	1	Sanitary Inspector.
Cazeau:	1	Sanitary Inspector.
Croix-des-Missions:	1	Sanitary Inspector.
Carrefour:	1	Sanitary Inspector.
Pont-Beudet:	1	Sanitary Inspector.

Finances.

Allotment.

Oct. 1, 1925. Balance on Hand	Gdes.	000,000.00
Received during the year		340,511.92
Expended		340,511.92
September 30, 1926. Balance on hand		000,000.00

Special Service.

Oct. 1, 1925. Balance on hand	1,528.89
Received during the year	3,134.00
Expended	4,662.89
Sept. 30, 1926. Balance on hand	0,000.00

Irondale:	1	Sanitary Inspector
	1	Section boss
	9	Laborers
Potlon-Ville:	1	Sanitary Inspector
	1	Section boss
	8	Laborers
Croix-des-Bouquets:	1	Sanitary Inspector
	1	Section boss
	13	Laborers (10 paid by Commune)
Thomassaint:	1	Sanitary Inspector
	6	Laborers (paid by Commune)
Cabaret:	1	Sanitary Inspector.
Croselore:	1	Sanitary Inspector.
Cassaut:	1	Sanitary Inspector.
Croix-des-Missions:	1	Sanitary Inspector.
Carrefour:	1	Sanitary Inspector.
Port-Breton:	1	Sanitary Inspector.

Finances.

Allotment.

Oct. 1, 1929. Balance on Hand	000,000.00
Received during the year	340,811.02
Expended	340,811.02
September 30, 1930. Balance on Hand	000,000.00

Special Service.

Oct. 1, 1929. Balance on hand	1,250.00
Received during the year	3,334.00
Expended	4,584.00
Sept. 30, 1930. Balance on hand	0,000.00

Asile Communal.

Oct. 1, 1925. Balance on hand	Gdes.	3,150.65
Received during the year		46,100.00
Expended		47,582.02
Sept. 30, 1926. Balance on hand		3,668.63

Commune Funds, Port-au-Prince.

Oct. 1, 1925. Balance on hand	2,489.44
Received during the year	37,499.65
Expended	38,319.21
Sept. 30, 1926. Balance on hand	1,669.88

Commune Funds. Léogane.

Oct. 1, 1925. Balance on hand	0,000.00
Received during the year	3,000.00
Expended	3,000.00
Sept. 30, 1926. Balance on hand	0,000.00

Commune Funds. Croix-des-Bouquets.

Oct. 1st, 1925. Balance on hand	0,000.00
Received during the year	1,800.00
Expended	1,800.00
Sept. 30, 1926. Balance on hand	0,000.00

Commune Funds. Thomazeau.

Oct. 1st, 1925. Balance on hand	000.00
Received during the year	504.00
Expended	504.00
Sept. 30, 1926. Balance on hand	000.00

Commune Funds. Archaic.

Oct. 1st, 1925. Balance on hand	1,261.82
Received during the year	4,303.73
Expended	5,565.55
Sept. 30, 1926. Balance on hand	0,000.00

Extraordinary Credit.

Oct. 1st, 1925. Balance on hand	00,000.00
Received during the year	45,000.00
Expended	42,696.63
Sept. 30, 1926. Balance on hand	2,303.37

Valle Comunal.

Oct. 1, 1925. Balance on hand	Cdos. 3,150.45
Received during the year	40 ,100.00
Expended	47 ,982.02
Sept. 30, 1926. Balance on hand	3 ,456.83

Comune Fonde, Pré-au-Prince.

Oct. 1, 1925. Balance on hand	2 ,489.44
Received during the year	37 ,499.65
Expended	35 ,319.81
Sept. 30, 1926. Balance on hand	4 ,669.88

Comune Fonds. Léogane.

Oct. 1, 1925. Balance on hand	0 ,000.00
Received during the year	3 ,000.00
Expended	3 ,000.00
Sept. 30, 1926. Balance on hand	0 ,000.00

Comune Fonds. Croix-des-Bouquets.

Oct. 1st, 1925. Balance on hand	0 ,000.00
Received during the year	1 ,800.00
Expended	1 ,800.00
Sept. 30, 1926. Balance on hand	0 ,000.00

Comune Fonds. Thomazeau.

Oct. 1st, 1925. Balance on hand	000.00
Received during the year	504.00
Expended	504.00
Sept. 30, 1926. Balance on hand	000.00

Comune Fonds. Jacmel.

Oct. 1st, 1925. Balance on hand	1 ,251.02
Received during the year	4 ,303.73
Expended	5 ,554.75
Sept. 30, 1926. Balance on hand	0 ,000.00

Extraordinary Credit.

Oct. 1st, 1925. Balance on hand	00 ,000.00
Received during the year	45 ,000.00
Expended	42 ,696.63
Sept. 30, 1926. Balance on hand	2 ,303.37

Quarantine Service. Four hundred and thirty six foreign ships were inspected during the year, this being an increase of sixty two ships over last year. No quarantinable diseases were noted and no vessels were denied permission to dock.

CAP-HAITIEN. In addition to the Public Health Officer the personnel for the Sanitation Division consists of two clerks, one chief inspector, three sanitary inspectors, three milk inspectors, one meat inspector, one chief mechanic in charge of garage, two assistant mechanics, three chauffeurs, one carpenter, one blacksmith, thirteen section bosses and one hundred ten other employees.

Malaria. Marked reduction in the incidence of malaria in Cap-Haitien during the year is evidenced by the table shown below, which gives the number of cases of malaria occuring among the Marine personnel since the year 1923:-

TABLE I.

No of admissions for malaria at Marine Barracks, Cap-Haitien.

	1923	1924	1925	1926
January	5	35	103	2
February	6	12	37	2
March	4	8	13	2
April	4	6	5	1
May	7	2	4	3
June	11	2	2	2
July	23	10	5	0
August	3	1	1	0
September	4	4	3	0
October	5	4	2	
November	3	24	3	
December	53	32	4	

This decrease has been due to an intensive anti-mosquito campaign. Swamps and low marshy ground have been filled and drained, using 39,928 cart and truck loads of rubbish obtained from the street boxes for filling purposes. Numerous old, abandoned wells have been filled and serviceable wells provided with tight covers. The water courses have been cleared of vegetation and debris and converted into free flowing streams without stagnant pools. A large area of low ground along the Haut Du Cap river has been cleared of bushes and oiled with consequent improvement in mosquito control

Quarantine Service. Four hundred and thirty six foreign ships were inspected during the year, this being an increase of sixty two ships over last year. No quarantinable diseases were noted and no vessels were denied permission to dock.

SANITATION. In addition to the Public Health Officer the personnel for the Sanitation Division consists of two clerks, one chief inspector, three sanitary inspectors, three milk inspectors, one meat inspector, one chief mechanic in charge of garage, two assistant mechanics, three chauffeurs, one carpenter, one blacksmith, thirteen scavenger teams and one hundred ten other employes.

Malaria. Marked reduction in the incidence of malaria in Cap-Haitien during the year is evidenced by the table shown below, which gives the number of cases of malaria occurring among the Marine personnel since the year 1919.

TABLE I.

No. of admissions for malaria at Camp Barnes, Cap-Haitien.

	1923	1924	1925	1926
January	8	78	103	2
February	6	42	37	3
March	4	8	18	1
April	8	6	8	1
May	7	2	4	3
June	15	2	3	2
July	23	10	5	0
August	3	3	1	0
September	4	4	3	0
October	3	4	0	
November	0	24	3	
December	23	32	4	

(9) OIL GANG

(10) OILING A TEMPORARY POOL

Water supply. The water supply of Cap-Haitien is inadequate during the dry periods of the year. Two reservoirs are fed by mountain springs. These springs are practically dry at some seasons and the supply is supplemented by a driven well equipped with a pump that supplies about seventy gallons per minute. Another well is being driven, which it is hoped will relieve conditions to a certain extent. All milk entering the town is tested for water dilution. Between four and five thousand kola bottles of milk enter daily.

Rural Sanitation. A start has been made in establishing sanitary measures in communities outside of Cap-Haitien. Monthly allotments are made to Gendarmerie officers in Ouanaminthe, Le Trou and Grande Rivière who not only supervise sanitation in these towns but distribute certain amounts to their officers in the subposts. By this method a responsible officer handles funds, is interested in results and the Public Health Officer points out sanitary needs during his monthly inspections. It is contemplated extending this method to other communities during the coming year as funds become available.

At Fort-Liberté which has long been a hot bed for malaria remarkable success has been attained in drying up a large swamp at the edge of the town, by turning the course of the river that flows into the area and by opening up the outlet of the swamp to the sea. At Plaine du Nord a start has been made in draining and filling swamps. This work will be continued during the coming year.

Public latrines were built at Port Margot, Ouanaminthe and Le Trou and construction begun at Grande Rivière.

The year has been a fruitful one for sanitation in Cap-Haitien and it is hoped to greatly increase the work already under way in the rural communities during the coming year.

CAYES. The sanitary condition of this district has been much improved during the last year. Aux Cayes has received more work in sanitation than any of the other towns in this district because of its unfortunate location, unsanitary condition, and importance. In addition sanitary work has been carried on in Cavaillon, Saint Louis and Aquin for the entire year and in Port-à-Piment for the last four months.

Personnel. The number of employees carried on the sanitation payrolls are as follows:-

One Assistant Public Health Officer,
(Pharmacist's Mate, U. S. Navy)
One commissioned physician (Port doctor, Haitian)
One chief sanitary inspector
Four sanitary inspectors
Six section bosses (Aux Cayes)
One section boss (Cavaillon)
One section boss (St. Louis)
One section boss (Aquin)
One section boss (Port-à-Piment)

Street cleaners, mostly women, approximately 55 (Aux Cayes)
" " " " " 5 (Cavaillon)
" " " " " 6 (St. Louis)
" " " " " 6(Pt-à-Piment)

Laborers, average number 45 (Aux Cayes)
" " " 8 (Cavaillon)
" " " 5 (St. Louis)
" " " 5 (Aquin)
" " " 5 (Port-à-Piment)

Two chauffeurs for street trucks
One chauffeur, service car (acts also as mechanic).

Sanitary Inspection. The sanitary inspection of Aux Cayes is made by two inspectors (trained at Port-au-Prince) under the direction of the chief sanitary inspector. The same is controlled by the Pharmacist's mate, U. S. Navy. During the past year ten thousand and eight properties were inspected.

Three thousand three hundred and two notices of violations of sanitary regulations were sent out. Five hundred and eighty three persons were sent to court. Of this number 15 were acquitted (as insolvent) 347 fined, and there are remaining 221 against whom no action has been taken. It will be noted that this is an increase of one hundred and eleven over the previous year against whom no action has been taken. This matter has been taken up with the Chief of Police, the District Commander and the Departmental Commander of the Gendarmerie and the Judge on several occasions. The only result obtained, other than promises, was an increase in the number of untried cases. During the past year one hundred and eight new latrines were built and nine hundred and ten repaired. The town now has latrines on all inhabited properties in the town proper. Efforts are now being extended to construct latrines in all of the adjacent sections.

(11) SWAMP FILLED AND MAIN SPRING DRAINED, PORT-AU-PRINCE

Cavaillon, St. Louis and Aquin have been inspected every two weeks by the Public Health Officer or his assistant. The road foreman of the Public Works Service in these sections has cooperated with the Sanitary Service in seeing that the work outlined was accomplished. Sanitary Service has been established in Port-a-Piment for the last four months. The Public Health Officer or his assistant makes inspections once a month and outlines work to be done. The Magistrat and the Gendarmerie Officer of this place have both been of great service in seeing that the various recommendations were carried out. It is hoped that in the near future a sanitary inspector can be placed in each of these communes.

Street cleaning. As in past years all street sweeping has been done by women, aided by a certain number of men with wheel-barrows. It is impossible to obtain men to do this work. The women however appear to be as good if not better workers than the men. The present numbers employed are considered sufficient for the needs of the towns, at least until more streets are repaired.

Disposal of street refuse. In Aux Cayes street refuse was collected by one Ford truck and one Dodge truck. During the year there were 1459 Ford truck loads and 986 Dodge truck loads of street refuse removed from the town. In Cavaillon, St. Louis and Aquin wheel-barrows are used and in Port-à-Piment a mule cart is used for hauling street refuse. It is planned to put mule carts in all of the outlying towns where sanitation activities have been started. All street refuse has been used in filling swamp-land around the towns.

Laborers. The labor problem continues to be a very acute one in this district. It is impossible to employ any but old men or boys under twenty. The former are too old and the latter too young to perform a good day's labor. As long as emigration to the Cuban sugar fields continues we will have the problem of getting men.

Public latrines. During the past year two public latrines have been built, one at the wharf and the other near the market. Considerable difficulty has been experienced instructing the people from the rural districts in the use of these buildings.

Markets. The market place of Aux Cayes is in very good condition. The shortage of produce continues as in past years due to lack of cultivation on account of labor shortage. During the last year a butchery has been constructed in the market place of Aquin. St. Louis and Cavaillon have agreed to build butcheries during the coming year.

(12) DRAINAGE OF SWAMPS WITH 1/3 SECTION CEMENT DRAINS

Water supply. The water supply of Cayes continues to be plentiful and of a good quality. It is derived from an underground stream which was reached by a dug well from which water is pumped by steam the greater part of the day. During the last year wells have been drilled in Aquin, St. Louis, Cavaillon, Laurent, Cayes and Torbeck. In all places except Aux Cayes water is obtained from these wells by means of a hand pump. In Aux Cayes the well is constantly flowing. Another well for flowing water is to be dug in Aux Cayes in the near future.

Dogs. During the past year one case of rabies in a boy of 12 years of age was seen by the Public Health Officer. No information of the dog which bit the boy could be given by the parents, and autopsy was refused on the boy after death. A campaign was made against stray dogs and eighty three were poisoned. The inhabitants in the majority of cases have cooperated in keeping stray dogs off the streets.

Abattoir. During the last year a cement floor and running water have been placed in the abattoir. With frequent inspections it is now kept in a fairly good sanitary condition.

Vaccination. During the past year as many schools as possible were visited and approximately 1200 persons vaccinated. Of this number approximately 400 had positive reactions, which is considered a high percentage because of the fact that some of the schools are one and two days distant by horseback, and it is impossible to keep the vaccine on ice.

Mosquito control. This is the largest problem we have to meet in Les Cayes, due to the city's unfortunate location amidst stagnant rivers and swamps. Draining of swamps and oiling have been continued throughout the year. The River Renaud continues to be a problem. However work has been completed in changing the course of the river near its origin, causing it to now flow through the large ditch which was opened the year previous. The Public Works Service has begun construction of a concrete drain to take the place of the present river bed which is being filled with street refuse. It is planned to build proper gutters to take care of the area which is at present drained by the river.

Communal Funds. During the past year the Public Health Service received funds from the following communes: Les Cayes, 5,000 gourdes; Cavaillon, 1,670 gourdes; St. Louis, 1,000 gourdes; Aquin, 1,100 gourdes; Port-à-Piment, 600 gourdes; Torbeck, 290 gourdes. This was all used on street cleaning and ditching in each of the communes.

Foreign and Coastwise boats. During the past year one hundred and six vessels were boarded at this port. No quarantinable diseases were encountered.

New construction. Now construction underway is the drainage to take care of the old Renaud River and the permanent filling of the old river bed.

Future plans. Plans for the future may be outlined as follows:-

Continuation of drainage of swamp land.

River or flood control.

Cement curbing and gutters for all streets.

Changing course of Renaud river and filling old river bed.

Improvement in system of nightsoil disposal.

GONAIVES. Personnel. The personnel of the Sanitation Division consists of:

Chief Pharmacist's Mate, U.S.Navy	1
Clerk	1
Inspectors	3
Section bosses	6
Laborers	73
Chauffeur	1

Street cleaning. The main streets of Gonaives are cleaned twice daily, the streets where traffic is not so great are cleaned once daily. Six gangs consisting of 41 men are kept continually on this detail. Gutters and drains are cleaned and swept daily, ten men are detailed for this work.

Breakwaters have been constructed along the northern and north western water front of the town, preventing tide water from entering the town. The low swampy land protected by these breakwaters has been filled in with refuse from the town, eliminating a great source of mosquito breeding. The dilapidated street boxes have all been replaced with empty painted oil drums which greatly facilitate the collecting of garbage. The old broken down hand carts have been replaced with five new push carts each

(13) GONAIVES AFTER A RAIN, MAY 1926

with over double the capacity of the old. In May the arrival of a new truck improved the facilities for handling garbage.

Loads of trash hauled by Dodge truck-------1212
" " " " " Mule carts--------1350
" " " " " Hand carts--------8419.

Market. The paving of the public market place was completed on the 23rd of June, this work consisted of 11,450 square feet of stone paving and 684 linear feet of stone and cement gutters. This remedied an eyesore and source of annoyance as during rainy weather black slimy mud was ankle deep in the market place. An inspector is detailed at all times in the markets, his time being spent between the large public market, the fish market on the sea shore and the abattoir. Ten laborers are employed to sweep and clean the two markets.

Mosquito control. During the past year the town has been flooded on several occasions due principally to the narrow winding canal which flows through the center of the town. This condition is being remedied by the construction of a stone and cement canal one meter and a half wide which eliminates the curves and will hasten the flow of the water. The staking of the upper end of this canal was nearing completion at the end of the year. This eliminates many little pools which were constant mosquito breeding places, and also prevents the continual caving in of the banks which necessitated keeping a gang of laborers continually on this one project.

Wells that are not in use have been filled in, many others have been stocked with fish. About two thousand meters of new ditching have been constructed draining the swampy area to the south west of the "Avenue des Dattes", and the area to the north east of the town. As the highest point of the town is only three meters above sea level it is practically impossible to get perfect drainage. All places not drained and which have not been filled in as yet are kept thoroughly oiled. Eight hundred and fifty gallons of mosquito oil were used during the year.

Sanitary inspection. The town is covered regularly once a week by two sanitary inspectors, a thorough house to house inspection made, and property owners who commit nuisances are sent a first notice which is followed up, and if the nuisance is not abated they are then sent to court. The Public Health Service has received excellent cooperation from both the police force and the courts.

Money received from communes during the year:

Sanitation - Received from Commune of Gonaives-------G.3000.00

Hospital - Received from Commune of Gonaives------- 125.00

Received from Commune of St.Michel------ 220.00

Plans for the future.

(a) A new sanitary abattoir.

(b) One additional truck (which would greatly facilitate garbage removal).

(c) A building to be used as storeroom and to house the truck and street cleaning equipment.

(d) Funds for sub-soil drainage and staking of the two canals which rise north east of the town and spread out over the swampy area about one mile outside of the town.

HINCHE. The personnel of the Sanitation Division consists of:

1 Chief Pharmacist's mate, U. S. Navy
2 Sanitary inspectors
1 Office clerk
3 Section bosses
45 Laborers.

Of the two sanitary inspectors employed, one is located in Hinche and one in Lascahobas. The former completely inspects Maissade, Thomonde and Hinche weekly, and supervises oiling of mosquito breeding places in Hinche and Thomonde. The latter inspector has performed the same work in Lascahobas but will now in addition carry out this work in Mirebalais. During the year 22 barrels of crude oil were used.

Street refuse is taken care of by the Public Health Service in Hinche and Thomonde by rubbish boxes for collection and wheelbarrows for disposal. In both towns, low places are being filled. In Mirebalais, rubbish boxes and a two wheeled push cart have been provided for this work. Streets and the market in Hinche are cleaned by an average of eight laborers under a section boss.

(14) HUNTING ANOPHELINE LARVAE

During seven months of the past year a gang of thirty laborers under a section boss has been employed for the following work: constructing a ditch for draining the town of Hinche; draining ten acres of swamp land south east of Hinche; drainage of seven acres of land west of the Hospital; draining one half the town of Lascahobas and cleaning that town twice; cleaning Maissade twice; cleaning Thomonde twice; cleaning Mirebalais once, and cleaning drainage ditches about Hinche four times.

Dogs and rabies. No cases of rabies have been encountered. Thirty five dogs have been poisoned in the vicinity of Hinche.

Nightsoil disposal. In Lascahobas, Thomonde, Hinche and Maissade every effort has been put forth to induce property owners to provide their properties with latrines. In Lascahobas and Maissade, the Public Health Service has met opposition from various quarters and efforts in this direction have failed. However, in Thomonde and in Hinche satisfactory results have been obtained. Two public latrines have been completed and a third commenced during the year.

The following tabulation shows the remainder of Sanitation activities:

Sanitary inspectors inspections	5655
New latrines built by property owners	176
Public latrines built	2
Notices of work to be done	1820
Sent before court for keeping hogs in town	1
Total number of cases fined	97

Communal Funds. During the year the communes of this district have contributed to Sanitation by way of the 5% subvention from communal funds as follows:

Hinche	Gdes.	973.59
Mirebalais	"	1,037.50
Maissade	"	506.05
Lascahobas		262.16.

Accomplishments. Appropriation has been made for an additional building to take care of servant quarters, laundry, carpenter shop and morgue.

1. New construction:

1230 meters of ditch to drain the town of Hinche.

Drainage of 10 acres of marsh land south east of Hinche.

Drainage of 7 acres of land west of Hospital.

Cleaning two miles of the Hinquitte river during the dry season to prevent mosquito breeding.

Building and distribution of 17 rubbish boxes.

Building two public latrines.

During the coming year it is hoped to continue installing permanent drainage in Hinche and in the vicinity of the Hospital; to construct public latrines in five towns where no such facility exists for the market people and where many properties will have the use of such a convenience; to continue cleaning towns as during the past year and to prepare ditches to carry surface water during heavy rains, and to expand the rural clinical service.

JACMEL. Mosquito control. Anopheline larvae have been found in nine different places within the town limits. Some of these places have been drained; others oiled. Sixteen barrels of oil have been used in this work during the year. All spots of mosquito breeding within the town are now well controlled with better organization and division of labor of the five inspectors and one chief inspector. Ditches to the east of town on the Rue des Cayes are serious menaces and are too long to be oiled and cannot be drained without considerable expenditure of money. Many roadside pits have been dug to obtain gravel during road construction and the Public Works Department has been requested to fill in these pits.

The most discouraging event of the year in regard to mosquito control was the project of draining five large swamps situated about a mile east of the city. Five thousand (5,000.00) gourdes were received for this work. Ditches were constructed connecting this swamp for outlet in a ditch running toward the sea. This ditch was also begun and a few hundred meters completed. In June heavy rains impeded the work and also during June the funds were exhausted. It is firmly believed that much of the failure was due to the absence of the American Engineer. He has not yet been replaced and until such time as one is on duty here it will be impossible to get any sort of accurate estimate on the cost of completing this draining work and it will be impossible or at least highly inadvisable to begin the work even should funds

be available unless some competent person is present to supervise the work and control the funds.

Three hundred meters of cement gutter were constructed on the Rue de la Comédie and the Grand Rue. Many thousand meters more are badly needed but no funds are on hand for such work. Most of the work done this year on gutter construction was paid for out of money saved from regular allotments. One thousand gourdes were received for gutter construction in return for a reduction of 900 gourdes in the hospital allotment.

Nightsoil disposal, Garbage disposal, etc.

Number of mule carts in use----------4
Total number of loads handled----------7418
Number laborers used in street cleaning----------77
Number public latrines----------1

Very extensive residence construction has occurred during the year, especially since the opening of the Jacmel-Trouin trail and it is gratifying to note that practically all of these houses are equipped with back yard latrines. Many latrines have also been built for houses which had already existed many years without them.

House to House inspection. This work has been conducted of late months much more efficiently than ever before due to the systematic and persistent efforts on the part of the Pharmacist's Mate, U. S. Navy who has been on duty here since April 1926.

No. inspections made----------57325
No. notifications of violations San. Reg.----------4897
No. Notices to appear in court sent out----------166

Market, Food and Milk inspection. One inspector is on duty at the market and the pharmacist's mate makes inspections once or twice daily. Milk inspections are made most every day. The market is cleaned after closing, all tables being used for meats, fish, etc. being cleaned thoroughly.

Personnel. The personnel of the Sanitation Division consists of:

Chief Pharmacist's mate, U. S. Navy----1
Chief Inspector----------1
Sanitary inspectors----------5
Section bosses----------3
Laborers----------77

The inspectors require frequent disciplinary measures but as noted above, the organization and "checking up" system put into operation since the arrival of the new chief pharmacist's mate have added great efficiency to this corps of workers.

Communal Funds. In addition to the regular monthly allotments from the central government, gourdes 3,663.47 have been received from the commune for local sanitary work.

Water supply. The quantity has always been sufficient, in fact the water supply is really too great, with the result that hydrants are left open through negligence, and leaking faucets are not repaired (no practical need for such repair being understood by the inhabitants) with the result that water runs continually into gutters and other places not all of which can be drained.

No epidemics of water borne diseases have occurred and the water is considered perfectly safe, boiling being advised however. Two undoubted cases of typhoid were seen in Jacmel during the year. These two occurred five months apart and were evidently not of water origin or other cases would have been seen or heard of. Anti-typhoid vaccine is now being given to all government employees here as well as to others who wish to take it.

Epidemics. A severe and widespread epidemic of measles, prevailed during the months of March, April, May, and June.

Foreign ships boarded. Sixty-one foreign ships were boarded during the year.

Dogs. Seventy-three stray dogs were killed during the year. No authentic cases of rabies were seen.

Recommendations. It is recommended that funds be appropriated for and the Public Works Service requested to:

(a) Screen in meat department public market.
Estimated cost----------Gdes. 1,500.00

(b) Construct public latrine near public market
Estimated cost---------- 500.00

(c) Construct gutters in badly needed places
Estimated cost---------- 10,000.00

(d) Technical estimate and opinion concerning drainage of large swamp east of city.

JEREMIE. The Sanidation Division of this district is under the control of the assistant Public Health Officer. The personnel attached to this division consists of:

Pharmacist's mate, U. S. Navy-----1
Chief inspector-----1
Inspectors-----4
Section bosses-----4
Carpenter-----1
Laborers-----36.

The statistics are as follows:-

No. of properties inspected during the year-----9092
Total no. of people notified of unsanitary conditions-----279
No. of cases taken to court-----4
Number of cases convicted-----4
Number of mule carts in use-----4
Number of loads hauled-----14225
Number of dogs poisoned (no rabies reported)-----68
Amount of crude oil used for mosquito control, Gals.-----80
Amount of money received from commune, Gdes.-----2153.50

The market is still in quite an unsanitary condition but it is the intention of the Commune to remedy this condition during the coming year. Foodstuffs, and meats are inspected daily by the assistant Public Health Officer and inspectors. Milk is generally fresh, being brought in by country people to sell in the city. Of course the bacterial count may be somewhat high being exposed to the temperature of the tropics for perhaps four to six hours. But without pasteurization the milk is as fresh and wholesome as could be expected.

Energetic measures have been taken in Jérémie to eradicate the mosquito. Our campaign has been very successful as it is very seldom that ones sees a mosquito. However in other towns of this district the mosquito still holds forth. Dame Marie, Pestel and Corail are the worst places in the district. It is in these three towns that most of our malaria cases occur. Very little has been done during the past year in these places due to the lack of personnel. But it is planned to concentrate on these localities during the coming year and try to eradicate, if possible, the mosquito.

Three ships direct from a foreign port were boarded and inspected during the past year.

The future sanitation plans for the next fiscal year are:

More energetic mosquito control.

Construction of concrete rubbish boxes.

Construction of two additional latrines.

The sanitation recommendations are as follows:-

(a) That a sanitary inspector and five laborers be placed in the towns of Dame Marie, Pestel and Corail for mosquito control.

(b) That the number of laborers in the city of Jérémie be increased to 45 men.

(c) That a motor truck be furnished to this district for the purpose of hauling refuse.

(d) That deserving inspectors be given a course in the latest and best methods in mosquito extermination at Port-au-Prince.

PETIT-GOAVE. Personnel. The personnel of the Sanitation Division in this district consists of one Assistant Public Health Officer, (Pharmacist's Mate, U. S. Navy), one chief inspector, seven sanitary inspectors, four section bosses, one chauffeur, one watchman, one cook and sixty five laborers.

Mosquito control. Mosquito control is the most important feature in this district which probably is the most malarious one in the entire Republic. Particular efforts are being made to ameliorate the condition in the larger towns, particularly Petit-Goave. The extensive swampy areas in the vicinity of this town would require more funds to sanitate properly than is at our disposal. But a definite plan of filling and ditching is being carried out with the result that some improvement is made every year. During the year 900 gallons of mosquito oil were used in the district. Like in all other districts the mosquito destroying fishes are distributed in all suitable places.

Street cleaning. In the larger towns street cleaning is closely associated with mosquito control due to the fact that every load of street refuse is used as fill in swampy areas. During the year a Dodge truck was furnished Petit-Goave which served to speed

up the work very much. During the past six months 806 loads of street refuse were hauled and used as fill in Petit-Goave alone.

Street cleaning gangs are employed in Petit-Goave, Grand-Goave, Miragoane, Anse-à-Veau, and Baradères. As a result the streets are all cleaned every day. Mule carts are used in the latter four places for hauling.

Sanitary inspection. A corps of sanitary inspectors is maintained throughout the district. During the year 15,572 properties were inspected; 1,727 latrines were built or extensively repaired and 468 were made fly proof.

Accomplishments for the year. In Petit-Goave six seaside latrines were built; garage and storehouse were built at the service depot and extensive repairs of other buildings were made. A large swampy tract was filled and drained. In Miragoane two seaside latrines were built and the meat market screened. At Anse-à-Veau a cement canal was laid from the center of town to the sea shore. At Grand Goave two public latrines were built.

PORT-DE-PAIX. Personnel. The personnel in the sanitation division consists of the following:

1 Public Health Officer (Chief Pharmacist's Mate, USN.)
1 Chief clerk
3 Sanitary inspectors
2 Section bosses
29 Laborers.

The statistics are as follows:

Number mule carts		4
Number mules		4
Mosquito oil used	Gallons	450
Ships inspected		52
Rainfall for the year	mm.	889
Number dogs poisoned		102
Number of new latrines built		62
Notice to property owners to correct unsanitary conditions and to violators of San.Regulations		290
Notice to appear in court for failure to correct unsanitary condition		47
Properties inspected		3806
Places inspected on request		1
Loads of rubbish hauled		16320
Total receipts from Communes	Gdes.	3227.89

Market and abattoir. Market is held every day with the exception of Sunday. Meat, fish, bread and etc., are kept in covered trays. Those failing to comply with Sanitary Regulations are sent to the "Juge de Paix". The meat market is hardly adequate for this town. There is a possibility that during the coming year a new and larger meat market will be constructed, not on the same site that is occupied by the old one, but on the water front, an ideal location.

The abattoir is on the sea shore in the east end of town. It is constructed entirely of cement. There are four compartments, each of which is so made that the refuse runs into a main drain, and this empties into the sea. One man is detailed here to look after the place.

Milk venders, before they can sell, are required to report to the Communal Building, where an official gets the specific gravity of each container. Those having readings below the standard are sent to the Justice of the Peace. Across the street from the Communal Building is the only place in town where milk is sold.

Water supply. The Trois Rivières supplies most of the water for drinking. There are numerous wells in town but few contain potable water; most of the well water is brackish.

Mosquito control. A large masonry drainage canal, running north to the sea, in the west end of town, is under construction. When this is finished it will carry off considerable water that remains on the salines during the rainy season, thus reducing the mosquito breeding in this section.

In an attempt to increase the water supply for use at the new hospital, from springs south of the Champ de Mars, by digging into the source and clearing vegetation along the stream leading to a catch basin, quite an area that in the past afforded wonderful breeding facilities for mosquitoes, has been drained and kept in a sanitary condition.

Migration of laborers. Each year natives are shipped to Cuba where they cut sugar cane for various sugar estates. On their return they are examined by the Quarantine Officer. During the months of May and June eight thousand nine hundred eighty-six emigrants were examined.

Communal Funds. This Commune contributed to sanitation, Gourdes 2,103.95. Expenditures from this amount were:

4 mules	Gdes.	700.00
Removal nightsoil Brother's School	"	60.00
Repairs to abattoir	"	179.76.

Recommendations. Acquisition of a motor truck for the street cleaning service; installation of a modern water supply system; construction of a meat market on the water front.

Saint-Louis du Nord. A new market was completed, and put into use the latter part of the year. When the financial condition of the Commune is better, a site will be selected and construction begun on a new abattoir similar to the one in Port-de-Paix.

There are some private latrines, although these are few in number, and the public latrines are conspicuous by their absence. Due to open coast, it is thought that, in order not to risk losing latrines by being washed out to sea, they should be built at points inland. This would overcome the present unsanitary condition.

The surrounding rivers furnish the water supply. A few wells are scattered about, but these are brackish.

Street cleaning. This is done at the expense of the Commune. Two or three persons are hired each day to police the market which is very poorly done. There are two rubbish boxes in the whole community, but it is intended to increase this number to at least eight in the very near future. A mule and cart are also necessary which will be kept in mind and purchased at the first opportunity. A section boss with about six or eight laborers to clean the streets and market each day would improve the sanitary condition of the village.

This commune contributed to the Public Health Service the sum of Gourdes 679.22.

Recommendations. Construction of rubbish boxes, abattoir and public latrines.

Jean-Rabel. The market is fairly well attended; Wednesdays and Saturdays are the regular market days.

The river Jean-Rabel which flows through the town is the source of drinking water.

There are no public latrines. Sweeping of streets if performed by laborers hired by the Commune. The streets are in need

of grading. When it rains, large mud holes form, which remain for many days.

This Commune allotted during the past year Gourdes 262.37 to Sanitation Service.

Anse-à-Foleur. Market is held on Tuesdays and Fridays of each week; the products are poor in quality and quantity.

There are no public latrines.

Rivière Ste. Anne borders on the south and west; a large spring, Source Ste. Anne, furnishes an abundance of water for drinking purposes. The water is crystal clear and has a very good taste.

During the rainy season there is a large mosquito breeding area, just at the foot of Bas de Ste. Anne, in the southern section. This might be lessened, if not entirely eradicated, by drainage. There is only one outlet, and this becomes closed at high tide and remains that way until pressure from the swampy area forces out the débris.

The general sanitary condition of the streets is fair, cleaning being at the expense of the Commune. The Commune paid to the Public Health Service Gdes. 159.55.

SAINT-MARC. Inspection Service. Saint-Marc has been divided into three sanitary districts in order to afford a more efficient distribution of the personnel and permit a better control of the work in progress. One inspector has been detailed to each district, while a fourth has been placed in general supervision over the whole. By this arrangement it is now possible to inspect every property within the town limits about once every five days.

In order to improve the efficiency of the inspection personnel the following routine has been instituted. An applicant for a vacancy in this branch must be able to read and write and possess a presentable personal appearance. He must be willing to purchase his own uniform and give two weeks initial service without pay, during which time he undergoes a period of instruction under the various inspectors. He is then assigned to duty as section boss with the street cleaning forces. As vacancies arise he is advanced to inspector and section boss on the street canals, thence to market inspector and lastly to sanitary inspector of properties, commencing in the least important district and

advancing until he becomes chief inspector of St. Marc or is transferred to duty in one of the smaller towns. In such a manner the men are trained in all the varieties of work being performed and there is always one or more available for any emergency which may arise.

Mosquito breeding control. This continues to be one of the most important problems in the sanitary work. Numerous cane fields, rice fields and gardens within the city limits offer obstacles to the eradication of anopheline breeding which are difficult to remove. Continuous vigilance is necessary to keep the numerous irrigation canals free from vegetation and in repair. The eventual solution of this feature of the work would seem to be the discontinuance of farming and gardening on a large scale within the city limits. The immediate effect of this procedure is however difficult because of economic considerations and the accomplishment of such a purpose will have to be a gradual one. For the present, thorough inspection and property owner accountability are the only measures which offer worthwhile consideration.

The installation of a 66 section cement pipe has effected permanent drainage for the rainwater which formerly collected in large quantities at the northern end of town. Dirt canals and a 12 section cement pipe have furnished satisfactory drainage for a large portion of the rain water which frequently stagnated upon three large properties at the southern limits of Saint Marc. The construction of a number of cement street canals has greatly improved conditions in the central portion of the town while the completion of a large cement and masonry canal now under construction in the bed of the Petite Rivière will greatly alleviate the stagnant conditions in this area.

Routine oiling has been in daily progress wherever more effective measures were not practicable. Twenty one barrels of oil were used for this purpose.

Street cleaning. Sixteen laborers distributed in three section gangs, each supervised by a section boss, were employed for street sweeping. One Ford truck with two laborers was employed for handling refuse and garbage. Five laborers, supervised by an inspector, were employed to keep the street canals in sanitary condition. During the year 1,783 loads of refuse were hauled by the truck.

Market. Seven laborers and one section boss were employed to keep the market place clean. The duty of the inspector was to supervise the methods of produce sale by the market people in so far as sanitary considerations were concerned. It was his duty, among

other things, to assure himself that bread stuffs, cake, fish, sweets of all varieties, etc., were kept in closed or screened containers. During the year 52 individuals were sent to court for violations of sanitary regulations.

Abattoir. The abattoir is at present in fairly good sanitary condition. All cattle were slaughtered in the presence of the market inspector.

Nightsoil disposal. This disposal was made by private individuals under the supervision of sanitary inspectors.

Rat extermination. Little progress has as yet been made in this direction. Twenty five traps which were received a few days ago are now distributed throughout the town and 29 rodents have been captured to date.

Dogs. During the year 147 dogs were poisoned.

Milk and Food inspection. Frequent milk inspections were made. Twenty seven individuals were sent before the "Juge de Paix" for milk adulteration. On three occasions meat unfit for human consumption was confiscated and destroyed.

Water supply. An inspection and survey of the water supply of St. Marc was made during the year and a report of the same with recommendations was forwarded to the Sanitary Engineer.

Courts. The activities during the last year are as follows:

No. of notices of violations of sanitary regulations sent to property owners	701
Np. of notices to appear in court sent to property owners	112
Number cancelled by this service	0

Personnel situation. The sanitary force of St. Marc is immediately supervised by the Assistant Public Health Officer, a chief pharmacist's mate, U. S. Navy. The personnel consists of the following:

Assistant Public Health Officer	1
Sanitary inspectors	6
Section bosses	5
Chauffeur	1
Laborers	30

Permanent sanitary improvements. The cement platform of the abattoir was reinforced and a new cement runway was built so that the fresh beef would not be dragged over the ground. A cement drainage canal connecting the abattoir with the waterfront was constructed.

During the year 491 linear meters of cement street canals were built with the assistance and cooperation of the Public Works Service.

A masonry, shed type, garage was constructed and the roof of the sanitary depot renewed.

Eighty four sections of large size cement drain pipes were constructed and 76 are now in service.

Petite-Rivière. The sanitation force of this town consists of one inspector and four laborers.

A picket fence was built around the source of the drinking water supply to protect it from animals.

The sanitary inspector stationed at Petite Rivière also supervises the towns of Dessalines and Verrettes.

Dessalines. The sanitary force of this town consists of three laborers. The dresser stationed here acts also as a sanitary inspector.

During the year an enclosure was built around the source of water supply.

Recommendations. It is believed that cement refuse boxes throughout St. Marc would prove more economical than the wooden ones now in use and it is recommended that funds be allotted for this construction.

A mechanical chlorinating apparatus is needed for emergency use at the water reservoir, as reported elsewhere, and the purchase of such an apparatus for St. Marc is urged.

Funds are needed for the continuation of the construction of street canals. This work can be assisted materially by the utilization of a portion of the communal funds received.

Masonry and cement retaining walls are needed in sections of the banks of the Rivert river and funds for this construction would materially assist in the eradication of mosquito breeding places as well as prevent the caving in of land during freshets.

DIVISION OF QUARANTINE.

The Pan American Sanitary Code. During 1926 the Haitian Government ratified the Pan American Sanitary Code. This was an important step in the right direction.

Quarantine Station. The ratification carries with it certain obligations. One of these is that the State must have adequate means to look after infected ships. Steps will have to be taken looking to the erection of a quarantine station, the site of which has already been purchased near Bizoton Navy Yard. Deep water quite close to shore makes this an ideal location.

Quarantine Inspection. During the year two suitable boats for boarding have been purchased one for Jeremie and one for Jacmel. The old one in Port-au-Prince has been replaced by a new one.

No quarantinable diseases were encountered during the year just ended.

The following is a tabulated statement of the foreign ships boarded during the year:

Port	Ships boarded
Port-au-Prince	439
Cap-Haitien	113
Cayes	120
Gonaives	6
Jacmel	57
Jérémie	4
Petit-Goave	18
Port-de-Paix	51
Saint-Marc	9
Total	817

DIVISION OF HOSPITAL ACTIVITIES.

General Remarks. The primary function of the medical division of the Public Health Service is to treat the sick. It has under its cognizance a well equipped hospital in the principal city of each district. There is only one district that has not a modern hospital at its disposal but funds have been appropriated for it and construction has already started.

The Hospital serves as center for all medical activities. It is connected with an outpatient department in each instance. The attendance at the outpatient department varies from 50 to 300 per day in the various hospitals. This simple statement does not convey the marked struggle the Service has had in popularizing this branch of its activities.

The bed capacity of the various hospitals is as follows:- Port-au-Prince - 350, Cap-Haitien - 200, Cayes 125, Gonaives - 70, Hinche - 100, Jacmel - 75, Jérémie - 50, Petit-Goave - 50, (this hospital is under construction) Port-de-Paix - 50, Saint-Marc - 50; total bed capacity for all hospitals - 1120.

Each hospital is equipped with an operating room and necessary instruments. In one month there has been as many as 68 major operations performed at the Haitian General Hospital in Port-au-Prince.

The medical wards are nearly always filled, the prompt discharge of cured or improved patients being necessary to take care of all who need hospitalization.

Two of the hospitals have well equipped X-ray laboratories and a third will soon be supplied with a portable X-ray outfit.

The Haitian General Hospital at Port-au-Prince has a well developed eye, ear, nose and throat department. This department extends its services throughout the Republic. It is at present busily engaged in popularizing operations for cataracts. It is a pleasure indeed to note the gratitude of these poor sufferers who have been blind for years and suddenly have regained their sight. These are worth while apostles to send back to the hills.

Each hospital has of course a small laboratory at its disposal. In Port-au-Prince it has been developed along more pretentious lines and serves as the Central Public Health Laboratory for

(15) ACTIVITIES AT DUMAY RURAL DISPENSARY

the entire country. At this institution we are prepared to carry on along the ordinary lines of laboratory investigations, including chemistry, bacteriology, pathology, etc. The supply of laboratory animals is practically unlimited.

With the hospital as a center the medical activities now extend to the farthest corners of the Republic. There has been developed an extensive rural clinical service through which the population receives medical attention at regular intervals, varying from one week to one month.

The Public Health Service has staked its future on the successful carrying out of this scheme of taking modern medicine out in the bush and up on the mountain sides.

It is by these means that our Service is trying to awake the medical and hygienic conscience of the people. Naturally it is going to be a slow process but good results are already noticeable.

As an example let us describe the activities of the rural clinical service in the Port-au-Prince district.

This district extends from Ganthier and Thomazeau near the lakes, to Arcahaie and Grand-Goave along the Gulf of Gonave and up to Trouin, Pétion Ville and Fonds Verrettes along the top of the mountain range of the western peninsula. It might be estimated that this district has a population of about 600,000 people, 75% of them being peasants. In this area the following clinics are held:

Place	Frequency	Average Attendance.
Léogane	Once a week	500
Thomazeau	Every two weeks	40
Ganthier	do	40
Trouin	do	500
Arcahaie	Once a week	100
Cabaret	do	60
Grand-Goave	Every two weeks	125
Gressier	do	125

Place	Frequency	Average attendance.
Carrefour	Every two weeks	30
Dumay	Once a week	150
Croix-des-Bouquets	do	40
Petion-Ville	do	100

Amongst the 5102 cases seen in this district during the month of July, 1926, 3274 were cases of treponematosis (syphilis or yaws), that is, over 64 per cent.

These patients received treatment for their condition. The result obtained from the treatment of treponematosis alone stands out and is appreciated even by the most ignorant peasant. When the clinic at Léogane was opened two years ago, the first patients who presented themselves were vagabonds of the town; they all suffered from marked skin lesions and bone lesions of treponematosis. Even in Léogane they were considered social outcasts. After a few doses of sulpharsphenamine a marked improvement was seen. The patient knew he was going to get well. The rumor spread throughout the country. The attendance of the clinic increased by leaps and bounds. One day it reached as high as 950 people.

What will be the influence of the "Papa Loi" amongst these people after he has treated his patients for months and months without results and the patient finally wanders into the clinic and after a couple weeks of treatment improves with all prospects of getting well? Naturally the influence of the "Papa Loi" will wane and the staunch supporters of the Public Health Service will increase. It is by those means that the medical conscience of the people will be awakened.

As stated above, treponematosis is the big problem in Haiti. Its morbid manifestations are tremendous; its effect on the people's earning capacity is important. Our system of rural clinics is our means of reducing this effect.

The system is naturally open to criticism. What kind of medicine is practiced when two doctors can treat 950 people in one day? We agree with our critics that it is not medicine of the highest order. But our answer is that when 75% of these people present gross lesions of treponematosis and get the proper treatment for it, a little oversight in any other direction may be overlooked.

To be sure the other 25 per cent are not altogether neglected The child with a big spleen and a history of chills and fever gets quinine; malaria in some sections of Haiti competes with treponematosis as being the primary cause of morbidity. The child with worms gets oil of chenopodium, etc. Naturally the individual whose diagnosis depends on the correct interpretation of an electro-cardiogram is unfortunate. So is the man whose treatment depends upon the findings of a basal metabolism determination. Of course the man with a decompensated heart gets digitalis and the individual with a large thyroid gland is advised to go to the hospital.

Everything considered we really believe that modern medicine is practiced in spite of the large clinics, lack of personnel, etc.

In addition to the outpatient department of the various hospitals our doctors visit over 100 places every month throughout the Republic. As transportation facilities improve and our personnel increases this service will be extended more and more. In order to give it a character of permanency and to increase its prestige the government has built and is still building a series of standard rural dispensary buildings, where the clinics are held. They consist of a consultation room, a treatment room and a large gallery. At present 18 of those buildings have been finished and funds have been appropriated for 20 more.

The following is a summary of places where rural clinics are held in Haiti.

District of Port-au-Prince - 15 Places. Léogane, Trouin, Thomazeau, Ganthier, Arcahaie, Cabaret, Grand-Goave, Gressier, Carrefour, Dumay, Pétion-Ville, Croix-des-Bouquets, Anse-à-Galets, Mascarin, Pointe à Raquette.

District of Cap-Haitien - 18 Places. Ouanaminthe, Quartier-Morin, Plaisance, Limonade, Pilate, Vallières, Sainte-Suzanne, Grande-Rivière, Trou, Ranquitte, Plaine du Nord, Bahon, Borgne, Milot, Port-Margot, Dondon, Limbé, La Victoire.

District of Cayes - 11 Places. Cavaillon, Maniche, Saint-Louis du Sud, Chantal, Aquin, Port-Salut, Vieux Bourg, Camp-Perrin, Leduc, Saint-Jean du Sud, Port-à-Piment.

District of Gonaives - 5 Places. Gros Morne, Marmelade, Saint-Michel de l'Attalaye, Savanne Carrée, Saint Raphael.

District of Hinche - 6 Places. Thomonde, Maissade, Lascahobas, Mirebalais, Belladère, Saut d'Eau.

District of Jacmel. 7 Places. Bainet, Peredo, Colline des Chenes, Grande Rivière, Fond Melon, Ravine Normade, La Vallée.

District of Jérémie - 4 Places. Corail, Moseaux, Marfran, Moron.

District of Petit-Goave - 8 Places. Miragoane, Saint-Michel du Sud, Usine Mouck, Barradères, l'Asile, Petit-Trou, Anse-à-Veau, Violet.

District of Port-de-Paix - 5 Places. Saint-Louis du Nord, Anse-à-Foleur, Bonneau, Jean-Rabel, Bassin Bleu.

District of Saint Marc - 15 Places. Mont Rouis, Luly, Petite Rivière de l'Artibonite, Carrefour, Grosse Chaudière, Pont Sondé, Verrettes, Marché des Armes, La Chapelle, Savanne à Roche, Perodin, Desdunes, Grande Saline, Médor, Dessalines.

Morbidity Statistics. On July 1st, 1926 a new system of keeping records of patients in hospitals and of those treated in the outpatient department was instituted.

From the data submitted by the various hospitals after the end of the calendar year it will be possible to compile interesting and valuable statistics to be included in the next annual report of the Public Health Service.

The system is perhaps a little complicated for the class and limited number of clerical employees available. It is also realized that the time of the various Public Health Officers is limited due to the tremendous amount of work required of them. But it is hoped that the system will, in time, be operating smoothly and successfully in all of the hospitals. A detailed explanation of the system follows, and a sample of each form is shown.

Hospital patients. All patients in the hospital on July 1st were considered as having been admitted on that date and the necessary records prepared. A patient is admitted to the hospital by the doctor only or, in his absence, by the nurse in charge.

Form S. d'H. 39 represents the admittance card and should be properly filled out by the doctor or nurse in charge who admits the patient. The diagnosis will be provisional. The record clerk should search the files for records of previous admittance and note result of search on proper line followed by his signature. The record clerk should also affix the proper case number as indicated by the Journal of Patients (Form 35). Form S. d'H. 39 shall be delivered to nurse in charge of ward to which patient is admitted

and shall be returned to the office by the nurse in charge on discharge or death of patient.

The Journal of Patients (Form 35) shall be kept by the record clerk. When a patient is admitted to the hospital, proper entries shall be made in the first six columns.

Form S. d'H. 29: "No. d'admission" on first line and "No." on second line, together with the name of the patient, shall be filled in by the record clerk to correspond with "Nombre de cas dans l'année" and "Nombre de malades" in the Journal of Patients. The balance of Form 29, including one-half line giving religion, shall be filled in by the nurse in charge of ward. On the remaining lines proper entries shall be made by the ward doctor. The doctor in charge of the patient is responsible for writing a short concise history of the case to be continued on Form 30 if necessary. On discharge or death of patient, form 29 together with other records of the patient such as Forms 30-31-32-34-40-41, etc., properly inserted and bound in jacket shall be returned to the office for cross indexing and filing. The fact that the records have been cross indexed should be recorded by the clerk on line marked "Immatriculé". The Public Health Officer shall satisfy himself that the history of every hospital patient is properly cross indexed on Form 36 and that Form 35 is completed before history is filed.

Form 31: The operating surgeon is responsible for the proper preparation of this form.

Form 32: The doctor in charge of the ward shall make proper entries on this form.

Form 34: The doctor performing the autopsy shall make proper entries on this form.

Forms 40 - 41 - 42 - and 43 are self explanatory.

Jacket: The name of the patient shall appear on upper right side of face of jacket.

Outpatients. Form 33 shall be used in the outpatient department of the hospital. The records shall be searched for previous forms 33 and, if any are found they should be attached to current record. Each time the patient reports for treatment, the date shall be lined out or marked, in a conspicuous manner, on the printed calendar.

S.d'H. Formo 39

No.....

HOPITAL DE.....

Veuillez admettre.....
(prénom, nom)

Résidence.....Sexe.....

Occupation.....Race.....

Date de nais.....Lieu de nais.....

le.....19 dans la salle.....

Diagnostique.....

Religion.....Célibataire ,marié ,veuf,divorcé

En cas de maladie grave ou de décès, avisez.....

Lien de parenté.....

Lieu de résidence.....

Médecin

.....Garde-malade chargée.

Recherches faites dans les registres des externes...

.....Employé chargé des registres

Vu.....Garde-malade chargée.

.....

Lieu de résidence.....

paiera tous les frais pour le malade ci-dessus désigné.

.....

Renvoyé
Décédé le.....19

S. d'H. Forme 29

BULLETIN DE SANTE DES INTERNES

No. d'admission.....Hopital de.....

No.....Nom.....

Residence.....Sexe.....

Occupation.....Date de nais.....

Lieu de naissance.....

Proche parent ou ami.....

.....

Admis.....Renvoyé.....

Religion.....Décédé.....

Vaccination.....Marq. de pet. vér. contr. ant.....

Diagnostique.....

.....Immatriculé.....

Complications et maladies concomit.....

.....

S.d'H. Forme 30.

No. du malade.....Nom.....

S.d'H. Forme 31

OPERATION.....
(date)

Nom du malade opéré.....

Par les Drs.....

Pour.....
(termes de nomenclature)

Caractère et nom de l'opération.....

.....

Anesthésie: Genre.....Durée...hre....Min.....
(A remplir par le méd. donn. l'anesth.)

Méthode:.....Quantité employée.....

Etat du malade.....

.....

Durée de l'opération:.....Hre.....min.....

Sign.du med. donnant l'anesthésie

Pathologie chirurgicale:.....

.....

.....

.....

.....

OPERATION.....
(date)

Nom du malade opéré.....

Pour les Pre.....

Pour.....
(terme de nomenclature)

Caractère et nom de l'opérateur.....

.....

Anesthésie: Genre.....Durée.....Min.....
(A remplir par le méd. chirg. l'anesth.)

Méthode:.....Quantité employée.....

Etat du malade.....

.....

Durée de l'opération:.....Hre.....Min.....

Sig.du méd. Chirurg. l'anesthésie

Pathologie chirurgicale:.....

.....

.....

.....

.....

(Reverse Side of S. D'H. Forme 31)

Technique:

Traitement post-opératoire:

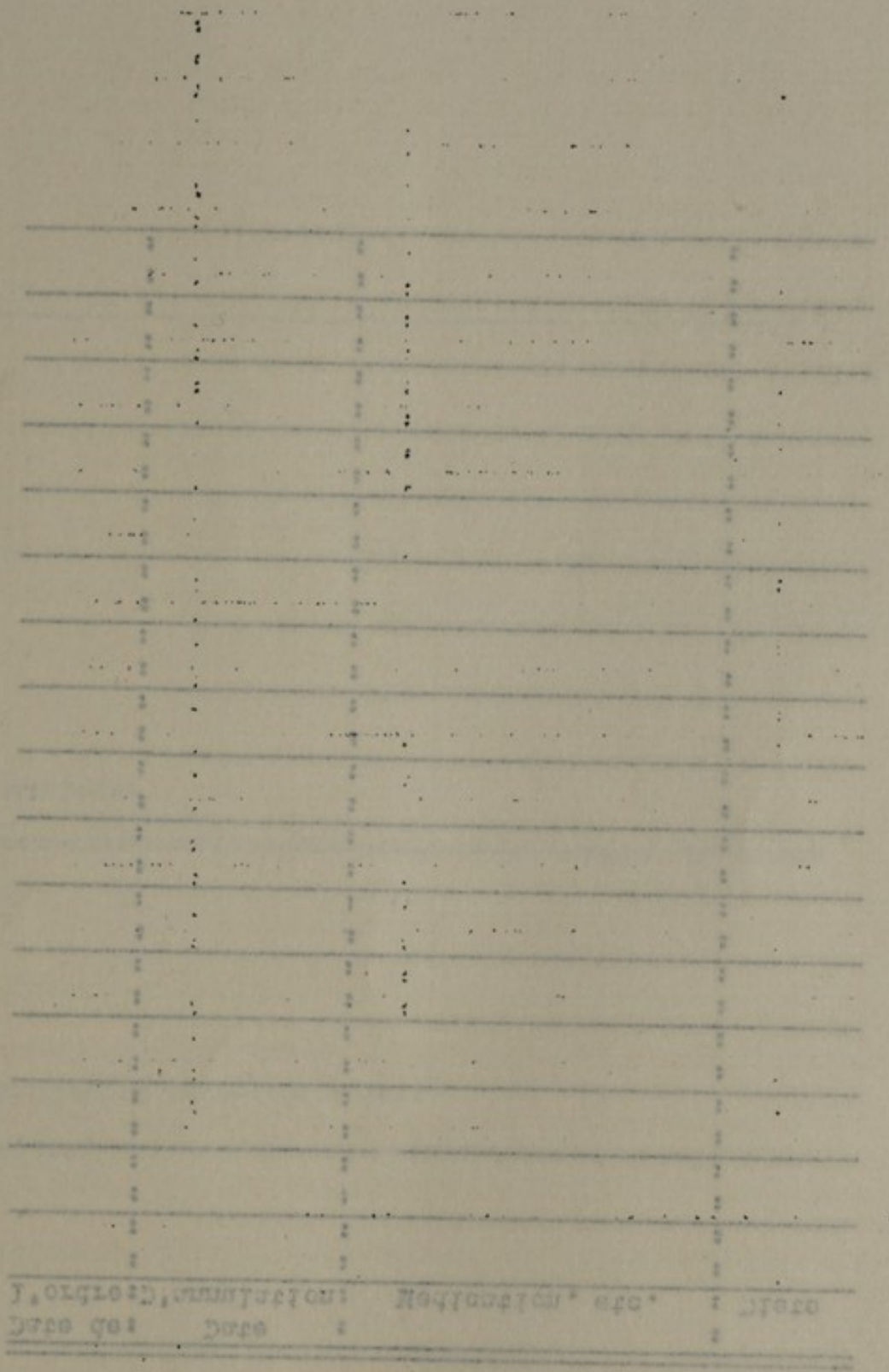
Résultat:

S. d'H. Forme 32

ORDRE DE TRAITEMENT DONNE PAR LE MEDECIN.

NOM DU MALADE.....

Date de l'ordre	Date D'annulation	Medication, etc.	Diete



Records shall be kept alphabetically according to name for ready reference when a patient returns for further consultation or treatment.

Statistical records. Form S. d'H. 35 (Journal of hospital patients). Each hospital shall keep a journal of the hospital patients on this form. As indicated on the form said journal shall contain:-

1. Patient 's number. Patients shall be numbered consecutively from July 1st, 1926. The number given on first admission shall be retained throughout the medical history of the patient. That is the patient shall be assigned the same number for all subsequent admissions during the current or succeeding years.

2. Case number in calendar year. A new number for each admission consecutively from January 1st of each year. The first admission each year being No. 1.

3. Name of patient, surname first.

4. Date of birth.

5. Date of admission.

6. Check for patient previously treated during the year.

7. Date of discharge or

8. Date of death.

9. Number of sick days in each year.

10. Total number of sick days. (Day of discharge or death, but not day of admission to be counted).

At the close of each calendar year the record of all patients not discharged or dead, shall be completed and the entry "Continued to....." shall be made instead of (7) or (8), and
(year)
all such patients shall be entered on the Journal of Patients of the new year before the entry of the first admission and the remark "Remaining from....." shall be made instead of date
(year)
of admission.

A summary of the Journal of Hospital patients shall be made for each calendar year, said summary to contain the following data:

S.d'H. Forme 34.

AUTOPSIE

Pratiquée.....192....
(heure et date)
sur le cadavre de.....

par le Dr.....

CAUSE DU DECES.
(Opinion du Pathologist)

Cause principale:.....
(Terme de nomenclature)
.....

.....

Causes concomitantes:.....

.....

.....

DIAGNOSTIC PATHOLOGIQUE
ou
RESUME DES DECOUVERTES PATHOLOGIQUES.

S.d'H. Forme No. 40.

MATIERES FECALES.

NOM.....

Date	Couleur et Appar. Gen.	Reaction	Mucus	Sang	Parasites et autres decouvertes

S. d'H. Forme 41.

URINE

NOM.....

Date	Quantite par 24 hrs.	Couleur et appar. gen.	Reaction	Dens.	Alb.	Sucre	Autres Decouvertes

Reverse side of Form 41. SANG

Date	H.G.	N.G.R.	Index de coag.	N.G.R.	Temps de coag.	REACTION DE WIDAL Methode	Dilution	Temps en m.	

DENOMBREMENT ET GLOBULES ANORMAUX.

Date	Ploy's	Lymphocites	P Gds Mono's	Transit	Eosiophiles	Basophiles	Globulcomptés	Myelocytes, microcytes poikilocytes, polychromo, monoblastes, microblastes, megaloblastes dégénération basoph.

Date	PLASMODIUM Vivax	Malaria	Falcp'rm	EMBRYON DE FILAIRE (Dire Espèce)	CULTURE DU SANG (Observations)

S.d'H. Forme 42

FICHE DES EXAMENS AU RAYON-X

Date.....19.....

No. du Malade.....Nom.....

Date de naissance.....

Histoire et Découvertes cliniques qui sont d'intérêt pour le Roentgenologist:

Diagnostic clinique:

Partie à examiner.....

Examiné pour suspect.

Nombre maximum de clichés désiré.....

Envoyé par.....

Approuvé:

_____

Médecin en Chef.

Reverse side of Form S.d'H. 42

Observations du Roentgenologiste:

Cliché No.....Pris le.....19...

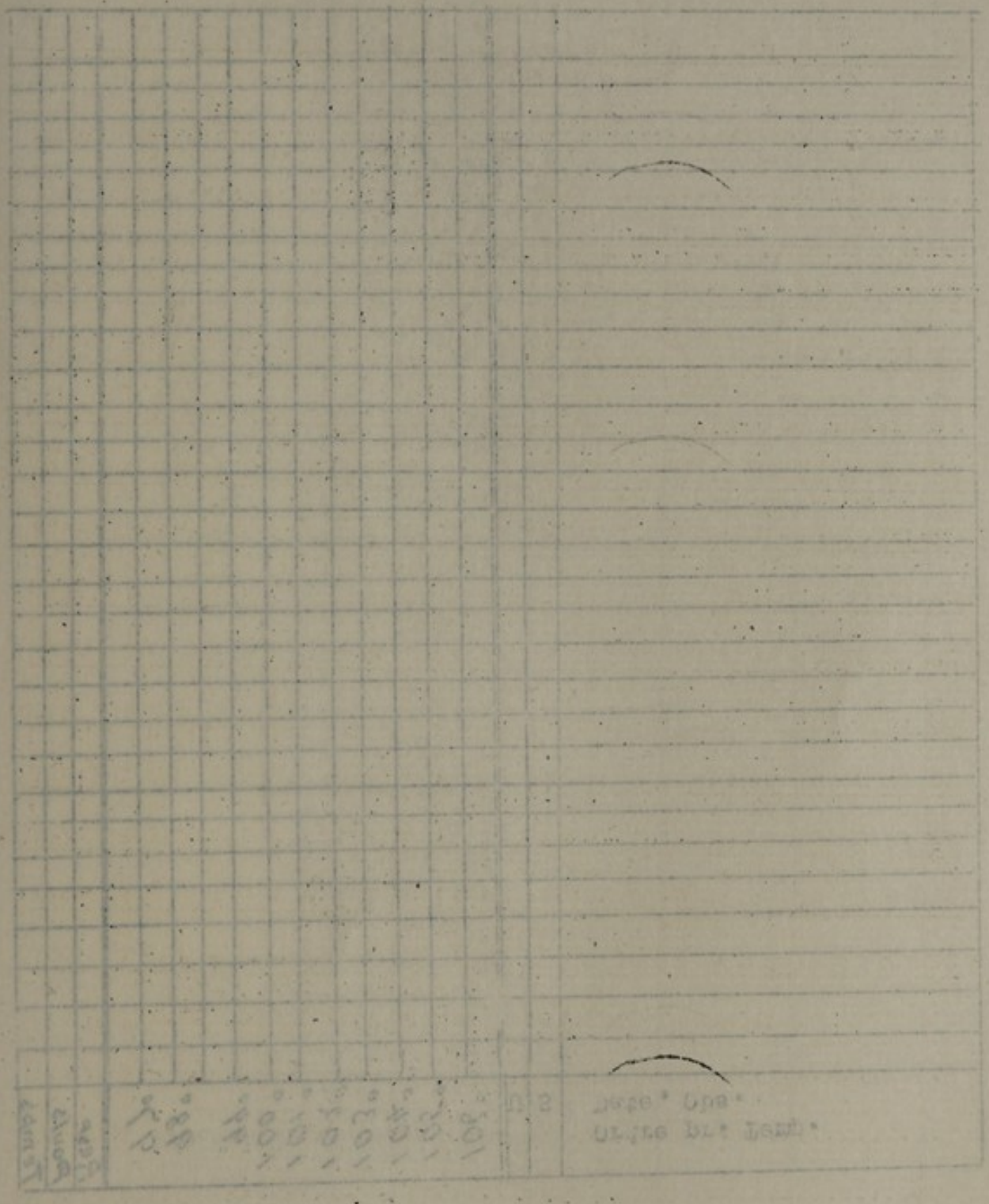
Diagnostic et observations:

S.d'H. Forme 43.

OBSERVATIONS DE LA GARDE-MALADE

Nom du Malade.....

Temps	Pouls	Resp.	97°	98°	99°	100°	101°	102°	103°	104°	105°	106°	U	S	Ordre pr. Temp. Date, Obs.



S.d'H.Forme 33.

BULLETIN DE SANTE DES EXTERNES.

Hopital de.....

Nom, prénom.....Date de Nais.....

Residence.....

Admis.....Renvoyé.....

DATE DES CONSULTATIONS OU TRAITEMENTS ET TOTAL

Jan.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
										23	24	25	26	27	28	29	30	31			
Fév.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
										23	24	25	26	27	28						
Mars	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
										23	24	25	26	27	28	29	30	31			
Avril	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
										23	24	25	26	27	28	29	30				
Mai	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
										23	24	25	26	27	28	29	30	31			
Juin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
										23	24	25	26	27	28	29	30				
Juil.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
										23	24	25	26	27	28	29	30	31			
Aout	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
										23	24	25	26	27	28	29	30	31			
Sept.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
										23	24	25	26	27	28	29	30				
Oct.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
										23	24	25	26	27	28	29	30	31			
Nov.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
										23	24	25	26	27	28	29	30				
Dec.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
										23	24	25	26	27	28	29	30	31			

Diagnostic.....

Immatriculé.....

S.d'H.Forme 33.

BULLETIN DE SORTIE DES EXTERNES.

Hospice de.....

Nom, prénom.....Date de Naissance.....

.....

Domicile.....Converé.....

.....

PRIX DES CONSULTATIONS OU TRAITEMENTS ET TOTAUX.

Jan.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28	29	30	31													
Fév.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28																
Mars	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28	29	30	31													
Avril	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28	29	30														
Mai	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28	29	30	31													
Juin	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28	29	30														
Juil.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28	29	30	31													
Août	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28	29	30	31													
Sept.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28	29	30														
Oct.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28	29	30	31													
Nov.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28	29	30														
Déc.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22
	23	24	25	26	27	28	29	30	31													

Diagnostic.....

.....

Inscrit le.....

S. D'H. Forme 35.

HOPITAL DE.....Journal des MALADES, annee..... Carte No....

Nbre de: Malades:	Nbre de cas : dans 1½annee:	Nom et Prenom du Malade :	Date de Naiss:	Admis:	AA	Renvoye:	Mor

-1402-

Москва. Лубянский проезд, дом 25.

Москва. Лубянский проезд, дом 25.

6666 Reverse side of Form S.d'H. 35

Nbre de Malade	NOMBRE DE JOURS DE MALADIE												Observation
	Jan.	Fevr.	Mars	Avril	Mai	Juin	Juil.	Aout	Sept.	Oct.	Nov.	Dec.	

Number of patients remaining from.....
(year)

Number of new patients admitted not previously treated during the year.....

Number of patients admitted, previously treated during the year.....

Total.....

Number of cases discharged.....

Number of deaths.....

Number of patients continued to next year.....

Total.....

Number of sick days in each month:

January.....

February.....

March.....

April.....

May.....

June.....

July.....

August.....

September.....

October.....

November.....

December.....

Total number of sick days in the year.....

Cross Indexes of Hospital patients and outpatients. Forms 36 and 37. These records shall be filed alphabetically according to disease. The hospitals shall cross index the hospital patient's and outpatients' clinical records on forms 36 and 37. As indicated on these forms the cross indexes shall contain the following data:-

Form 36:-

1. International number of disease (detailed nomenclature)
2. Name of disease -nomenclature term)
3. Name of patient (surname first)
4. Date of birth.
5. Sex (M or F)
6. Race.
7. Occupation.
8. Check for all cases previously treated for the same disease, i.e. all cases having previous records as hospital patients or outpatients for this disease.
9. Check for deaths.
10. Check for operations.
11. Check for autopsies.
12. Number of sick days; place calendar year at top of this column.

Form 37.

1. International number of disease (detailed nomenclature)
2. Name of disease (nomenclature term)
3. Name of patient (surname first)
4. Date of birth.
5. Check for all cases previously treated for the same disease, i.e. all cases having previous records as outpatients or hospital patients for this disease.
6. Number of consultations (obtained from form 33).

S.d'H. Forme 36.

INDEX DES RAPPORTS DE CLINIQUE DES INTERNES.

Nombre
International.

	MALADIE						PAGE	
Nom, Prénom	Date de naissance	Sexe	Race	Occupation	C.A.	Mort	OP.	Jours Aut. de mal.

S.d'H. Forme 37

INDEX DES RAPPORTS DE CLINIQUE DES EXTERNES.

Nombre International MALADIE PAGE

Nom, Prénom	Date de Naissance	C. A.	Nombre de cas ou trait.

Nom, Prénom	Date de Naissance		

At the close of the calendar year all hospital patients shall for the purpose of the cross index, be considered discharged and their records indexed and returned to the wards.

The outpatients' clinical records shall be indexed only when actually discharged. All outpatients shall therefore be discharged at the close of each calendar year, except those admitted during the last month of the year, in need of, and likely to avail themselves of, further treatment.

The facts indexed for each disease shall be summarized at the close of each calendar year as follows:

Form 36:

Number of new cases.

Number of cases previously treated for the same disease.

Total number of deaths, operations, autopsies, and sickdays.

Form 37:

Number of new cases.

Number of cases previously treated for the same disease.

Total number of consultations or treatments.

The summaries shall appear under a horizontal line in black ink, and shall be separated from the first entry of the succeeding year by a horizontal line in red ink.

Report of morbidity statistics. The Public Health Officers shall at the end of each calendar year compile or cause to be compiled the data contained in the summaries of forms S. d'H. 36 and 37 and tabulate them on form S. d'H. 19. As indicated on this form the morbidity statistics shall show:

1. All diseases, injuries and conditions for which attendance has been given in the hospital.

2. Number of new hospital cases of each disease.

3. Number of hospital cases previously treated for the same disease.

4. Number of hospital sick days for each disease.

5. Number of new out-of-hospital cases of each disease.

6. Number of out-of-hospital cases previously treated for the same disease.

7. Number of consultations and treatments for each disease.

The diseases, injuries and conditions shall be named in accordance with the nomenclature of the Service, and shall be arranged in order of their international number.

Statistical record of surgical operations. Form 31a: The Public Health Officer shall annually compile or cause to be compiled the data contained on Form S.d'H. 31 and tabulate them on Form S.d'H. 31a. As indicated on this form the statistical record of surgical operations shall show:

1. Disease or condition for which the operation was performed.

2. Name or character of operation.

3. Number of each kind of operation.

4. Result: Number cured, died, improved or unirmproved.

5. Anaesthetics: Number of ether, chloroform, local or none.

The summary of the Journal of Hospital Patients, the Morbidity Statistics and the Statistical Record of Operations shall be submitted in duplicate to the Sanitary Engineer of Haiti before the first of February of each year.

1. All diseases, injuries and conditions for which attendance has been given in the hospital.

2. Number of new hospital cases of each disease.

3. Number of hospital cases previously treated for the same disease.

4. Number of hospital sick days for each disease.

5. Number of new out-of-hospital cases of each disease.

6. Number of out-of-hospital cases previously treated for the same disease.

7. Number of consultations and treatments for each disease.

The diseases, injuries and conditions shall be named in accordance with the nomenclature of the Service, and shall be arranged in order of their International number.

Statistical record of surgical operations. Form 31: The Public Health Officer shall annually compile or cause to be compiled the data contained on Form S.d'H. 31 and submit on Form S.d'H. 31a. It is intended on this form the statistical record of surgical operations shall show:

1. Disease or condition for which the operation was performed.

2. Name or character of operation.

3. Number of each kind of operation.

4. Result: Number cured, died, improved or unimproved.

5. Complications: Number of other, subsequent or local or none.

The summary of the Journal of Hospital Patients, the Morbidity Statistics and the Statistical Record of Operations shall be submitted in duplicate to the Sanitary Engineer of Haiti before the first of February of each year.

S.d'H. Forme 19.

SERVICE NATIONAL D'HYGIENE PUBLIQUE.

Maladies, blessures et conditions traitées par l'Hopital de.....

Année.....

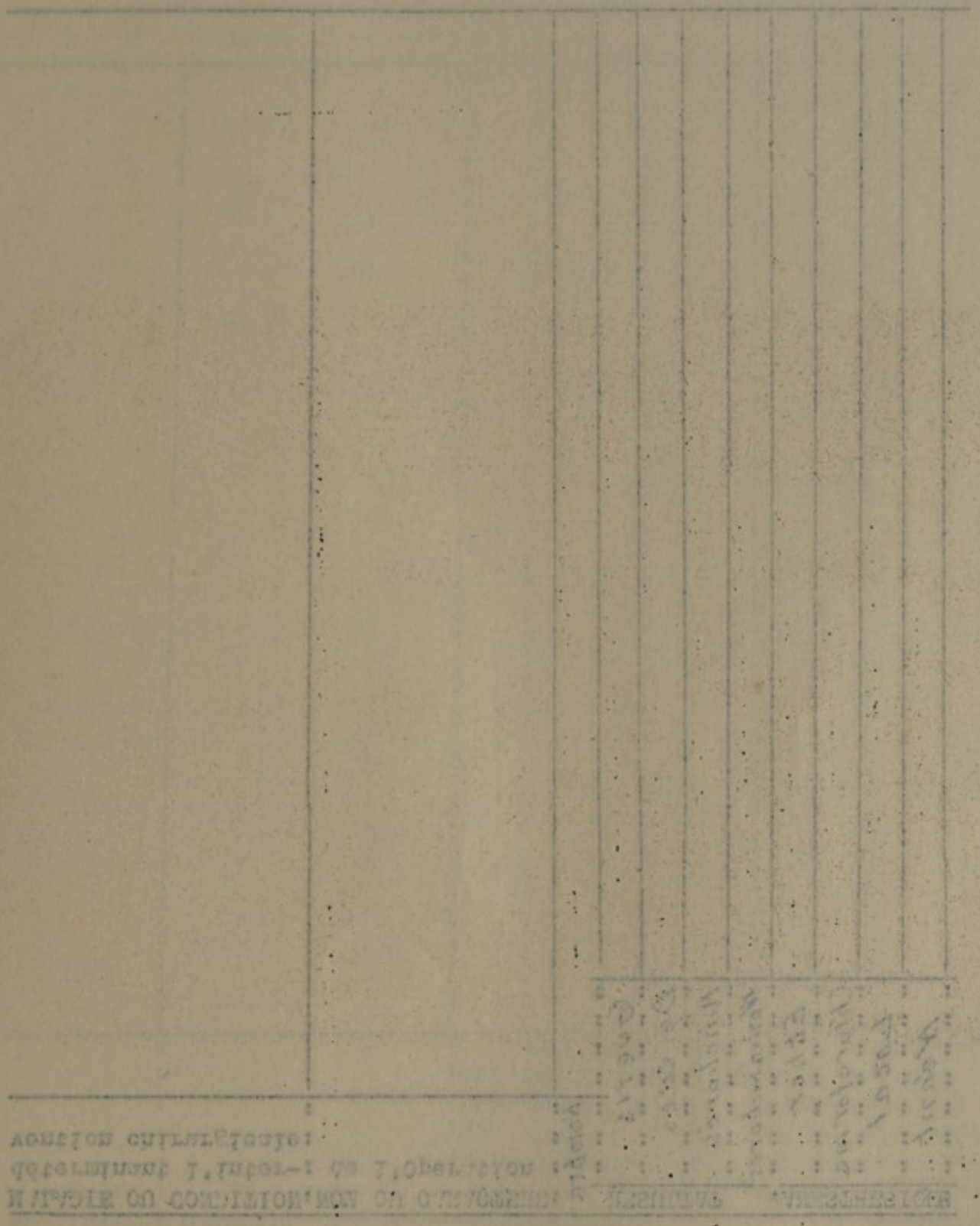
No. International.	Maladie, Blessure ou condition	Nbre nouveaux internes	Nbre d'internes antérieurement traités pour la même maladie	Nombre de jours de maladie	Nombre de nouveaux externes	Nbre d'externes antérieurement traités pour la même maladie	Nbre de consultations & traitements externes

S.d'H. Forme 31a.

SERVICE NATIONAL D'HYGIENE PUBLIQUE.

OPERATIONS CHIRURGICALES; HOPITAL DE.....Année.....

MALADIE OU CONDITION déterminant l'intervention chirurgicale	NOM OU CARACTERE de l'Operation	Nombre	RESULTAT				ANESTHESIQUE			
			Guéris	Décédés	Améliorés	Non-améliorés	Ether	Chloroforme	Local	Néant



(16) NURSING STAFF, HAITIAN GENERAL HOSPITAL, PORT-AU-PRINCE

The Training School for Nurses. This School is under the direct charge of American Red Cross Nurses, who indeed are doing a splendid work in developing an entirely new profession as far as Haiti is concerned. Miss E. B. Moser, the present head of the Training School calls attention to the steadily increasing number of applicants which allows a far greater choice in the selection of pupils and also the fact that the demand for registered nurses in private practice is growing.

I. American Personnel:

Red Cross Nurses----------4

II. Graduate Haitian Nurses:

Total number graduated to date----------63
Graduated during fiscal year----------14
Employed at Haitian General Hospital-------13
Justinien Hospital (Cap-Haitien)----------8
Hospital Gonaives----------2
Hospital Hinche----------3
Brigade Field Hospital----------1
Hospital St. Marc----------1
Prison Gendarmerie, (Cap-Haitien)----------1
Prison Gendarmerie, (Port-au-Prince)--------1
Caserne Gendarmerie (Port-au-Prince---------1
Hospice Communal (Port-au-Prince)----------1

Dr. Butler, Sanitary Engineer of Haiti addressed the graduating class, followed by a short address by Monsieur René August, Minister of the Interior who also presented the diplomas. The Vicar Général Abbé Le Gouaze closed the exercises by an address and benediction. The pupils then entertained their friends at the nurses home, music being furnished by the Gendarmerie band.

III. Pupil Nurses:

Applied during fiscal year----------55
Entered----------32
Dismissed or resigned----------15
Total number under instruction--------24

Inspection of school children and vaccination. A little over a year ago a system of school inspection was instituted. The primary object of this inspection was to check up on vaccination and on the malarial rate (splenic index) in the malarious sections of the country. This school inspection is not to be confused with the complicated

systems now in use in many of the schools in the United States. If the individual Public Health Officer is able to inspect all the schools in his district during the course of a year, it is believed that his duty is well performed. Many schools are of course situated near the clinic and hence a much better service is given; in some actual clinics are held every month.

It is one of our aims to keep the population immune from smallpox. The epidemic of 1920 coupled with the vaccination immunized, in a wholesale fashion, the entire country. The non-immune today are the young children entering the school at the present time; consequently they are the ones receiving our attention. In addition, the various hospitals serve as vaccination centers where all non-immunes who enter receive their vaccinations.

During the past year 19,427 school children were examined; of this number 6,280 were vaccinated.

PORT-AU-PRINCE. Haitian General Hospital. During the past year the activities at this institution have markedly increased. This is not due entirely to the increased bed capacity but as well to the entire reorganization of the hospital activities by means of which the private clinic, dispensary, X-ray, eye, ear, nose and throat and laboratory services have been firmly established and put on a sound systematic working basis.

A year ago there were three U. S. Naval Medical Officers attached to the hospital, in addition to four younger medical officers who were doing special work in the Public Health Laboratory. During the year an increase in the American personnel was authorized. The American staff will consist of the administrator, in charge of the surgical section, one medical officer in charge of the medical section, one medical officer in charge of the eye, ear, nose and throat department, one in charge of the Public Health Laboratory and one in charge of the outpatient department and rural clinical service. The medical officers doing special work in the laboratory have been reduced by two. There are two chief pharmacist's mates, one detailed in the laboratory and another in the administrator's office.

Four American Red Cross nurses are supervising the nurses' training school.

Thirteen Haitian physicians are regularly attached to the Hospital staff, as are nine graduate Haitian nurses.

Several Haitian physicians have been detailed at the hospital during the past year as supernumeraries for the purpose of receiving intensive training prior to being sent to the outlying posts for duty.

These courses last for a period of six months during which time the doctors receive special training in hospital management as well as work in all of the important departments including the laboratory. This training is of the utmost importance as it not only better qualifies the new doctors for the work before them but they are of material assistance to the regular staff in caring for the large number of routine cases.

The Outpatient Department. It must be remembered that in such a large charitable organization as we have in the Haitian General Hospital the outpatient department is of extreme importance in the treatment of the many maladies from which the people are suffering. The clinic is the front door to the hospital. All patients who are admitted to the hospital for treatment, must first pass through the clinic and receive a thorough examination before being admitted. It is here that the various cases are selected, either for treatment in the hospital or for further treatment in the clinic. It is very necessary to guard against the admittance of cases to the hospital who could be treated just as effectively in the clinic.

The economic factor is an important one. Only properly selected cases should be admitted to the hospital. Ambulatory cases should, as a rule, be treated in the outpatient department. It costs less to treat patients in the clinic and it permits the patient to carry on his work. The diagnosis and treatment of disease are the primary functions of the outpatient department and with this in mind several changes have been introduced in order to facilitate the handling of patients in an orderly and systematic manner.

The department has been enlarged and now has at its disposal several special rooms for diagnosis and treatment of the various types of cases: One large examining room, with three adjoining rooms for special examinations and treatments; one room for male patients, one room for female patients and one for minor surgical operations and dressings.

Three doctors, three nurses and three male assistants are constantly employed in the clinic during the clinic hours. The general clinic begins at 8:00 a.m. every morning except Sunday

and continues until 1:30 p.m. At 1:30 p.m. the special clinics begin and continue until 3:30 p.m. every afternoon except Saturday.

The special clinics have been organized to take care of certain cases which require special treatments and examinations, that ordinarily would occupy too much time during the general clinic hours in the morning. Accordingly a schedule has been introduced which gives three afternoons a week for a genito-urinary clinic, two afternoons a week for a gynecological clinic, one afternoon for an obstetrical clinic and pediatrics and two afternoons a week for a medical clinic. These clinics receive patients selected from the general clinic held in the morning and allow the doctors more time to study their cases and to give more extensive treatment. In this way many patients who would ordinarily be admitted to the Hospital, can be treated in the outpatient department.

These special clinics will also afford excellent opportunities for the hospital interns to come in contact with various kinds of diseases and receive appropriate instruction on diagnosis and treatment from the attending doctors. The rooms are well equipped with the necessary instruments for thorough examination and treatment. The new system of records introduced throughout the service is followed and enables the doctors to follow each case and to know exactly the kind and number of treatments the patient has received, the progress of the case, etc.

The development of the clinic has thrown considerable work on the doctors but they have all shown a true spirit of cooperation. They are well acquainted with the fact that they must not only treat the patient but must also educate him. They must give him plain instructions and encourage him to return to continue treatment. They must use care in selecting the cases to be admitted to the hospital and see that the patients who are to be treated at the clinic receive thorough treatment.

The total number of consultations and treatments in this department for the fiscal year was 77,563, a daily average of 249.

The following figures representing the activities of the last month of this fiscal year with the new system in operation may be compared with advantage to the activities of the entire year:

Total	number	of	consultations and treatments---	8877
"	"	"	minor operations----------	316
"	"	"	bismuth injections----------	1870
"	"	"	neo-salvarsan injections--------	318
"	"	"	chaulmestrol injections---------	296
"	"	"	anti-rabic injections----------	32
"	"	"	anti-typhoid injections---------	151
"	"	"	anti-tetanic injections----------	10
"	"	"	cow-pox vaccinations----------	13
"	"	"	dressings----------	5681
"	"	"	dental treatments----------	307.

Eye, Ear, Nose and Throat Department. This department has been extremely active during the past year due to a complete reorganization, increased personnel and also to an appreciation on the part of the patients for the treatment given. The outstanding feature is the work done for the eye. Many of the younger patients suffer from gonorrheal ophthalmitis. It is gratifying indeed, to note their quick response to local treatment thereby preventing a life of partial or total blindness. Many of the older patients come in on account of cataracts which have been produced total blindness for a number of years. Many of these unfortunates have an associated optic atrophy for which nothing can be done, however just as many appear without this complication and are made to see again following the removal of the lens. It is not an uncommon sight to see people led into the clinic who have been blind for many years as a result of cataract and see them again the following week walk about the hospital grounds unaided singing the praise of the Haitian General Hospital.

The personnel consists of:

1 Medical Officer U. S. Navy, in charge.
1 Haitian physician, assistant.
1 Nurse.
1 Clerk.

It will be noted that a decided increase in the number of patients treated and operations performed has taken place in the past year.

	1924-25	1925-26
Total consultations--------	10225	22476
Total operations----------	70	179.

The following operations and treatments were performed during the past fiscal year:

Eye-	Operations	97
	Treatments	1086
Ear.	Operations	3
	Treatments	361
Nose.	Operations	7
	Treatments	129
Throat.	Operations	66
	Treatments	359
Miscellaneous.	Operations	6
	Treatments	359.

Rural clinical service. The rural clinics for this fiscal year have been attended exceedingly well. In practically all the different sections they have become a very important activity. Many thousands of the sick have received treatment for their maladies and have benefited by this work. The people at large have much more confidence in the work of the doctors than they did two years ago. In all sections they have slowly but surely been educated to the fact that they must come to the clinic for advice if they want to rid themselves of their suffering. Very little trouble is encountered in giving the treatments for the various diseases and it is gratifying to see the large numbers who continue their treatments until they are well or markedly improved. The results obtained in the treatment of many of these maladies, especially treponematosis and intestinal worms, have been excellent and have made it worth while to continue this service to the people.

We have established weekly clinics in the following places on definite days, Léogane - Arcahaie - Cabaret - Dumay - Croix-des-Bouquets - Petion-Ville and every other week on definite days at Trouin - Grand-Goave - Gressier - Ganthier - Carrefour and Thomazeau. Hence twelve different sections of this district are visited by doctors about 40 times each month. The average number of treatments given during the month amounts to about 7,000. At the present time this work is carried on by the Haitian staff of the hospital supervised by the medical officer in charge of the department. Six teams have been organized, each one consisting of two Haitian doctors and two male attendants. The various teams alternate every

The following operations and treatments were performed during the past fiscal year:

Eye-	Operations	97
	Treatments	1088
Ear.	Operations	5
	Treatments	361
Nose.	Operations	7
	Treatments	129
Throat.	Operations	66
	Treatments	389
Miscellaneous.	Operations	6
	Treatments	389.

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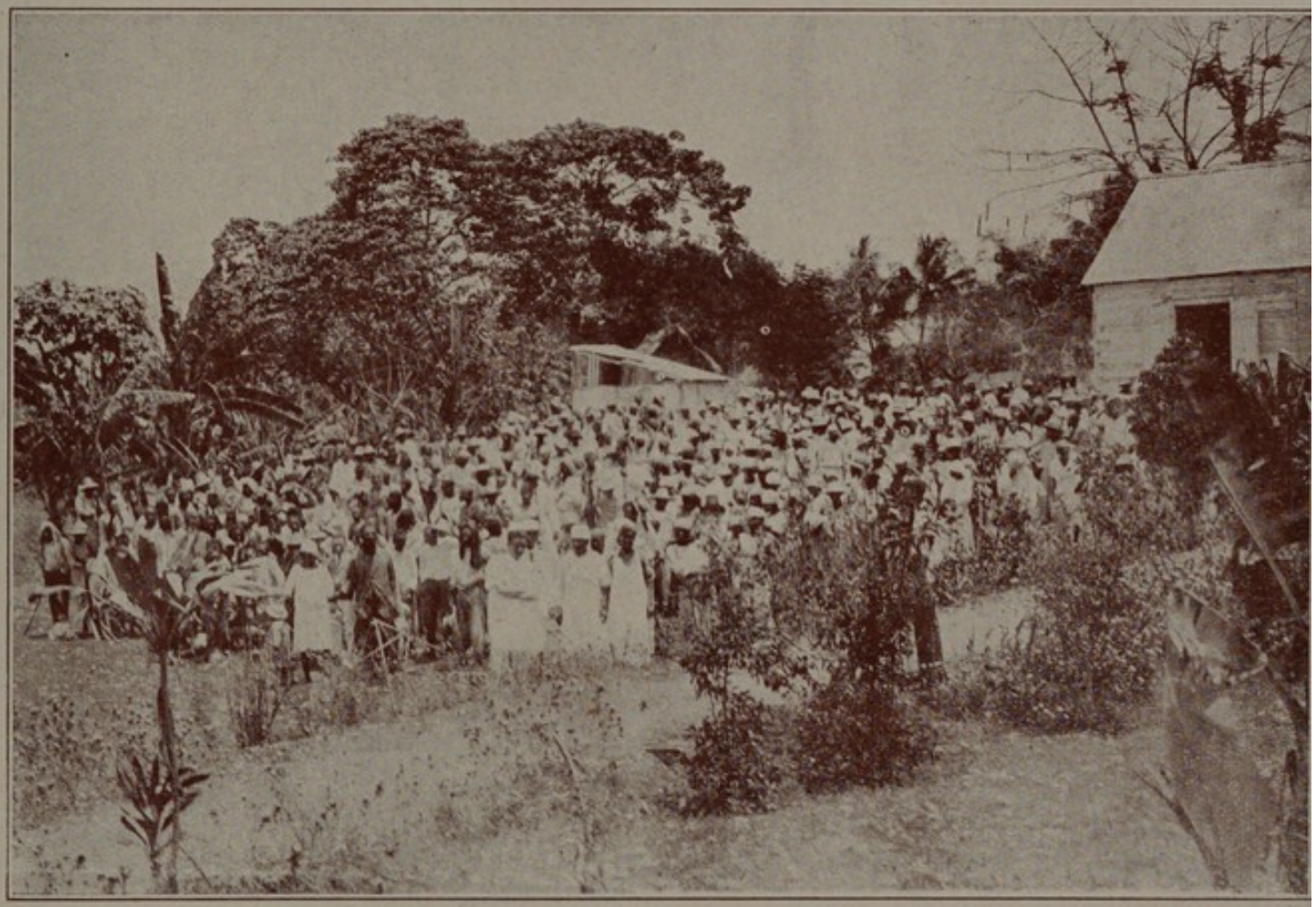
We have established weekly clinics in the following places on definite days, Dejerno - Yenbalo - Gubbret - Tuary - Gratz-dan-Jonquets - Tesion-Ville and every other week on definite days at Trenin - Grand-Dorve - Grassier - Kamblier - Cornelour and Ghomsam. Hence twelve different sections of this district are visited by doctors about 40 times each month. The average number of treatments given during the month amounts to about 2,000. At the present time this work is carried on by the Haitian staff of the hospital supervised by the medical officer in charge of the department. Six terms have been organized, each one consisting of two Haitian doctors and two male attendants. The various terms alternate every



(17) RURAL CLINIC AT LEOGANE 800—1000 PEOPLE SEEN AND TREATED EVERY WEEK

(18) THE PUBLIC HEALTH LABORATORY

most satisfactory results. The Noguchi modification of the Wassermann reaction was formerly our routine test and it was not without the most accurate observations in comparing the two reactions in a large series of cases that the Kahn precipitation test was finally adopted. In our series of comparisons of the two tests we were unable to find a single instance in which we failed to get a positive reaction with the Kahn method when the Noguchi was positive but in several instances the Noguchi was found to be negative or doubtful when the Kahn precipitation test gave a clear cut positive reaction. The Kahn test is now too widely known to require elaborate description and it suffices to state only that the test is easy to perform, requires a minimum of apparatus, and is quite as sensitive as the more complicated absorption tests.

During the past month a series of tests for treponematosis have been performed using the Meinicke Trübung Reaktion which is also a precipitation test in which a special non-specific antigen is employed. The series at this time is not sufficiently large for the establishment of definite conclusions; however, it may be stated that the results have been quite satisfactory to date and that it promises to be an indispensable test for routine use. The test is very easy to perform as no incubation or inactivation of serum is required and the pipettes used are those of the coarser graduations such as 1 cc and 10 cc capacities. A further report of this test will be made in detail at the completion of our series.

The work done in the Public Health Laboratory is more of a definite public health nature. All work of a determinative bacteriological nature such as feces, urine, and blood cultures, preparation of autogenous vaccines and the classification of microorganisms by means of cultural characteristics, agglutinations and biological tests are made here.

The brains of all animals such as dogs and cats that have bitten people or have been held under observation for rabies are also examined. In this examination two methods are employed. Smears are first made of the hippocampus or corpus ammonis, where the large ganglion cells are most abundant, and after proper fixation with methyl alcohol and staining with a special fuchsin preparation they are examined microscopically for the presence of Negri bodies. In case the smears are found to be negative an emulsion of the brain is injected beneath the meninges of a rabbit. This latter check is run because of the fact that the Negri bodies may be overlooked in the routine examination.

A further reason is because the animal may have died of rabies in the early stages of the disease before the characteristic bodies could have formed.

A bacteriological analysis of all springs supplying Port-au-Prince with water is made each week and a daily analysis of ice as manufactured by the local plant is also made here. Food stuffs as milk, beverages and numerous other analyses of public health importance are made routinely in this laboratory.

In addition to the work above mentioned, this laboratory performs all tests of a chemical and pathological nature. It is completely equipped for blood chemistry and the preparation of tissues for histo-pathological examination. All tissues removed at operation as well as those obtained at autopsy are sectioned and studied before final diagnoses are made.

During the past few months some work of a research character has been carried on in the Public Health Laboratory. Aside from that done on the various tests for treponematosis a thorough survey for filariasis has been made on all patients admitted to the Hospital. Up to the present time approximately 2,000 examinations have been made and it is interesting to note that the results have shown between 10 and 11 percent to be positive for microfilaria. This is believed to be a fair estimate of the prevalence of filariasis in Haiti as the patients at this institution are drawn from all parts of the island and include all classes of the population. The blood of such patients is taken at night usually on the second or third day after admittance in order to detect the microfilaria of F. bancrofti which appears in the peripheral blood stream only at night or after the patient has been reclining for a few days. The preparation is made by placing a large drop of blood on a clean glass slide and spreading it with an applicator to an area the size of a dime. These are now allowed to dry in the air until the following morning when they are dehemoglobinized by means of dilute acetic acid solution and stained with one of the Romanovski stains. The ordinary thin smears have also been made in many instances but the percentage of positives is much less than by the method employed above. Of the two hundred or more positive slides examined we have been able to identify three distinct species as follows: Filaria bancrofti, Acanthocheilonema perstans and Filaria demarquayi. The two former species constitute about eighty five per cent of those found.

An attempt is being made at this time to obtain a postmortem examination on all cases who die at this institution and lately we have been successful in about ninety percent of the instances.

(19) CHAPEL AT HAITIAN GENERAL HOSPITAL, PORT-AU-PRINCE

The doctor of the ward who has direct charge of the case notifies the main office as soon as a death occurs and the laboratory is notified if permission has been obtained. The ward doctor is urged to be present at all examinations for the purpose of giving the history and clinical diagnosis. In this way our autopsies are made more interesting and instructive. A large number of pathological museum jars have recently been ordered and it is our purpose to build up a complete pathological museum for teaching purposes in the Medical School. After the completion of each examination the most important tissues obtained are taken to the laboratory where micro sections are prepared and studied.

The Public Health Laboratory is still in its infancy. The work is progressing rapidly, however, and extreme interest in its further development is shown by all individuals connected with this institution.

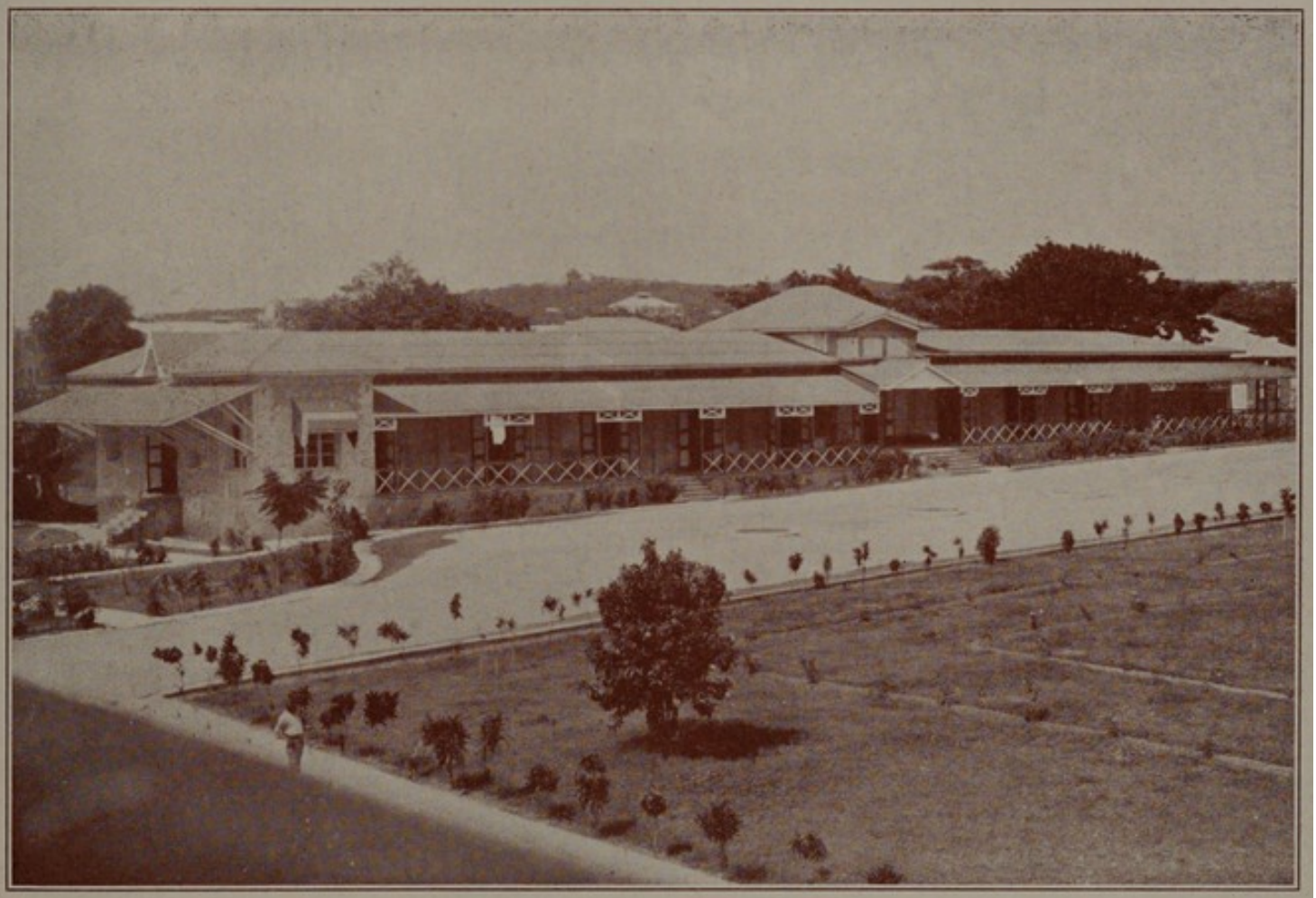
Statistical summary of work. The volume of the work done at this hospital is well shown by the following table:

Hospital and outpatient department:

Average number of patients per day	315
Total number of admissions	4735
Total number of births	231
Total number of outpatients (Hosp. dispensary only)	77563
Daily average of outpatients	249
Total of discharges cured	3500
Total of discharges improved	724
Total of discharges dead	398
Daily average of deaths	1.1
Total number of autopsies performed	150
Total number of major operations	461
Total number of minor operations	3933
Total number of neosalvarsan injections	1772
Total number of mercury injections	12877
Total number of sulpharsphenamine injections	160
Total number of bismuth injections	10465
Total number of blood injections	20
Total number of anti-tetanic injections	320
Total number of anti-typhoid injections	151
Total number of chaulmestrol injections	964
Total number of X-ray examinations	542

Dental department:

Total number of treatments	1404
Total number of extractions	1230



(20) A WARD BUILDING AND GROUNDS

Rural clinical service:

Total number of consultations and treatments	83396
Total number of clinics held	603
Average number of consultations and treatments per month	6949
Average number of consultations and treatments per clinic	138
Total number of bismuth injections	51118
Total number of sulpharsphenamine injections	675
Total number of dressings	10128
Total number of minor operations	210
Total number of dental treatments	260

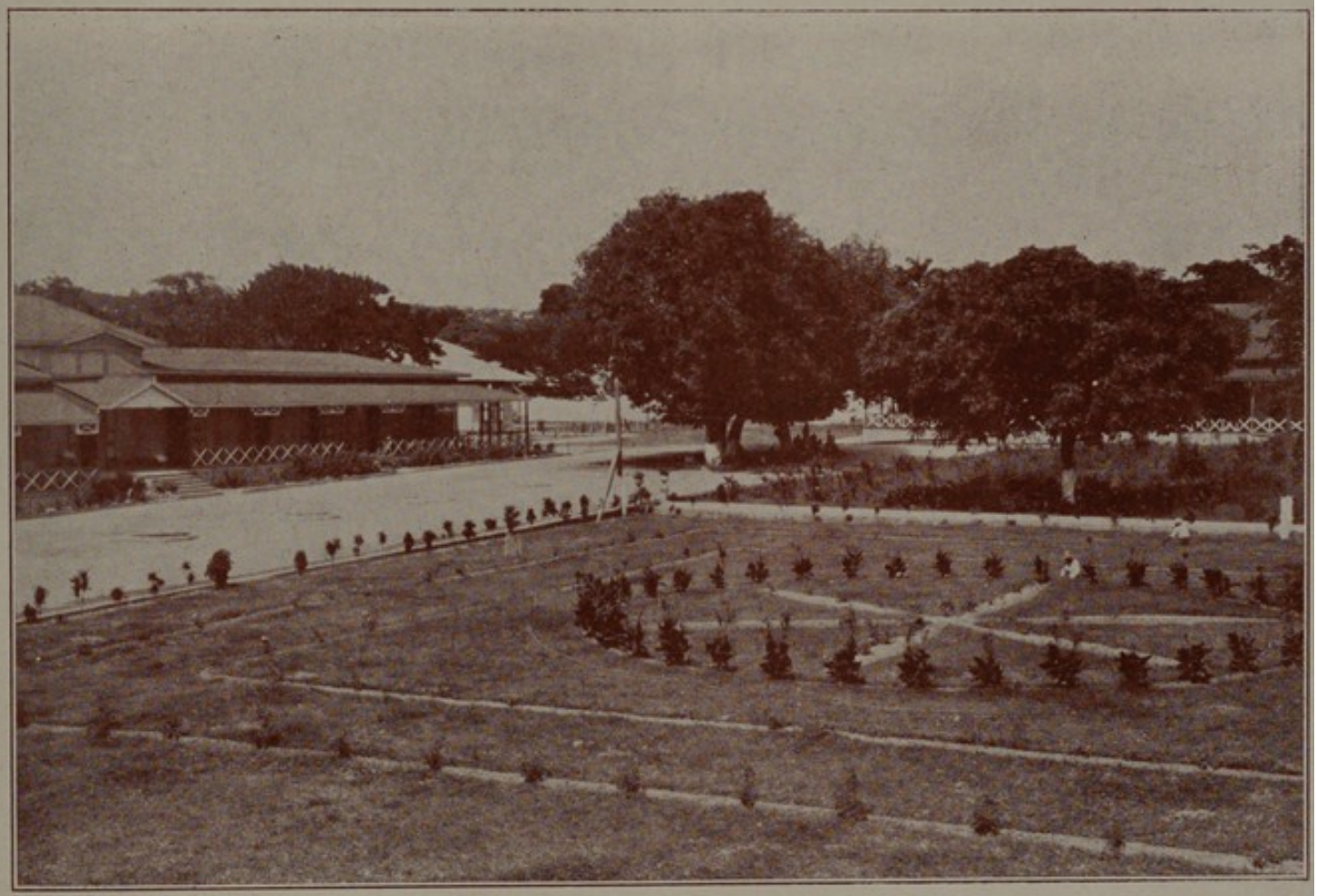
Laboratories:

Total number of urine examinations	2453
" " " feces examinations	2024
" " " sputa examinations	503
" " " blood smears	1052
" " " blood counts	768
" " " water analyses	484
" " " soft drink examinations	3
" " " milk examinations	7
" " " Wassermann tests	3945
" " " Kahn tests	1318
" " " Widal reactions	63
" " " Coagulation time	18
" " " feces cultures	10
" " " smear cultures	14
" " " rat autopsies	136
" " " blood cultures	23
" " " examinations for leprosy	11
" " " rabbit injections	10
" " " examinations for rabies in dogs	6
" " " darkfield examinations	13
" " " sections diagnosed	45
" " " hydrocele fluid examinations	8
" " " food examinations	2
" " " alcohol examinations	5
" " " miscellaneous examinations	245

Buildings and Grounds. Many changes in the various buildings and the grounds have been made during the past year which are considered of sufficient importance to mention. These are listed below in chronological order and are in themselves self explanatory.

1. New chapel with additional ante-room to sacristy completed.

2. Concrete animal house with metal roof completed.



(21) A HOSPITAL GARDEN

3. New isolation ward completed.

4. Pavillion made for mess of patients.

5. New X-ray machine set up and put in commission.

6. New partition constructed in private ward.

7. New developing room installed for X-ray work.

8. New twelve burner Tirril Automatic Gas machine installed in Public Health Laboratory.

9. New paving put in adjacent to south end of office and clinic building.

10. All pipes laid for new fire plugs.

11. Sewer pipes completed but not connected with latrines.

12. Electric sterilizer and still installed in Public Health Laboratory.

13. Four blade electric ceiling fan installed in morgue.

14. New banisters and rails put on all stairs leading to public wards.

15. Screening of the private ward completed.

16. Three new wards together with two extra rooms joining the morgue to be used for surgical pathology completed.

17. Annual painting continuing.

La Gonave. The island is located in the Gulf of la Gonave. It has an estimated population of about 10,000 people. During the past year a chief pharmacist's mate of the U. S. Navy has been stationed on this island as the local Public Health Officer. Under his direction a series of rural clinics are held throughout the Island. There are three temporary dispensaries where full time practical nurses are employed. These are located at Anse-à-Galets, Masucrin and Pointe à Maquettes. In addition nine other places

are visited every month by the Public Health Officer for purpose of bringing relief and treatment to the sick. During the year 15,415 treatments were given. Of these 5,638 consisted of bismuth injections for treponematosis.

During the coming year a standard rural dispensary will be built at Anse-à-Galets.

CAP-HAITIEN. Medical activities. The medical activities of this district have, as their point of origin, the modern well equipped Justinien Hospital in Cap-Haitien. From this central point medical supplies and medical attention are furnished the surrounding district by means of clinics established in nineteen of the most populous centers.

The Justinien Hospital, with a capacity of 212 beds has the necessary equipment of modern medical practice, such as laboratory, X-ray, dental, and eye, ear, nose and throat departments. The dispensary building not only houses the dispensary proper but serves as an outpatient department where the ambulant sick of Cap-Haitien receive medical attention. Wards are provided for men and women, medical, surgical, isolated and private cases. The private ward building has thirteen rooms which constitute a source of revenue for the hospital.

The personnel of the hospital consists of two U. S. Naval Medical Officers, two pharmacist's mates, U. S. Navy, three Haitian doctors, of whom two are commissioned, and one is serving his probationary period, one Haitian pharmacist, one Haitian dentist, recently appointed, eleven sisters, eight Haitian graduate nurses and fifty six other employees. The personnel has been adequate and duties have been performed with a minimum of friction. Due to necessary transfers three administrators had charge of the hospital for varying periods during the year. This has necessitated the rebuilding of the confidence of the people in the new administrator after each change.

The various departments were active, the laboratory made a total of 10,194 examinations. Approximately fifty per cent of the Kahn tests were positive for Treponematosis. Two hundred and two skiagraphs were taken by the X-ray department and the dental department treated 3,156 patients practically all having extractions done.

No unusual prevalence of disease was noted. Treponematosis constitutes the largest per cent of diseases. The dysenteries,

filariasis, malignant malaria, typhoid fever, tetanus and malignant disease are not uncommon. Tuberculosis is usually seen in the late stages and does not respond to hospital treatment.

New construction and improvement during the year were made as follows:

Completion of isolation wards.

Completion of laboratory animal house.

Completion of bath room for isolation ward.

Completion of plaza and kiosk.

Garage and carpenter shop built.

Cement floor for bakery under construction.

Grading of hospital grounds and starting of lawn and shrubbery.

Centralization of laundry work.

New case recording system put into effect.

Improvements and construction needed during the coming year are:

Construction of incinerator.

Repair of roof of original hospital building.

Construction of cement drains outside of building to carry rain water.

Construction of a small building for the watchman at the gate in conformity with the architecture of the other hospital buildings and to replace the unsightly frame building there.

Rural clinics. The following rural clinics are visited monthly by a medical officer from the Justinien Hospital: Borgne, Port-Margot, Pilate, Plaisance, Acul du Nord, Plaine du Nord, Quartier Morin, Limonade, Le Trou, Sainte Suzanne, Ouanaminthe, Vallières, and the clinic at Limbé bi-monthly. Clinics at Dondon, Bahon, Ranquitte, Milot and La Victoire are held monthly by a Haitian

medical officer from Grande-Rivière. Clinics are held in the house or school house of the priest of these communities, except in Borgne and Port-Margot where dispensaries were built during the year. A dispensary is also under construction at Le Trou. An intelligent girl in each community has been trained to administer the treatment prescribed by the visiting doctor. At Grande-Rivière daily clinics are held in a rented building that serves as a dispensary. A Haitian medical officer is in charge, assisted by a nurse and a technician trained in both pharmacy and laboratory work.

Consultations during the year in rural clinics and hospital outpatient department numbered 32,335. The majority of these cases come under the classification of treponematosis. Other prevalent diseases were intestinal parasites and malaria. Bacillary dysentery and typhoid fever were prevalent in some communities at certain times of the year, usually during a low stage of water in the rivers used for drinking purposes. The urging of the people to boil their drinking water has met with no success whatever. Whooping cough has been prevalent.

Neo and suph-arsphenamine are used in the hospital in the treatment of treponematosis and sodium potassium bismutho tartrate is used in the rural clinics because of its cheapness and ease of administration. A total of 22,695 injections were given during the year. Sodium potassium bismutho tartrate has given good results. Abscess ons salivation are rarely noted. Dressings to the number of 140,195 were applied. Three thousand two hundred thirty three school children were vaccinated against smallpox.

CAYES. Hospital. The number of patients carried over from the previous year was 44. In addition there were 36 orphans, inmates of the institution.

During the year two hundred and ninety four persons were admitted to the hospital, mostly for medical treatment.

The daily average number of patients was 96.

One hundred and eighty eight patients were discharged as cured or improved and thirty eight as unchanged. Thirty one patients died.

Outpatient Department. During the past year 13,303 persons had consultations with a doctor and 25,929 persons have had dressings done without such consultations. In the rural clinics

21,407 persons had consultations with the visiting doctor. Making a total of 60,539 consultations and dressings for the year. In addition 211 persons had one or more teeth extracted. The daily average of consultations was 95.88. The daily average of dressings was 70.76. It will be noted that there was a decrease of 2,636 treatments given in the hospital but there was a total increase of 19,771 treatments given. Malaria and syphilis as usual head the list of conditions treated.

Surgical operations. During the year 6 major operations and 104 minor operations were performed. Many people in this district are badly in need of surgical treatment. Only urgent cases have been operated upon because the so called operating room was in daily use for the outpatient department and was not a place for operations of a major character. With the opening of the new dispensary about November 1st, 1926 and the construction of an operating room for which money has been appropriated it is believed that most of these cases can be taken care of.

Salvarsan treatments. During the past year 4,491 neoarsphenamine and 632 sulpharsphenamine treatments were given at the hospital dispensary.

Mercury treatments. Eight hundred and fifty four intramuscular treatments of mercury were given during the year. It is exceedingly difficult to induce people to take mercury in this way, hence it is mostly administered in the shape of "specific mixture".

Bismuth treatments. Five thousand six hundred and fifty six treatments of bismuth were given, mostly in the rural clinics. The results have been very good. No case of stomatitis and only one abscess were observed from its use. The ease of administration, but the low cost, and the results obtained make the drug ideal, especially for rural clinics.

Dental treatments. No dental work is done at this hospital except extraction of teeth which is done by one of the sisters or doctors. During the year 211 persons had one or more teeth extracted at the hospital and clinics.

Rural clinics. At the beginning of the year clinics were held at Camp-Perrin, Chantal, Leduc and Torbeck. During the year clinics were opened at Aquin, Saint-Louis, Cavaillon, Vieux Bourg, Port à Piment, Port Salut, Saint-Jean, Arniquet and Maniche. Clinics were held at Camp Perrin once every week; twice a month at Vieux Bourg, Aquin, Saint Louis, Cavaillon, Chantal, Leduc and

(22) GROS MORNE STANDARD RURAL DISPENSARY

Torbeck; and once a month at Port à Piment, Port Salut, Saint Jean, Arniquet and Maniche. Because of the small attendance, the difficulty in transportation and the close proximity of Arniquet to Leduc, of Torbeck to Aux Cayes, the clinics at Torbeck and Arniquet were discontinued. Standard rural dispensaries have been constructed at Camp-Perrin and Aquin. It is desired to open more clinics along the coast region. This will necessitate the addition of another Haitian doctor to the personnel, who should reside permanently at Port à Piment.

New construction. During the year a two story dispensary building, two wards and the new hospital and the kitchens were completed. Foundations for the operating room were laid. A stone wall was erected around the present hospital site, and work begun on filling the grounds with rock and gravel.

Future construction. It is necessary to erect shower baths, latrines, bath stands and a dressing room for dirty cases in order to complete the present hospital. It is hoped that maternity and contagious wards may be constructed in the near future.

Personnel. The employees carried on the hospital payroll are as follows:

One Public Health Officer
(Medical Officer, U. S. Navy)
Seven sisters
One Haitian physician
One carpenter
One laundress
Two ward attendants
One dresser
Two clerks
Two servants.

GONAIVES. Personnel. The personnel of the hospital division consists of:

Medical Officer, U.S.Navy	1
Haitian physician	1
Graduate Haitian nurses	2
Sisters	6
Dresser	1
Clerk	1
Cooks	2
Servants	2
Total	16

(23) RURAL DISPENSARV AT MARMELADE

The following table shows the activities of the hospital proper during last year:

Daily average of patients (internes)	50.6
Total number of admissions	414
Total number of outpatients	7380
Daily average of outpatients	20.2
Number of sick days	18435
Discharged dead	21
Total number of major operations	101
Total number of minor operations	307
Total number of dressings (externes)	14042

Laboratory:

Blood smears	14
Pos. for malaria	5
Sputum	1
Urine	3

Rural clinics.

Places.	No. Clinics	Total No. patients	Average No. per clinic	Bismuth injections.
Gros-morne	51	8304	162.4	6161
St. Michel	49	3952	80.6	2894
Marmelade	16	1388	86.7	855
Savanne Carée	16	606	37.8	432
St. Raphael	14	223	15.9	48
Petite Rivière Bayonnais	11	330	30.0	110
Ennery	3	56	18.6	17
Total	160	15159		10517

On October 28, 1925, the rural dispensary building at Gros Morne was officially opened to the public and on the 4th of December 1925, the rural dispensary at Saint Michel was officially opened. These two buildings have added greatly to the efficiency of the rural clinics in this district. A plot of land has been secured in Marmelade for the erection of a standard dispensary building which, it is hoped, will soon be started. On March 18, 1926, a new official Dodge touring car was received which facilitated rural clinic transportation considerably.

Repairs. During the past year a new addition was made to the hospital kitchen and the exterior of all hospital buildings were repaired and given a much needed coat of paint. The tattered wall paper on the upstairs walls of the Sisters' quarters was scraped off and the walls given two coats of paint. A new cess pool to care for waste water from the hospital has been constructed, also a shower bath and a new pit latrine.

Epidemics. During the months of February and March whooping cough was prevalent throughout the district, and in May three cases of typhoid fever were admitted to the hospital.

Vaccination. During the month of May the School children of Gonaives, Gros Morne, Saint Michel, and Terre Neuve, who had not previously been vaccinated or did not show evidence of having had smallpox, were all vaccinated, also a three day horse back trip was made into the hills vaccinating at the various habitations passed.

A total of 993 vaccinations have been made in the district during the year.

A course of typhoid prophylaxis has been started on the employees of the Custom, Public Works and Public Health services.

Plans for the Future. (a) An independent water supply for the hospital is an urgent need. The town water supply, while of good quality, is inadequate.

(b) An addition to the hospital kitchen.

(c) The roofs of all buildings should be repaired and painted.

(d) Standard diepensary building at Marmelade.

HINCHE. Personnel. The personnel of the hospital activities consists of:

Medical Officer, U.S.N.	1
Commissioned Haitian physician	1
Assistant physician	1
Ward attendants	2
Dressers	3
Chauffeur (pump operator)	1
Cooks	2
Sisters	3

Hospital. The hospital was opened for patients after the beginning of the fiscal year (23 November 1925). The following data give a summary of the activities during the year:

Daily average of patients for the year	13.04
Total outpatients for the year	15539
Daily average of outpatients	46.45
Discharged dead	6
Daily average of deaths	0.0164
Number of autopsies	2
Total major operations	4
Total minor operations	300
Total no. of injections of Neo salvarsan	270
Total no. of injections of sulpharsphenamine	261
Total no. of injections of bismuth	10972
Total no. of injections of mercurials	127

Rural clinics. Rural clinics have been held in the various towns of the district with as much regularity as rainfall and the lack of bridges would permit. It is regrettable that the towns of Lascahobas, Mirebalais and Belladère have not had regular weekly clinics. Many patients, who walk or ride animals several miles to the clinic to find that no clinic will be held, are averse to taking these todious trips for no purpose in the future, and therefore, until the regularity of clinics in these places is more certain, it cannot be hpped to increase the attendance.

A road was constructed to Ville-Bonheur last year and as soon as it is repaired an attempt will be made to conduct a clinic there. It is approximately sixty miles from Hinche. When the bridge on the Guayamuco is again repaired and the road to Thomassique opened, another clinic is contemplated and this area should greatly increase the number of patients seen weekly. Thomassique is approximately fifteen miles from Hinche.

It is to be realized that, with towns in which clinics are held so widely separated, the condition of roads governs the regularity of the rural clinic service. Though the two worst rivers are to be bridged shortly, there remain nine rivers between Hinche and the nearest towns. These are often impassable during the summer and fall. This fact will necessarily limit the rural clinic service during the rainy season until more bridges are constructed.

(24) THE DESTRUCTIVE STAGE OF TREPONEMATOSIS

Number of places where held----------7
Number of clinics held----------177
Average number of patients per clinic-83.31
Average number of cases per month---1228.91
Total cases for the year----------14747.

Laboratory. A few articles of laboratory equipment have been received and others ordered. A room has been made in the dispensary in which laboratory work will be done in the future. During the past year but little time has been devoted to this activity as will be seen from the following summary.

Blood smears --------35
Urinalysis-- ---------16
Stool examinations----2

Vaccination. It is the experience of the Public Health Officer in this district that the matter of vaccinating school children is a difficult one. Attendance in all schools is very desultory and once those present are vaccinated they are not all present at a revisit when results are to be read. Approximately 50 per cent of the vaccinations done in this district failed to report the following week for control. During the year 495 school children were vaccinated.

Accomplishments. Accomplishments for the year in this district are as follows:

1. New Construction:

Completion of garage and fuel store room.

Construction of a corral.

Dyke in Hinquitte river to protect pumphouse.

Three hundred meters of stone walks.

Four hundred and fifty meters of stone and concrete surface drainage ditches.

Construction of drive ways in grounds.

Opening of new standard dispensary in Mirebalais.

Grading and sodding the hospital grounds.

2. Additions:

Fitting one room with table and shelves as linen and sewing room

Extending kitchen roof to protect range and oven from rain.

Pharmacy shelves and counter; dressing tables, consultation and treatment rooms, laboratory desk, cabinet and shelves installed in the Hospital outpatient department, and water and lavatories installed.

Awnings and screens installed in Administrator's quarters.

Awnings and jealousies installed in Sisters' quarters.

3. Repairs:

New gallery roof for dispensary.

Reerecting one large latrine on Hospital grounds.

New electric light poles and repair to lines.

JACMEL. Medical activities. The following table gives a comparison of this period with that of the preceding fiscal year in respect to certain hospital activities:

	Year ending Sept.30,25.	Year ending Sept.30,26.
Total outpatients treated at hospital------	25,554	17,863
Total inpatients treated----------	450	370
Total number deaths----------	17	14
Average daily number of inpatients---------	60.83	56.85
Average daily number of outpatients--------	70.01	49.21
Average daily number of deaths----------	0.046	0.038
Total number of major operations----------	8	29
Total number of minor operations----------	48	111
Total number of injections neo-salvarsan---	1400	106
Total number of injections sulpharsenamine-	21600	37
Total number of injections bismuth---------	22400	20222
Total number of injections mercury---------	1138	8
Autopsies performed----------	0	1

The above figures indicate some rather definite changes in activities during the two years. The reasons for these changes appear quite evident. The figures show a definite decrease in the outpatient department attendance and in the number of admissions to the hospital as compared to the number for the previous year. During the year five rural dispensaries were put into commission throughout the district, each one operating every day but Sunday. As these dispensaries came into existence it was immediately noticed that fewer patients came to the hospital from the vicinities of these dispensaries. When it is recalled that the majority of the patients here are yaws cases, for whom walking is so often a difficult matter, it is easily understood why they prefer to receive their treatment at these dispensaries. Before the days of the dispensaries, yaws cases making a long trip to the hospital often requested and were allowed admission to the hospital because of the difficulty and often impossibility of their making regular trips into town for treatment. Now it is an easy matter for thousands of these yaws victims to receive all the treatment necessary without ever making the trip into town. There has been a substantial increase in operations, both major and minor since the previous year. This is explained by the gradual gaining of the confidence of the natives, their education up to the idea of the value of operations; together with "advertising" spread by operated patients and by the people in charge of dispensaries, who, having spent some months at the hospital, are able to tell the people something of the possibilities of operations.

Rural clinics. As will be seen in the following tables, these dispensaries have also affected attendance at rural clinics, this being for two reasons. One reason is that rural clinics were formerly held at the sites of these dispensaries, all of them favorable spots for a large gathering of patients. These sites can now of course no longer be used for rural clinics in the sense that rural clinics are understood here. They are all visited once a month for inspection, but otherwise operate under the direction of five native women who were trained for this work. The other reason why rural clinic attendance has fallen off is the same as that for the decrease in hospital attendance. The rural dispensaries have been such an enormous factor in the yaws campaign here that their influence is felt even at sites of rural clinics fairly well removed from the rural dispensaries. Also the rural dispensaries have necessitated for financial reasons a decrease in the number of rural clinics per year that it is possible to hold. They have added greatly to the already overburdened pay roll and moreover have necessitated expenditures for horses not only in the regular inspection visits but also in connection with transportation of materials to them for which there is a constant and increasing demand.

(25) STANDARD RURAL DISPENSARY AT TROUIN

With all this added increase in expense there was no proportionate increase in allotment in consequence of which there is always a lack of money for the horses with which to conduct the desired number of rural clinics.

Clinics were held in ten different localities.

	Year Ending Sept.30,25.	Year Ending Sept.30,26.
Average number cases per clinic----	347.17	263.23
Average number cases per month-----	2743.91	1273.75
Total number of cases for year-----	32927	14853

Rural dispensaries. These were placed in commission during the year as follows:

Colline des Chênes--------October 1925.
Fond Melon----------November 1925.
Peredo----------February 1926.
La Vallée----------March 1926.
Bainet----------May 1926.

Another is under construction at Saltrou but will probably not be completed for some months as the funds for this, being raised by local subscription, are accumulating very slowly. Should funds at some time become available, it is desired to construct a dispensary at Cotes de Fer, which is badly in need of one, being five hours from Bainet, the nearest dispensary. These dispensaries are all operated by native women who previously spent a few months of training in the Jacmel Hospital. The training of these women consisted largely of the following:

a. Recognition of early and late yaws lesions and their treatment.

b. Dosage of quinine, importance of continuing it over a longer period than was customary; importance of giving it to all cases of fever seen at their dispensaries.

c. Dosage of oil of chenopodium and carbon tetrachloride. Importance of giving these drugs to all children.

d. System of keeping records for monthly reports.

With the exception of Colline des Chênes these dispensaries are all visited at least once a month and always without notice to those in charge. With the exception of one instance at La Vallée every visit has found them in good order and treating a large number of patients, mostly yaws cases in great need of treatment. At Fond Melon a long waiting line of patients has always been found. These five dispensaries constitute the equivalent of a hundred rural clinics a month, and are by far the greatest factor of aid here in the effort to deal with the ever present problem of treponematosis.

Treponematosis.	1924	1925	1926
Total all yaws cases treated:			
Hospital	7654	15566	7379
Rural clinics	1555	22588	6503
Rural dispensaries	0	0	24035
Total	9209	38154	37917
Injections:			
Bismuth & Arsenicals - Hospital	-	-	12978
- Rural Clinics	-	-	7244
- Rural Dispens.	-	-	27367
Total	8167	45400	47589
Early cases:			
Hospital and Rural clinics	1709	7856	2962
Late cases:			
Hospital and Rural clinics	7500	30298	10920
Ratio early to late cases	0.2278	02592	0.271
Of total cases all diseases			
% that were treponematosis	45.94	63.97	41.55.

In the column above showing the ratio of early to late yaws from year to year it would appear at first that the incidence of yaws is on the increase. On the other hand there has been a marked decline in this ratio except during the second quarter, from quarter to quarter during the past fiscal year, a decided fall occurring in the last quarter. Also the column showing what percent of all cases is made up of yaws is rather more encouraging.

Ratio early to late yaws during past fiscal year.

1st quarter	0.35
2nd quarter	0.45
3rd quarter	0.29
4th quarter	0.07

Laboratory. This functions with greater facility and convenience since the new dispensary building was completed. Previously the laboratory was in a separate building where cooperation was more difficult and the activities could not be so readily supervised as at present. The same laboratory technician, a native girl, is employed as during the previous year. Her work consists only of malarial smears, examination of feces, and routine urine examinations. She is perfectly competent to carry on these examinations and she is very conscientious and reliable.

For all practical purposes this suffices for our work here. Examinations outside of the scope mentioned above are done by the Medical Officer.

Laboratory	1925	1926
Malarial smears	317	472
Positive	?	92
Fecal material	1354	1346
Urine	?	178

Vaccination against smallpox. Exclusive of school children only 57 persons were vaccinated against smallpox. This admittedly a poor showing for the year, but this work during the coming year will be put on a more routine basis and it is hoped that a much better figure can be submitted for the next annual report.

Inspection of school children. A total of 830 children were inspected in 12 different schools. Much greater success was obtained than in previous years in regard to persuading the pupils to submit stools. In schools where discipline prevailed such as the Brothers' School and the two sisters' schools over 90nper cent of the pupils submitted stools and over 90 per cent of those having worms took treatment. At the protestant industrial (Siloe) School 100 per cent of the pupils submitted stools and 100 per cent of those having worms took treatment. In the other schools less than one third of those with worms accepted treatment. These conditions however, are such an improvement over previous years that still greater cooperation is expected during the coming year. In certain small schools it was evident

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that the teachers deliberately discouraged the pupils from cooperating in the inspections and in others they were simply indifferent and made no effort either to aid or obstruct the inspections.

Of 393 stool specimens examined 27 per cent were positive for hookworm, 41 per cent positive for ascaris and 28 per cent positive for trichuris.

Two hundred and twenty one school children were vaccinated against smallpox.

Fifty four (or 6.5 per cent) had enlarged spleens.

One hundred sixteen or (13.9 per cent) showed evidence of treponematosis.

Accomplishments. As stated above, four rural dispensaries were completed and another (at Saltrou) is now under construction.

Two new buildings, the new dispensary, and private ward and isolation building, were completed during the month of September. Official inauguration took place on September 25th. About two hundred of the more prominent citizens of the town were present and all expressed great pride and satisfaction in these buildings which, with the others of the hospital group, make a show place for out of town visitors. By the removal of the dispensary activities from the main hospital building it was possible to add fifteen more beds, thus relieving the former constant shortage of beds.

A new laundry pavillion was completed during September.

One room in the main hospital building was remodeled with shelves, etc. and now serves as a linen room.

A septic tank at the foot of "hospital hill" was completed during July and is now functioning satisfactorily.

Funds were received for strenghtening the support of the roof of the main hospital building but as there is no American Engineer on duty here, nor any Haitian Engineer who knows what is required for this piece of work, the funds are lying idle awaiting either an engineer or specifications as to just what is to be done.

Personnel. The Hospital personnel consists of:

Medical Officer, U. S. Navy	1
Priest	1
Laundresses	8
Coachman	1
Messengers	2
Gardeners	3
Haitian doctor	1
Laboratory technician	1
Practical nurses	5
Cooks	2
Sisters	6
Janitor	1

The division of labor and division of responsibility has been better systematized during the past year, such that personnel problems are now of minor importance. One sister is occupied all day with the keeping of the new records which went into effect July 1st. She is extremely competent in this work and it is very gratifying to know that these records are so well kept by her, as it was feared at first that it would be necessary to hire an additional clerk for this work. The sisters who care for the sick, while conscientious and tireless in their efforts, are nevertheless somewhat incompetent for such work, never having had any special training and apparently can never learn to conduct this work according to any definite scheme or system. Many futile efforts have been made to maintain the keeping of clinical charts and administration of treatment on a definite routine and well regulated basis. One, or at the most, two intelligent trained Haitian nurses could easily carry on this care of the "inpatients" but funds will not permit their employment at present. The nurses who conduct the rural dispensaries were already mentioned under rural dispensaries. They cannot be praised too highly, as they are accomplishing an enormous amount of work in this district. The two men mentioned as "dressers" are really fairly competent pharmacists (without diplomas) and are engaged in dressing, injection of bismuth, dispensing of drugs; are capable of conducting rural clinics, and are helpful in many different ways about the wards, dispensary and operating room. They show considerable initiative and rarely require discipline.

Recommendations. Under the scope of hospital activities, the construction which would give the greatest relief to the people at present is a rural dispensary at Cotes de Fer. This location is five hours from the nearest dispensary. A perfectly serviceable

and satisfactory building could be put up for about 3,000.00 gourdes though one of the "standard" type would of course be more desirable.

Hospital buildings are perfectly adequate for the present needs and those that may be anticipated for one or two years to come. The dispensary should always be adequate but it is highly possible that the present bed capacity in the main hospital building may be found insufficient within a year.

A great need now is horses for purposes of rural clinics and the visiting of rural dispensaries. Two more good animals could be used; none but the best can stand the mountain work here. These cost about $80.00 each. Our present two horses are wearing out under this work and will probably both need to be sold within a year.

The hospital personnel is sufficient for the present, but if the work increases materially another "dresser" may be required.

A motor boat would be of enormous assistance in the transportation of supplies to the dispensaries at Colline des Chênes, Bainet and Saltrou as well as for inspections, rural clinics, etc.

JEREMIE. Hospital. The personnel attached to hospital consists of:

Medical Officer, U. S. Navy	1
Non commissioned Haitian physician	1
Sisters	2
Clerk	1
Attendants	3
Cooks	2
Laundress	1
Laborer	1

Statistics for the past year are as follows:

Average number of patients daily	26.77
Total admissions during the year	185
Total number of outpatients	11582
Daily average outpatients	32.53
Discharged dead	7
Daily average deaths	0.019
Number of autopsies	4

and satisfactory building could be put up for about $3,000.00 Courses through one of the "stand-ard" type would of course be more desirable.

Hospital buildings are perfectly adequate for the present needs and those that may be anticipated for one or two years to come. The dispensary should always be adequate but it is highly possible that the present bed capacity in the main hospital building may be found insufficient within a year.

A great need now is horses for purposes of rural clinics and the visiting of rural dispensaries. Two more good animals could be used; none but the best can stand the mountain work here. These cost about $80.00 each. Our present two horses are wearing out under this work and will probably both need to be sold within a year.

The hospital personnel is sufficient for the present, but if the work increases materially another "dresser" may be required.

A motor boat would be of enormous assistance in the transportation of supplies to the dispensaries at Collins des Chenes, Holmet and Salitron as well as for inspections, rural clinics, etc.

PERSONNEL. Hospital. The personnel attached to hospital consists of:

Medical Officer, U. S. Navy	1
Non commissioned Haitian physician	1
Dietary	2
Clerk	1
Attendants	3
Cooks	2
Launderess	1
Laborer	1

Statistics for the past year are as follows:

Average number of patients daily	26.77
Total admissions during the year	189
Total number of outpatients	11802
Daily average outpatients	32.33
Diagnosed Yaws	7
Daily average dosing	0.019
Number of autopsies	4

Total minor operations----------104
Total major operations----------19
Neo-salvarsan injections----------2
Sulpharsphenamine injections----------835
Hg. injections----------439
Bismuth injections----------3651

Laboratory:

Feces----------38
Urinalysis----------29
Sputum----------8
Blood counts----------10
Malaria----------32
(Positive)----------6
Kahn tests----------96

Rural clinics.

No. of places where clinics were held------9
Number of clinics during the year---------46
Total number of patients at clinics-----1827
Average number of cases per clinic-----39.72

Inspection of School children. Routine inspection was carried on. Seventy eight children were examined by the Public Health Officer, and were vaccinated during the year.

Future construction. Funds have been appropriated for the construction of a new dispensary at the hospital. The construction of this building will relieve the present congestion. A rural dispensary will be constructed at Moron. In addition various minor improvements and repairs will be made at the Hospital.

PETIT-GOAVE. Hospital. During the year 75,000.00 gourdes were appropriated for the construction of a hospital at Petit-Goave. The construction contemplated is the beginning of a complete hospital unit. The funds on hand will allow the construction of a dispensary building, a 25 bed ward and various outbuildings.

In addition funds have been appropriated for various new constructions which will allow for the enlargement of the above ward and probably the construction of an operating pavillion.

Total minor operations----------104
Total major operations----------19
Neo-salvarsan injections----------2
Sulph.rephenamine injections----------838
Hg. injections----------439
Bismuth injections----------3691

Laboratory:

Feces----------38
Urinalysis----------29
Sputum----------8
Blood counts----------10
Malaria----------32
(Positive)----------6
Kahn tests----------98

Rural clinics.

No. of places where clinics were held----------9
Number of clinics during the year----------46
Total number of patients at clinics----------1827
Average number of cases per clinic----------39.72

Inspection of School children. Monthly inspection was carried on. Seventy eight children were examined by the Public Health Officer, and were vaccinated during the year.

Future construction. Funds have been appropriated for the construction of a new dispensary at the hospital. The construction of this building will relieve the present congestion. A rural dispensary will be constructed at Moron. In addition various minor improvements and repairs will be made at the Hospital.

PETIT-GOAVE. Hospital. During the year $5,000.00 pesetas were appropriated for the construction of a hospital at Petit-Goave. The construction contemplated is the beginning of a complete hospital unit. The funds on hand will allow the construction of a dispensary building, a 25 bed ward and various outbuildings.

In addition funds have been appropriated for various new constructions which will allow for the enlargement of the above ward and probably the construction of an operating pavilion.

The present hospital has continued in its capacity of a poor house and as center for the hospital activities of the district.

Personnel. The personnel of the Hospital division consists of:

1 Medical officer, U. S. Navy
1 Clerk
2 Practical nurses
1 Cook
1 Watchman
1 Laundress.

Statistical data. The following figures show the work of the Hospital proper:

Average number patients daily	44
Total admission for the year	230
Total discharged for the year	161
Total discharged, dead	25
Total number outpatients treated	8257
Daily number of outpatients	19
Number of autopsies performed	0
Number major operations performed	0
Number minor operations performed	10
Number of neoarsphenamine injections	14
Number of sulpharsphenamine injections	774
Number of bismuth injections	5645
Number of dressings	15537

Laboratory:

Urinalyses	4
Blood smears (malaria)	11
Gon. smears (conjunctiva)	3

Rural clinics. The rural clinical service is steadily improving. During the year 98 rural clinics were held; 8857 treatments were given. At the end of the fiscal year a new dispensary was completed at Anse-à-Veau. A Haitian doctor, who is now undergoing instruction at the Haitian General Hospital, will be detailed for duty at the dispensary and will in addition hold clinics at Baradères, L'Asile and Petit Trou. Smaller dispensaries will be constructed at these three places during the coming year. In addition standard dispensaries will be built at Miragoane and Saint-Michel du Sud.

The present hospital has continued in its capacity of a poor house and as center for the hospital activities of the district.

Personnel. The personnel of the Hospital division consists of:

1 Medical officer, U. S. Navy
1 Clerk
2 Practical nurses
1 Cook
1 Watchman
1 Laundress.

Statistical data. The following figures show the work of the Hospital proper:

Average number patients daily----64
Total admission for the year----230
Total discharged for the year----161
Total discharged, dead----25
Total number outpatients treated----8587
Daily number of outpatients----19
Number of autoplasts performed----0
Number major operations performed----0
Number minor operations performed----14
Number of neosphenamine injections----14
Number of sulpharsphenamine injections---774
Number of bismuth injections----5645
Number of dressings----15537

Laboratory:

Urinalyses----4
Blood smears (malaria)----11
Gon. smears (gonococcus)----3

Dental clinics. The dental clinical service is steadily improving. During the year 90 dental clinics were held 6887 treatments were given. At the end of the fiscal year a new dispensary was completed at Yuma-d-Yeun. A dentist doctor, who is now undergoing instruction at the British General Hospital, will be detailed for duty at the dispensary and will in addition hold clinics at Byrndaree, D'Abily and Petit Trou. Another dispensaries will be constructed at those three places during the coming year. In addition attached dispensaries will be built at Milieu and Saint-Michel du Sud.

Inspection of school children. One thousand four hundred and ninety eight school children were examined during the year and of this number 635 were vaccinated. Malaria treatment was instituted where the splenic enlargement indicated the need.

PORT-DE-PAIX. Personnel. The Hospital personnel consists of:-

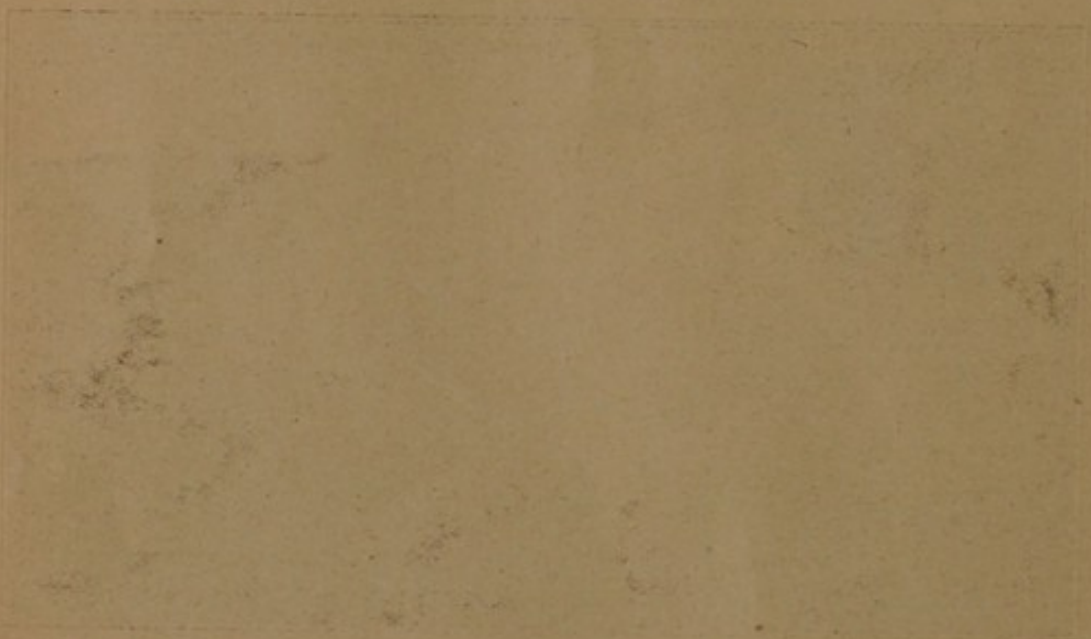
Haitian doctor----------1
Sisters----------3
Attendant----------1
Cook----------1
Janitor----------1
Dresser, rural clinic----1

Hospital. The present building, used as a hospital, is rented, and is not adequate for the needs of this district. The maximum bed capacity is twenty-four. The Hospital Immaculée Conception, that was turned over to the Government in 1925, is gradually nearing completion. When finished it will have an approximate bed capacity of fifty. During the month of July, contracts for water rights were drawn up for a period of five years, with renewal rights. The equipment for the new hospital arrived some months ago.

Statistics for the year are as follows:

Total admissions----------122
Daily average of inpatients----------18.9
Total number outpatients----------4859
Died----------16
Discharged cured----------94
Major operations----------4
Minor operations----------65
Total neo-salvarsan injections--------414
Total sulpharsphenamine injections----522
Total bismuth injections----------13722
Total mercury injections----------3
Total dental treatments----------168
Number places clinics held----------6
Number patients at clinics----------14129
Number dressings----------690
Number vaccinations----------239

(26) HOSPITAL AT PORT-DE-PAIX



Laboratory:

Feces----------18
Urinanalyses----------55
Sputum----------20
Blood smears----------16
Positive for malaria----------8
Others----------7

Rural clinics. Clinics are held at St. Louis du Nord weekly, this is the only town in this district which can be reached the year around by automobile and is forty five minutes from Port-de-Paix. There is a building rented for the dispensary at Gourdes 20.00 per month. A dresser has been stationed here since the middle of May.

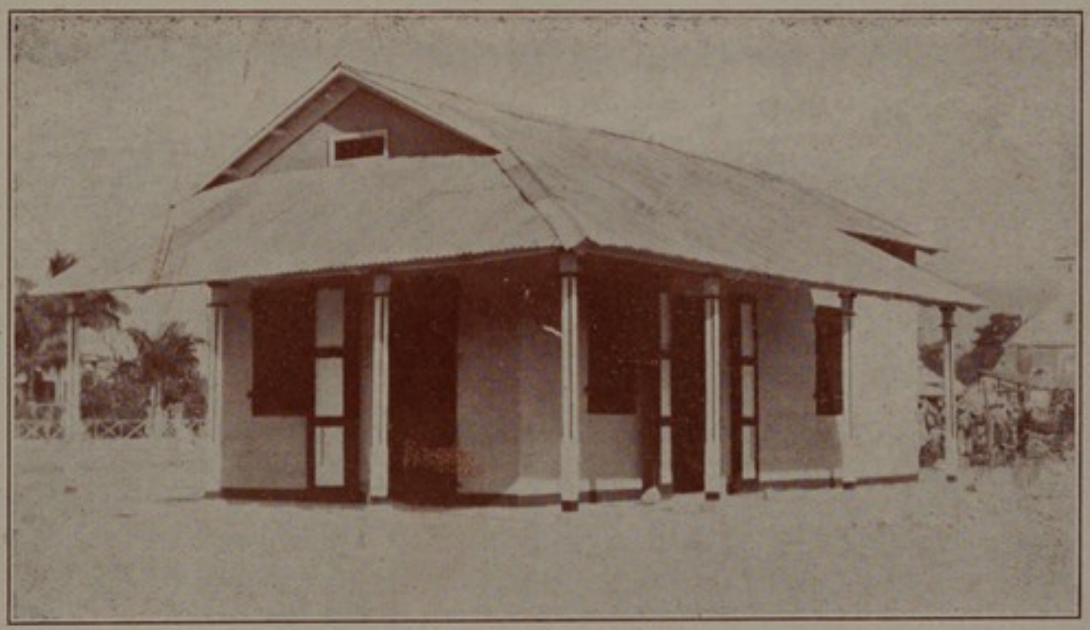
Anse-à-Foleru is two hours ride on horse from Saint Louis du Nord, and Bonneau, a habitation where clinics have been held since May, is one hour horseback ride from both. Clinics are held at both places on the same day and at least once a month.

Bassin Bleu, is on the road to Dos Morne, and at present the road crosses the Trois Rivières six times, when the river is normal. It requires two hours to reach this place by auto, and four hours by horse. It is difficult under the present conditions to hold clinics on schedule time. When the new road is finished it is planned to hold clinics here at least once a month.

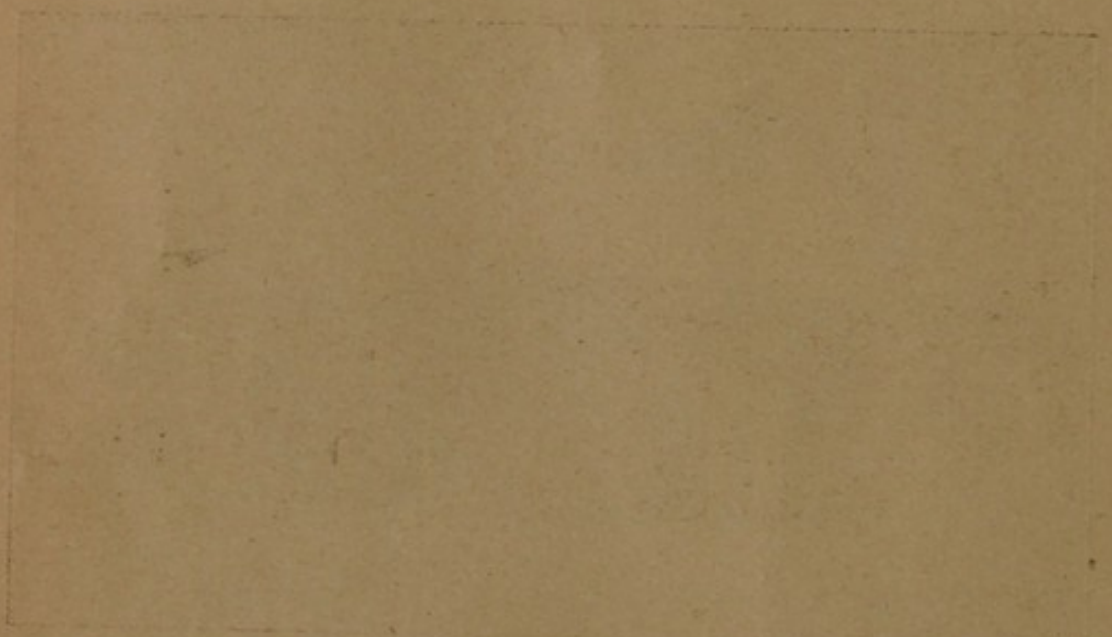
Jean Rabel is twenty nine miles from Port-de-Paix, it takes three hours by auto, with the road dry and the Trois Rivières and Rivière Moustique normal. By horse it requires at least five hours and a half. There is a rural dispensary almost completed in this town, where a dresser will be placed to render medical assistance to the inhabitants in this commune and the Commune of Môle St. Nicolas and outlying country. Monthly clinics are held here also.

The island of Tortue was visited twice during the year, the Gendarmerie furnishing transportation. When a motor boat is obtained clinics can be held on this island at least once a month.

Apart from the epidemic of measles at Môle St. Nicolas, during the month of January, there was no prevalence of disease. The routine maladies such as treponematosis, fever, intestinal



(27) STANDARD RURAL DISPENSARY, ARCAHAIE



parasites and the ordinary tropical fevers exist here as elsewhere in the Republic.

Vaccinations for the year were two hundred thirty nine.

SAINT-MARC. Hospital St. Nicolas. The hospital at the present time has a capacity of thirty beds, but funds have been authorized and construction is now underway upon a new ward building and an operating pavillion. The former is to cost Gourdes 50,000.00 and will house about 50 beds, while Gourdes 30,000.00 have been appropriated for the latter. The old ward buildings are worthless and the new construction will replace rather than supplement these structures.

Personnel. The personnel consists at the present time of the following:

1 Medical Officer, U. S. Navy
3 Sisters
1 Registered nurse
2 Practical nurses
1 Clerk
4 Dressers
2 Cooks
2 Laundresses
3 Laborers.

The present staff is inadequate for the routine work already in progress and upon the completion of the new buildings and the contemplated extension of activities, it will be doubly so. Two native physicians and one graduate nurse are required to conduct the routine in prospect in addition to those above mentioned.

Statistics for the year are as follows:

Number of outpatient consultations----------27759
Daily average of outpatients----------92.2
Admissions----------266
Daily average inpatients----------35.3
Major operations----------17
Minor operations----------211
Deaths----------30
Bismuth injections----------13537
Neoarsphenamine & sulpharsphenamine injections---------402
Dental extractions----------319

prevalence and the ordinary tropical fevers exist here as elsewhere in the republic.

Vaccinations for the year were two hundred thirty nine.

SAINT-MARC. Hospital St. Nicolas. The hospital at the present time has a capacity of thirty beds, but funds have been authorized and construction is now underway upon a new ward building and an operating pavillion. The former is to cost Gourdes 50,000.00 and will house about 50 beds, while Gourdes 50,000.00 have been appropriated for the latter. The old ward buildings are verminous and the new construction will replace rather than supplement these structures.

Personnel. The personnel consists at the present time of the following:

1 Medical Officer, U. S. Navy
3 Nurses
1 Dispensary nurse
2 Dispensary nurses
1 Clerk
6 Laborers
8 Cooks
2 Launderers
3 Laborers.

The present staff is inadequate for the routine work already in progress and upon the completion of the new buildings and the contemplated extension of activities, it will be doubly so. Two native physicians and one graduate nurse are required to conduct the routine in prospect in addition to those above mentioned.

Statistics for the year are as follows:

Number of outpatient examinations----------2772
Daily average of outpatients----------9.3
Admissions----------208
Daily average inpatients----------13.3
Major operations----------17
Minor operations----------211
Deaths----------30
Bismuth injections----------1382
Neurosyphemmo & sulpharsphen mino injections----------102
Dental extractions----------319

Equipment. A considerable part of the equipment for the operating room and some for the laboratory was received during the summer. The installation of fixtures of a permanent nature was discontinued in the former with the inauguration of construction upon the new operating pavillion. Funds are at hand for screening both these units but this work has not as yet been completed. Conditions in the temporary operating room are not at present satisfactory for major work of a deliberate character and as a consequence all but emergency work has been discontinued until more satisfactory conditions can be obtained. The laboratory is already in condition to handle routine work.

Policy. The hospital is in a stage of transition from what, in the public estimation and to a great extent in fact, has been a combination insane asylum, poor house and home for incurables. Insane patients, paupers, and incurables have long been carried upon the rolls. Such a practice is detrimental to a public appreciation of the intended functions of this institution. Every effort has been made to correct this condition by returning patients of this class to their homes when responsible relatives could be discovered and when the individuals were themselves harmless to the community at large. Some few however, for whom no proper disposition could be discovered, still remain and continue to serve as obstacles to the attraction of more strictly hospital cases. The present routine is aimed at the admission of hospital cases exclusively, insofar as this is possible, since the limited bed capacity could not otherwise handle the situation. Another practice is the custom among a portion of the poorer class of bringing their sick to the hospital when death is imminent for the purpose of obtaining burial at communal expense. Death is often a matter of hours rather than days in such cases, as these patients are usually admitted in a dying condition. They are brought to the hospital to die and only when it is practically certain that they are about to do so. The hospital has been intimately associated with death in the public mind for years and its ill repute is a natural consequence of the manner in which it has been utilized. Fully 75 per cent of the deaths recorded during the past year were of this character.

Permanent construction. Twenty eight meters of Hospital wall were constructed.

A new cement flooring was completed in one ward and repairs to the flooring in the other wards, provision storeroom, and kitchen were made.

The new dispensary was completed and placed in use December 6th, 1925.

(28) VACCINATING THE NON-IMMUNES

A new sterilizer was installed and shelves were constructed for the medical storeroom, pharmacy and laboratory.

Important diseases. During the year no disease reached epidemic proportions in this district. Typhoid fever was infrequent and was encountered in isolated cases only. Smallpox was not observed. Malaria is quite common. It was discovered to be rampant in and around Pont Sondé and was also very prevalent in the Verrettes area. Treponematosis presented a major problem as heretofore. Hookworm disease was very prevalent. Dengue, while infrequently reported, was probably much more common than the records indicate. The difficulty of diagnosing this disease in the rural clinics where no extended observation was possible probably resulted in a number of cases being reported as malaria. Amoebic dysentery was not common but appeared in isolated cases in Saint-Marc. Bacillary dysentery was not seen at the hospital. Pulmonary tuberculosis appeared to be very prevalent throughout the district, although relatively few cases were brought under treatment. Gonorrhea was very common. Intestinal disorders of many varieties were observed. In adults the milder parasitic diarrheas and food poisoning seemed common while the infant mortality from bacterial infections, intoxition, lack of care, etc., was very high. The mortality from the accidents of labor and puerperal sepsis was apparently enormous. Measles was infrequent and whooping cough, except for a minor out-break in Grande Saline during August and September, was not common.

Rural clinics. The results obtained in the rural clinics form perhaps the most satisfactory feature of the past year's work. The attendance was materially greater than the year before and is steadily increasing. The effects of the bismuth injections are becoming generally recognized and the economic importance of this work as well as its value in promoting individual health are gaining recognition.

Inspection and vaccination of school children. All unprotected school children in Saint-Marc and Perodin were vaccinated during the year. Routine inspections were conducted in Saint-Marc at the regular periods and, whenever possible, elsewhere. The personnel as at present constituted however cannot conduct this work with the thoroughness and frequency it deserves without sacrifice to other activities and it is hoped that additions can be made to the present force so that this work can go forward as scheduled.

Recommendations. One native physician is urgently required and two are necessary to conduct the routine contemplated. Another

graduate nurse will be almost indispensable when the present construction is completed.

A delco plant is badly needed at the hospital so that light may be available after sun down. A request for such a plant has been withheld pending recent activities looking toward a Communal electric power plant. The status of this matter at present would indicate that electric power will not be available in Saint Marc for at least a year and probably more. It is therefore believed that a small plant capable of furnishing light for emergencies to the operating room, dispensary, etc., would not be an unwise expenditure.

Three new latrines, one for the men's ward, one for the women's ward and one for the sisters and medical personnel are needed at the hospital. The present latrines are dilapidated and must be replaced. It is therefore recommended that funds be allotted for the construction of latrines of a permanent nature.

Funds are also needed for the following new construction at the hospital:

1. Incinerator, small size, for dressings, fomites, etc. (Masonry and concrete)
2. Kitchen.
3. Storeroom for provisions and hospital accessories.
4. Chapel.
5. Sisters' quarters.
6. Hospital wall. (Continuation of present wall after acquirement of new properties).
7. Animal coop and runway.
8. Cement walks and driveway.
9. Piping of running water into new operating salon, wards, dispensary and kitchen.
10. Isolation ward with enclosure.

Dispensary buildings are badly needed in Mont-Rouis, Lully and Petite Rivière. Gourdes 2,000.00 will be available from this year's communal funds to be used toward the construction of a dispensary at Mont-Rouis.

DAILY AVERAGE OF PATIENTS FOR FISCAL YEAR 1925-26

FOR THE ENTIRE REPUBLIC.

	Cap-Haitien	Cayes	Gonaives	Hinche	Jacmel	Jeremie	Petit-Goave	Port-au-Prince	Port-de-Paix	Saint-Marc	TOTAL.
October	155	109	53	0	57	32	40	314	16	43	819
November	172	112	52	2	58	26	37	293	17	44	813
December	157	104	56	5	55	22	40	295	15	45	794
January	142	112	47	11	55	24	46	312	12	40	801
February	174	129	54	17	57	25	53	326	17	43	895
March	186	120	55	15	59	27	45	332	15	44	898
April	148	120	51	20	56	28	54	322	19	35	853
May	110	110	48	13	61	24	48	357	22	30	823
June	115	115	51	10	55	29	43	350	22	27	817
July	117	76	48	17	57	28	49	305	22	26	745
August	125	84	46	25	53	25	52	318	22	23	773
September	132	81	46	18	56	26	44	267	21	24	715
Daily average for the year	144	106	50	13	57	26	46	316	18	36	812

DAILY AVERAGE OF PATIENTS FOR MISC. YEAR 1929-30

FOR THE ENTIRE HOSPITAL.

	Out-Patients	Cases	Comforts	Minutes	Injections	Dressings	Extractions	Anesthetics	Total
October	155	109	53	0	57	32	40	314	16	43	819
November	172	112	52	2	56	26	37	293	17	44	813
December	157	104	56	5	55	32	40	295	15	45	794
January	142	112	47	11	58	24	46	312	12	40	801
February	174	125	64	17	47	25	52	326	17	43	895
March	186	120	52	15	59	27	48	332	15	44	899
April	146	120	51	20	56	26	54	322	19	35	852
May	110	110	48	13	61	24	40	307	22	30	823
June	118	118	51	10	58	28	43	320	22	27	817
July	117	76	48	17	67	28	49	305	22	26	746
August	128	84	46	25	63	25	52	318	22	23	773
September	132	81	46	18	56	20	44	297	18	24	716
Daily Aver. for the year	144	106	50	13	57	26	45	316	19	36	812

STATISTICAL TABLE FOR FISCAL YEAR 1925-26.

Division of Hospitals.	La Gonave	Port-au-Prince	Cap-Haitien	Port-de-Paix	Gonaives	Saint-Marc	Hinche	Petit-Goave	Jeremie	Cayes	Jacmel	TOTAL.
Admission for all causes		4861	1610	122	414	333	177	230	185	292	400	862
Discharges ex. of deaths		4363	1486	94	362	297	122	161	144	224	251	760
Deaths		428	98	15	21	30	6	25	11	31	12	67
Outpatients including rural clinics	1481	158738	36621	17370	22997	26646	26308	15871	14810	34688	90705	44623
No. rural clinics	6	587	211	70	161	278	172	96	45	225	70	192
Major operations		462	351	4	101	24	3	0	19	7	23	99
Minor operations		948	969	65	307	183	300	14	104	92	109	609
X-ray examinations		542	208	0	0	0	0	0	0	0	0	75
Wassermann tests		5254	4402	0	0	0	0	0	76	1	0	973
Injections for treponematosis, neo-salvarsan salvarsan, bismuth	329	76604	22860	14560	13303	13937	11631	11268	7592	12714	44683	22948
Miscellaneous injections		1889										
Division of Sanitation												
Properties inspected		167956	17098	3806	8465	21239	5655	15672	1o533	6858	52684	309,9
Notifications sent, (Violations of San.Reg.)		14850	3618	338	296	813	1991	1091	279	3905	4286	3146
Division of Quarantine												
Foreign ships inspected		439	113	51	6	9	0	18	4	120	57	81

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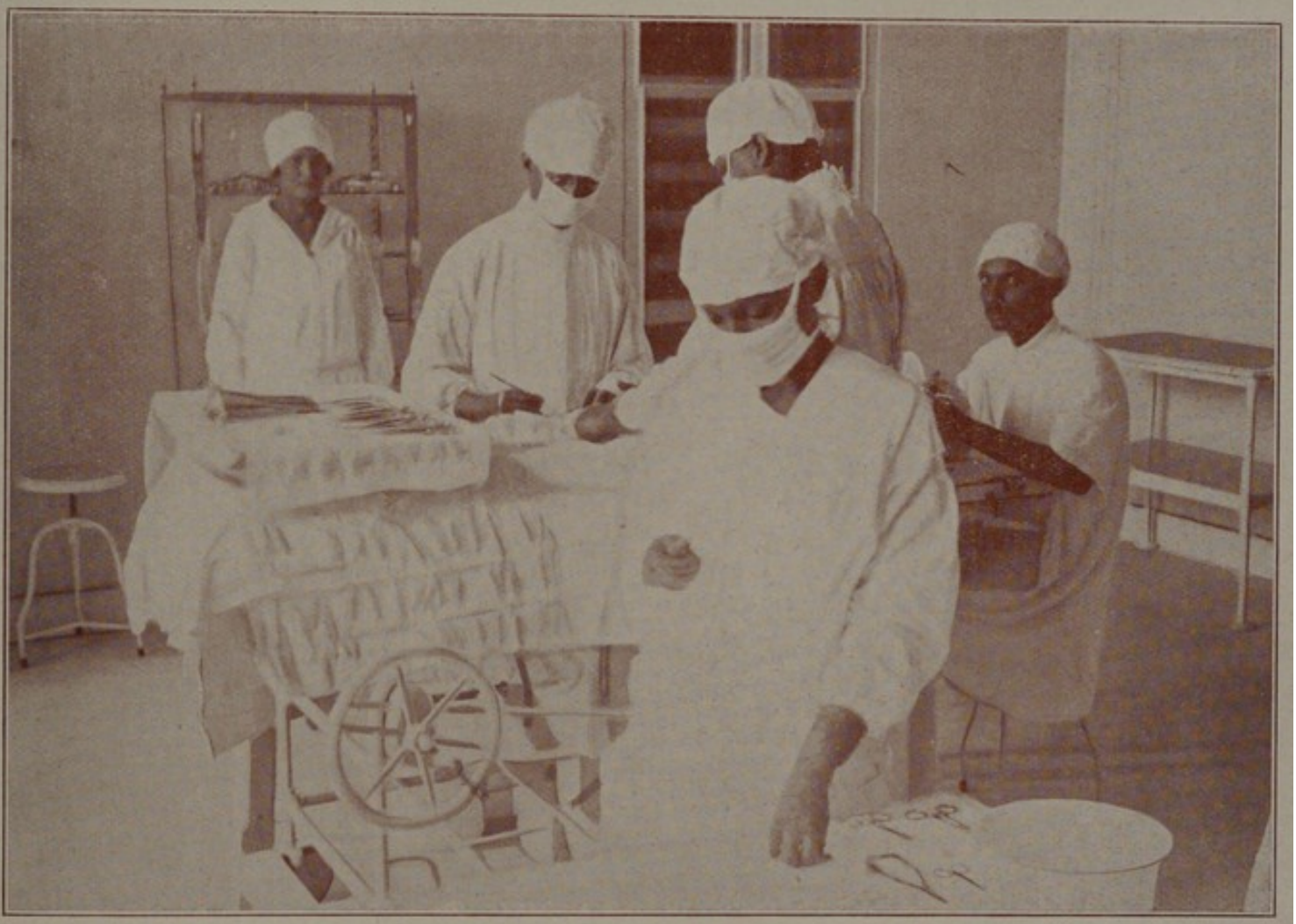

(29) OPERATING ROOM OF A PUBLIC HEALTH SERVICE HOSPITAL

DONATIONS.

The Sanitary Engineer desires to express the gratitude of this Service to the National American Red Cross and especially to Mr. W. E. Bleo, chairman of the Haitian Chapter of the American Red Cross, which organization extended many courtesies in the shape of both pecuniary and material assistance; also th the H. A. Metz Laboratories, Inc., New York, N. Y., who donated 2,000 ampules of Neo-arsphenamine. And also th the director of the Hygienic Laboratory of the United States Public Health Service at Washington, D. C. for much kindly help.

This occasion is also taken to thank all others who have assisted by donations.

DONATIONS.

The Surgeon General desires to express the gratitude of this Service to the National Jewish Aid Corps and especially to Mr. V. E. Dieo, chairman of the Relief Chapter of the American Red Cross, which organization extended many courtesies in the shape of both monetary and material assistance also to the H. L. Mott Laboratories, Inc., New York, N. Y., who donated 2,000 ampules of Neo-Arsphenamine. And also to the Director of the Hygienic Laboratory of the United States Public Health Service at Washington, D. C. for much kindly help.

This counsel is also taken to thank all others who have assisted by donations.

CONFERENCES.

The monthly medical conferences of the medical officers of this service, inaugurated about two years and a half ago, were held regularly during the past year. A marked improvement was seen over the previous year with regard to the general interest shown. Amongst various papers read at these meetings the following may be mentioned.

1. Summary of 500 stool examinations -
   By Lieutenant (jg) E. T. Cure (MC) U. S. Navy.

2. Review of Autopsy findings in sixty recent cases -
   By Lieutenant (jg) G. C. Thomas (MC) U. S. Navy.

3. The Kahn Test in Syphilis -
   By Lieutenant (jg) H. W. Gillen (MC) U. S. Navy.

4. Bismuth in the treatment of syphilis and yaws -
   By Lieutenant (jg) C. D. Middlestadt (MC) U. S. Navy.

5. The Rural Clinic -
   By Lieutenant W. F. Kennedy (MC) U. S. Navy.

6. The Annual Physical Examination -
   By Commander M. E. Higgins (MC) U. S. Navy.

7. Cardiac arrhythmias -
   By Lieutenant W. W. Davies (MC) U. S. Navy.

8. Filariasis -
   By Lieutenant E. Peterson (MC) U. S. Navy.

9. The intravenous administration of arsenicals in the treatment of Treponematosis -
   By Lieutenant Commander R. M. Choisser (MC) U. S. Navy.

10. The importance of ocular fundus examination in routine physical examination -
    By Lieutenant Commander J. A. Brown (MC) U. S. Navy.

11. The Hospital as a center of medical activities -
    By Lieutenant E. Peterson (MC) U. S. Navy.

12. Tuberculosis at Haitian General Hospital -
    By Dr. C. Valmé.

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By Lieutenant (jg) R. T. Gore (MC) U. S. Navy.

2. Review of autopsy findings in sixty recent cases -
By Lieutenant (jg) C. C. Thomas (MC) U. S. Navy.

3. The Kahn Test in Syphilis -
By Lieutenant (jg) R. V. Gillen (MC) U. S. Navy.

4. Diseases in the treatment of syphilis and yaws -
By Lieutenant (jg) C. D. Stahlnaker (MC) U. S. Navy.

5. The Nural Clinic -
By Lieutenant T. P. Lomady (MC) U. S. Navy.

6. The Nunal Physical Examination -
By Commander H. E. Hoskins (MC) U. S. Navy.

7. Cardiac Arrhythmias -
By Lieutenant V. T. Davies (MC) U. S. Navy.

8. Filariasis -
By Lieutenant E. Peterson (MC) U. S. Navy.

9. The intravenous administration of arsenicals in the treatment of Trypanosomiasis -
By Lieutenant Commander H. N. Cholmeley (MC) U. S. Navy.

10. The importance of routine Fundus examination in routine physical examination -
By Lieutenant Commander J. A. Brown (MC) U. S. Navy.

11. The Hospital as a center of medical activities -
By Lieutenant E. Peterson (MC) U. S. Navy.

12. Tuberculosis at Haitian General Hospital -
By Dr. C. Valme.

14. Spinal anesthesia -
By Dr. M. Bourand.

15. Observations on three cases of typhoid fever seen at Haitian General Hospital and treatment.
By Dr. J. Perrier.

16. Syphilis and Pregnancy -
By Dr. J. Buteau.

17. Scrotal tumor -
By Dr. L. Moise.

The Sanitary Engineer, Captain C. S. Butler (MC) U. S. Navy, represented Haiti officially at the First Pan American Conference of Directors of Health held in Washington, D. C., September 27, 28, 29, 1926.

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16. Syphilis and frequency -
By Dr. J. Batsen.

17. Sarcoral tumor -
By Dr. L. Holas.

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represented Haiti officially at the First Pan American Conference
of Directors of Health held in Washington, D. C., September 27, 28,
29, 1926.

PAPERS SUBMITTED FOR PUBLICATION IN MEDICAL JOURNALS.

During the past year the following papers were submitted from the Public Health Service of Haiti.

The Medical Needs of Haiti	- Captain C.S.Butler (MC) U.S.Navy
Treponematosis as seen in the rural population of Haiti	- Captain C. S. Butler and Lt. E. Peterson (MC) U. S. Navy.
Malaria in Haiti	- Captain C. S. Butler and Lt. E. Peterson (MC) U. S. Navy.
Treponematosis as a Public Health factor.	- Captain C. S. Butler and Lt. E. Peterson (MC) U. S. Navy.
The Public Health Service of Haiti, Its origin, organization and present system of administration.	Captain C. S. Butler and Lt. E. Peterson (MC) U. S. Navy.

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The Public Health Service of Haiti, Its organization, organization and present system of vaccination.	Captain C. S. Butler and Lt. E. Peterson (MC) U. S. Navy.

THE NATIONAL SCHOOL OF MEDICINE & PHARMACY.

The question of education in medicine and of the teaching of dentistry and pharmacy were properly answered by a law enacted during July 1926, which provided for reorganization of these subjects and for the erection of an adequate building to care for each of these important matters. It is certain that this is the most important step ever taken by the Republic for Medical Education. It has awakened the Haitian Medical Profession to a sense of duty to provide for the future needs of the Haitian people a sufficient number of doctors, dentists and pharmacists and has shown them the unmistakable evidence of friendliness and a desire to help on the part of the United States and her agents. It has demonstrated the broadmindedness of His Excellency the President of the Republic who, seeing the great importance of this law to the Haitian people, aided so materially by advice and counsel in its enactment. The laws and regulations governing this organization have been cited in a previous chapter.

The majority of the old teachers have remained with the School in its transfer. Notably amongst these are Dr. Justin Dominique and Dr. Paul Salomon. The former is dean of the institution and the professor of obstetrics; the latter is the professor of surgery. These two men have given their services to the school for a number of years and have at all times tried to improve its teaching facilities. It is indeed gratifying to see how these two worthy representatives of the medical profession in Haiti are giving their loyal support to the Public Health Service in its attempt to improve this important establishment of higher learning. The entire faculty, made up from members of the Haitian medical profession, has indeed shown a true spirit of cooperation.

By virtue of this it is believed that the Public Health Service may look forward to a very successful year with regard to the Medical School.

It is hoped the Rockefeller Foundation may see its way clear to help out in this regard.

The important changes made deal mainly with the curriculum and the introduction of an obligatory intern year at the Haitian General Hospital before the diplomas are issued.

The administrative officers of the Medical School are:

Mr. Charles Fombrun, Secretary of State for Interior.
Captain C. S. Butler (MC) U.S.Navy, Sanitary Engineer.
Dr. Justin Dominique, Dean of the School.

The faculty consists of the following members:

Dr. Justin Dominique, Dean and Obstetrics.
Dr. Paul Salomon, Surgery.
Dr. Lélio Hudicourt, Medicine.
Dr. Belloni Hyson, Assistant in Obstetrics.
Dr. Maurice Lafleur, Physical diagnosis & Histology.
Dr. Molière Civil, Anatomy & Dissection.
Dr. Christian Morpeau, Hygiene & Toxicology.
Dr. Lamartine Camille, Pharmacology.
Dr. Nelaton Camille, Physiology.
Dr. Dieudonné Mills, Medical Physics & Physiological Chemistry.
Dr. Hugon Lechaud, Dentistry.
Mr. Emmanuel Day, Pharmacy & Chemistry.

The following members of the staff of the Haitian General Hospital are assistant clinical teachers:

Dr. L. Moise, Surgery and Operative Surgery.
Dr. M. Bourand, Gynecology.
Dr. J. Perrier, Dermatology and syphilology.
Dr. J. Buteau, Pediatrics.
Dr. J. Francis, Microscopy.
Dr. J. B. St. Cyr, Medicine.
Dr. L. Jourdan, Genito-urinary diseases.
Dr. C. Valmé, Internal Medicine.
Dr. L. Hyppolite, Minor Surgery.
Dr. E. Craig, Eye, Ear, Nose & Throat.

In addition the following officers of the Public Health Service have received orders from the Sanitary Engineer to assist in all ways possible in the clinical instruction at the Haitian General Hospital particularly in so far as this instruction concerns the interns of this institution and by nature of such order will be considered ex-officio members of the Faculty, each one representing the Sanitary Engineer in his particular branch.

Officer in charge of the surgical section of the Hospital.
Officer in charge of the medical section of the Hospital.
Officer in charge of the section of laboratories.

Officer in charge of the section of eye, ear, nose and throat.
Officer in charge of the outpatient department.

The following regulations, approved by the Secretary of State for the Interior govern the internal administration of the School.

Opening of Courses.

1. The courses are opened on the first Monday in October and continue until the end of July, without discontinuance except during legal holidays.

Inscriptions.

2. Any student who is admitted to take any of the courses must inscribe his full name, place and date of birth, his legal residence and that of his parents or of his tutor or correspondent, in the journal of the School and obtain an inscription card from the Dean of the School.

3. The journal for inscriptions will be closed on the first Monday in October of each year. After this date no student can be admitted, except with a special authorization from the dean which cannot be granted except upon a written request stating the reasons why the student was not able to appear within the time prescribed by the regulations.

4. In order to obtain their degrees, the medical students must take twenty inscriptions, the students in pharmacy twelve, the students in dental surgery twelve, and the students in midwifery twelve.

5. The inscriptions for each group of students, except in case of absence due to sickness, must be taken in person, every three months at the beginning of each scholastic quarter from the 1st to the 20th of the months of October, January, April and July.

6. The course starts with the first inscription, the current school year with the first annual inscription.

Students of the School.

7. The students are obliged to follow the theoretical courses, practical and technical clinics in the places, days and hours indicated.

8. Any student who, except for duly authorized cause, is late six times or absent from any lecture, clinic or practical demonstration three times during one week shall lose one inscription.

9. Any student who is absent on account of sickness must send a medical certificate to the secretary's office.

10. At the end of each quarter a certificate of conduct and scholarship is delivered to him by his clinical professor and by his chief of the practical course (medicine, dentistry, pharmacy and obstetrics). The presentation of this certificate is required when a new inscription is taken out.

11. Each student must have his jacket deposited at the School where all information concerning him during the course of his student years will be filed.

The Teachers.

12. All teachers shall follow the schedule and comply with the regulations governing the Institution. If a teacher is late, 10 minutes or longer three times during a month, except on account of sickness, he shall receive a warning from the Dean, for a second offense a fine of one thirtieth of his salary will be imposed; three absences within a month, except on account of sickness duly certified by a doctor's certificate, will be considered as a resignation. In such a case the dean shall inform the Sanitary Engineer who will acquaint the Department of the Interior of the facts in the case.

13. In case of sickness the teacher may be replaced temporarily by another teacher of the School. He will make such request to the dean who will advise the Chief of the Public Health Service.

14. The professors in clinical obstetrics, surgery and medicine are full time men and other instructors shall give as many hours per week as are indicated by the Sanitary Engineer.

Examinations.

15. To be admitted to the examinations which take place at the end of each scholastic year, the student shall have taken all the inscriptions required, shall have passed the preceeding examinations in the subjects of the program of the year, and shall diligently have attended all courses, the various hospital

services and the practical work assigned to him (medicine, dentistry, pharmacy, obstetrics).

16. The system of grading will be based on percentage: 100 per cent meaning perfect. The passing grade is 75 per cent; anything under 75 per cent will be considered a failure. Failure in more than 380 hours will necessitate taking the entire year over again without privilege of reexamination. In case of failure in 380 hours or less reexamination may be taken the following October. Students entitled to take the yearly examination at the end of the school year but who, for some good reason, were prevented from doing so, may take the necessary examinations the following October. Failure to the extent of 76 hours may be carried from the first year into the second year and from the second year into the third year. No failure of the third year may be carried into the fourth year. No failure may be carried from the fourth year into the fifth (intern) year. The results of the examinations shall be submitted in duplicate to the Sanitary Engineer who shall forward one copy to the Department of the Interior.

Library and Supplies.

17. The library shall be under the immediate control of the librarian who shall properly care for all books, journals, etc. As soon as they have been received in the library he shall place the seal of the institution on all books, journals, etc. together with the price and date of receipt.

The librarian shall keep an up-to-date cross index of all volumes in the library, both as to subject and author. When a volume has been removed from the library by an authorized individual, the librarian shall immediately remove the card giving the title of the volume from its original file and place it in a special file and state on the back of the card the date of removal and name of borrower. On the return of the volume the card shall be returned to its proper file.

The students and the teachers shall have the privilege of the library. Those who borrow books from the library shall be responsible for their return in proper condition.

Books shall be returned within one month except in cases when a special authorization has been given by the dean.

No book or other material belonging to the School shall be surveyed without special permission from the Sanitary Engineer.

DESCRIPTION OF COURSES IN MEDICINE.

Anatomy. The laboratory for gross anatomy is located in the Haitian General Hospital. During the first year complete dissection of the human body is required; (1) Superior and inferior extremities (2) Thorax and abdomen, (3) the head and neck.

Lectures and recitations: 2 one hour periods a week and laboratory 3 three hour periods a week.

Histology. The course in histology is given during the first year. It includes: animal cells, modified cells in blood and lymph, epithelial, connective, muscular, and nervous tissues, and their relationships in the body. Lectures and recitations: 2 one hour periods a week and laboratory 2 one hour periods a week.

Physiology and Physiological Chemistry. Due to lack of laboratory equipment these courses will be, during the current year, mostly didactic in character although whenever possible a few fundamental experiments will be demonstrated. The course in physiology extends over the first and second year with 2 hours a week; physiological chemistry is taught during the second year, 2 hours a week being allotted to this subject.

Medical physics. Two hours a week are devoted to this subject in order to bring out the important features of the science of physics in its relation to medicine in its various branches.

Chemistry. It is realized that at the present time, due to lack of proper facilities, a thorough course in this subject can not be given, but two hours a week during the first year will be devoted to chemistry in order to instill the principles of this science especially in its relation to medicine.

Pathology, Bacteriology, Hematology and Protozoology. During the first year two hours a week are devoted to the didactic teaching of bacteriology with occasional practical demonstrations. During the second and third year a practical laboratory course in microscopy especially as it concerns tropical medicine will be given; this will include bacteriology, hematology, pathology, protozoology and general parasitology. In addition practical work in autopsy will be required.

Pharmacy and Pharmacology - Therapeutics and Toxicology. Two hours a week will be devoted to pharmacy during the second year and

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Lectures and recitations: 2 one hour periods a week and laboratory 3 three hour periods a week.

Histology. The course in histology is given during the first year. It includes: animal cells, modified cells in blood and lymph, epithelial, connective, muscular, and nervous tissues, and their relationships in the body. Lectures and recitations: 2 one hour periods a week and laboratory 2 one hour periods a week.

Physiology and Physiological Chemistry. Due to lack of laboratory equipment these courses will be, during the current year, mostly didactic in character although whenever possible a few fundamental experiments will be demonstrated. The course in physiology extends over the first and second year with 2 hours a week; physiological chemistry is taught during the second year, 2 hours a week being allotted to this subject.

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Pharmacy and Pharmacology - Therapeutics and Toxicology. Two hours a week will be devoted to pharmacy during the second year and

the same number of hours to pharmacology and therapeutics during the third year. One hour a week will be given to toxicology during the fourth year.

Obstetrics. Instruction is given in both the third and fourth years. The equipment consists of manikins, demonstration pelvis, charts and obstetrical instruments. The clinical work is given at the Haitian General Hospital. Bedside and dispensary clinics, in which students examine and study the patients are given to students of the fourth year. During the third year two hours a week and during the fourth year four hours a week of didactic and practical work are given to this subject.

Medical Pathology. The work in this department begins in the second year and extends throughout the course. In the second year the student begins his work in medicine with the study of the normal subject. This is followed by the study of pathological cases, especially those of heart and lungs.

The course in microscopy during the third year takes up the study of laboratory diagnosis and the student is thus placed in a position to appreciate the clinical work which begins in the third year and is carried on throughout the course.

The work in general medicine consists of 7 hours a week during both the third and the fourth years, four hours a week being given over to actual clinical work and demonstrations at the Haitian General Hospital.

Stress will be laid upon the student's personal examination and treatment of the case. In addition one hour a week is given to pediatrics and genito-urinary diseases each during the third year and one hour a week to genito-urinary diseases and dermatology and syphilology each during the fourth year.

Surgery, Gynecology, Minor Surgery, and Operative Surgery. Instruction in minor surgery such as bandaging, treatment of simple fractures, etc. will be started during the second year. The actual practice in surgery is started in the third year with two hours a week of didactic and four hours a week of clinical work and demonstration. The same hours are devoted to this subject during the fourth year. In addition two hours a week are devoted to gynecology during the fourth year. The course in surgery includes bedside instruction in surgical diagnosis, physical examination and roentgenogram interpretation.

During the second year a course in operative surgery consisting of two three hour periods a week is given.

Hygiene. During the third and fourth years two hours a week are devoted to hygiene. This course will comprise such subjects as sanitation particularly with reference to mosquito control, disposal of nightsoil, control of food and water, control of infectious diseases, school inspection, vaccination and other measures of peculiar importance in hot countries. This course will also include medical jurisprudence.

Eye, Ear, Nose & Throat Diseases. Two hours a week during the fourth year will be devoted to those diseases.

The Fifth or Intern year. Probably the most important change in the curriculum of the medical school is the introduction of an obligatory internship during the fifth year. Before diplomas are issued to the graduates they must spend one year as internes in the Haitian General Hospital, Port-au-Prince. The course offered during this year varies somewhat with the different students. But the basic course gives each student a two months period in each of the following departments; Outpatient Department, medicine, surgery, gynecology, genito-urinary diseases, diseases of eye, ear, nose and throat. The interns will rotate at all deliveries made at the Hospital and in addition spend two hours every afternoon in the laboratory in order to receive instruction in practical laboratory work.

MEDICAL SCHOOL.
Provisional schedule of Courses.

1st YEAR.	Week	YEAR Didactic	Laboratory	Total
Anatomy	11	76	342	418
Histology	4	76	76	152
Physiology	2	76		76
Medical Physics	2	76		76
Chemistry	2	38	38	76
Bacteriology	2	38	38	76
Total	23	380	494	874
2nd YEAR				
Pharmacy	2	76		76
Physiology	2	76		76
Physiological chemistry	2	38	38	76
Operative surgery	6		228	228
Microscopy, (including Hematology, Histology, Pathology, Bacteriology and Parasitology)	4		152	152
Physical diagnosis	4	76	76	152
Pharmacology	2	76		76
Minor Surgery	1		38	38
Total	23	342	532	874

1st YEAR.				
Anatomy	11	76	342	418
Histology	4	76	76	152
Physiology	2	76		76
Medical Physics	2	76		76
Chemistry	2	38	38	76
Bacteriology	2	38	38	76
Total	23	380	494	874
2nd YEAR				
Pharmacy	2	76		76
Physiology	2	76		76
Physiological chemistry	2	38	38	76
Operative surgery	6		228	228
Microscopy, (including Hematology, Histology, Pathology, Bacteriology and Parasitology)	4		152	152
Physical diagnosis	4	76	76	152
Pharmacology	2	76		76
Minor Surgery	1		38	38
Total	23	342	532	874

3rd YEAR	Week	YEAR Didactic	Laboratory	Total
Obstetrics	2	76		76
Medicine	7	114	152	266
Surgery	6	76	152	228
Pediatrics	1		38	38
Pharmacology and Therapeutics	2	76		76
Genito-urinary diseases	1		38	38
Hygiene	2	76		76
Microscopy	2		76	76
Total	23	418	456	874

4th YEAR				
Obstetrics	4	76	76	152
Medicine	7	114	152	266
Surgery	6	76	152	228
Gynecology	2	38	38	76
Dermatology and Syphilology	1		38	38
Genito-urinary diseases	1		38	38
Ophthalmology	1	19	19	38
Diseases of Ear, Nose & Throat	1	19	19	38
Hygiene	2	76		76
Toxicology	1	19	19	38
Total	26	437	551	988

3rd YEAR					
Obstetrics	2	76			76
Medicine	7	114	152		266
Surgery	6	76	152		228
Pediatrics	1		38		38
Thermology and Therapeutics	2	76			76
Genito-urinary diseases	1		38		38
Hygiene	2	76			76
Microscopy	2		76		76
Total	22	418	456		874

4th YEAR					
Obstetrics	4	76	76		152
Medicine	7	114	152		266
Surgery	6	76	152		228
Gynecology	2	38	38		76
Dermatology and Syphilology	1		38		38
Genito-urinary diseases	1		38		38
Ophthalmology	1	19	19		38
Diseases of Ear, Nose & Throat	1	19	19		38
Hygiene	2	76			76
Toxicology	1	19	19		38
Total	26	437	551		988

PROVISIONAL SEHCDULE OF COURSES

MEDICINE

1st YEAR

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8-9	Bacteriology Francis H.G.H.	Dissection Civil H.G.H.	Bacteriology Francis H.G.H.	Dissection Civil H.G.H.	Dissection Civil H.G.H.	Chemistry Day School
9-10		"		"	"	"
10-11		"		"	"	
4-5		Anatomy Civil School	Histology Lafleur H.G.H.	Anatomy Civil School	Histology Lafleur H.G.H.	
5-6	Histology Lafleur School	Medical Physics Mills School	Physiology N. Camille School	Medical Physics Mills School	Physiology N.Camille School	Histology Lafleur School

PROVISIONAL SYNCHRONIZED OF COURSES

MEDICINE

1st YEAR

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8-9	Bacteriology Practical Work	Diagnostics Practical Work	Bacteriology Practical Work	Diagnostics Practical Work	Chemistry Day School	
9-10	"	"	"	"	"	"
10-11		"	"	"	"	
4-5		Anatomy Practical Work	Histology Practical Work	Anatomy Practical Work	Histology Lecture	
5-6	Histology Lecture	Medical Physics Practical Work	Physiology Lecture	Medical Physics Practical Work	Histology Lecture	

2nd YEAR

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8-9	Operative Surgery Valmé H.G.H.	Physical diagnosis Lafleur H.G.H.	Operative Surgery Moise H.G.H.	Microscopy Francis H.G.H.	Microscopy Francis H.G.H.	Physical diagnosis Lafleur H.G.H.
9-10	"	"	"	"	"	"
10-11				Minor Surgery Hyppolite H.G.H.		
4-5		Physiological Chemistry Mills School	Pharmacology L. Camille School	Physiological Chemistry Mills School	Pharmacology L.Camille School	
5-6	Pharmacy Day School	Physiology N.Camille School	Pharmacy Day School	Physiology N.Camille School		

3rd YEAR

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8-9	Medical clinic Hudicourt H.G.H.	Surgical clinic Salomon H.G.H.	Medical clinic Hudicourt H.G.H.	Obstetrics Hyson School	Surgical clinic Salomon H.G.H (ward)	Microscopy Francis H.G.H.
9-10	"	"	"	Medical Pathology Saint-Cyr School	"	"
10-11		Pediatrics Buteau H.G.H.				
4-5	Medical Pathology Saint-Cyr School	Medical Pathology Saint-Cyr School	Genito-Urinary diseas. Jourdan H.G.H.	Surgical Pathology Moise School	Surgical Pathology Moise School	
5-6	Obstetrics Hyson School	Pharmacology L.Camille School	Pharmacology L.Camille School	Hygiene Morpeau School	Hygiene Morpeau School	

8-9	Medical clinic Rudolfinerhaus H.C.H.	Surgical clinic Salzmann H.C.H.	Medical clinic Rudolfinerhaus H.C.H.	Obstetrics Lyon School H.C.H. (used)	Medical Surgical Pediatrics Saint-Cyr School Maison Nationale Militaire H.C.H.
9-10	"	"	"	"	"
10-11	Maternity Maison Nationale H.C.H.				
4-5	Medical Pathology Saint-Cyr School	Medical Pathology Saint-Cyr School	Genito-Uri- nary Clinic Pathology Tourane H.C.H.	Surgical Surgical Maison School	Medical Pathology Saint-Cyr School
5-6	Obste- trics Lyon School	Pharmaco- logy L.Camille School	Hygiene Morpeau School	Hygiene Morpeau School	

4th YEAR

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8-9	Gyneco-logy Bourand H.G.H.	Medical clinic Hudicourt H.G.H.	Obstetrical clinic Dominique H.G.H.	Surgical Clinic Salomon H.G.H.	Medical clinic Hudicourt H.G.H.	Surgical clinic Salomon H.G.H.
9-10	"	"	"	"	"	"
10-11	Toxico-logy Morpeau School	Obstetrics Hyson School		Dermatolo-gy & Sy-philology perrier H.G.H.		
4-5	Ophthal-mology Craig H.G.H.	Medical Pathology Hudicourt School	Ear, Nose, & throat dis. Craig H.G.H.	Medical Pathology Hudicourt School	Genito-Urin.Dis. Hourdan H.G.H.	Obstetrics Hyson School
5-6	Surgical Pathology Salomon School	Hygiene Morpeau School	Medical Pathology Hudicourt School	Surgical Pathology Salomon School	Obste-trics Hyson School	Hygiene Morpeau School

4th YEAR

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8-9	Gynaeco-logy Bourne-ville H.C.H.	Medical Obstetrical clinic Hadleourt H.C.H.	Surgical clinic Solomon H.C.H.	Medical Surgical clinic Solomon H.C.H.		
9-10	"	"	"	"	"	"
10-11	Toxico-logy Morpeus School	Obstetrics Hyson School H.C.H.	Therapeutics & Sy-philology Perrior H.C.H.			
4-5	Pathol-ogy Crede H.C.H.	Medical Pathology Hadleourt School	Dermato-logy & Sy-philology Hadleourt School H.C.H.	Genito-Urin.Dis. Bourdon H.C.H.	Obstetrics Hyson School	
5-6	Pathology Solomon School	Surgical Medical Pathology Hadleourt School	Obste-trics Hyson School	Hygiene Morpeus School		

FIFTH YEAR OF INTERN YEAR
Schedule for 5 Interns - 1926-27

Departments	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug	Sept
Outpatient Dept.	A	A	B	B	C	C	D	D	E	E	C	D
Medicine	B	B	C	C	D	D	E	E	A	A	E	C
Surgery	C	C	D	D	E	E	A	A	B	B	D	E
Gynecology	D	D	E	E	A	A	B	B	C	C		
Genito-urinary	E				B	B	C		D		A	A
Dis.of Eye, Ear, nose and throat		E	A	A				C		D		B
Obstetrics	ROTATION FOR ALL DELIVERIES											
Laboratory and autopsy	EVERY AFTERNOON											

Summary of Internship:

A and B : Regular courses of two months in each department.

C: (Outpatient depart 3 months; Medicine 2 "; Surgery 2 "; Gynecology 2 "; Genito-urinary 1 "; Eye, ear, nose, throat 1 ")

D: (outpatient department 3 months; Medicine 2 "; Surgery 2 "; Gynecology 2 "; Genito-urinary 1 "; Eye, ear, nose, throat 1 ")

E: (Outpatient department 2 months; Medicine 2 "; Surgery 2 "; Gynecology 2 "; Genito-urinary 1 "; Eye, ear, nose, throat 1 ")

DENTAL SCHOOL.
Provisional Schedule of Courses.

1st YEAR	Week	Didactic	Laboratory	Total
Anatomy	11	76	342	418
Histology	4	76	76	152
Physiology	2	76		76
Medical Physics	2	76		76
Chemistry	2	38	38	76
Bacteriology	2	38	38	76
Total	23	380	494	[illegible]

2nd YEAR				
Pharmacology	2	76		76
Physiology	2	76		76
Dental prosthesis	8	76	228	304
Pathology of the mouth	2	76		76
Total	14	304	228	532

3rd YEAR
PRACTICAL WORK IN DENTAL CLINICS.

PROVISIONAL SCHEDULE OF COURSES

DENTISTRY.

1st YEAR

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8-9	Bacteriology Francis H.G.H.	Dissection Civil H.G.H.	Bacteriology Francis H.G.H.	Dissection Civil H.G.H.	Dissection Civil H.G.H.	Chemistry Day School
9-10		"		"	"	
10-11		"		"	"	
4-5		Anatomy Civil School	Histology Lafleur H.G.H.	Anatomy Civil School	Histology Lacleur H.G.H.	
5-6	Histology Lafleur School	Medical Physics Mills School	Physiology N. Camille School	Medical Physics Mills School	Physiology N.Camille School	Histology Lafleur School

2nd YEAR

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8-9	Dental Prosthesis Lechaud School	Pathology of the mouth Lechaud School	Dental Clinics	Dental Prosthesis Lechaud School	Pathology of the mouth Lechaud School	Dental Clinics
9-10			"			"
10-11			"			"
4-5			Pharmacology L.Camille School		Pharmacology L.Camille School	
5-6		Physiology N.Camille School		Physiology N.Camille School		

3rd YEAR

DENTAL CLINICS.

SCHOOL OF PHARMACY.

Provisional Schedule of Courses.

1st YEAR	WEEK	YEAR Didactic	Laboratory	Total
Chemistry	2	38	38	76
Pharmacy (general)	11	76	342	418
Total	13	114	380	494
2nd YEAR				
Pharmacology	2	76		76
Pharmacy (general)	9		342	342
Total	11	76	342	418
3rd YEAR				
PRACTICAL WORK IN PHARMACIES.				

SCHOOL OF PHARMACY.

Provisional Schedule of Courses.

	WEEK		YEAR	
1st YEAR				
Chemistry	2	28	28	56
Pharmacy (General)	11	76	342	418
Total	13	114	380	494
2nd YEAR				
Therapeutics	2	76		76
Pharmacy (General)	9		342	342
Total	11	76	342	418
3rd YEAR				

PHYSICAL WORK IN PHARMACIES.

PROVISIONAL SCHEDULE OF COURSES.

PHARMACY.

1st YEAR

	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
8-9		Practical work		Practical work	Practical work	Chemistry Day School
9-10		"		"	"	"
4-5						è
5-6	Pharmacy Day School		Pharmacy Day School			

2nd YEAR

8-9	Practical work		Practical work			Practical work
9-10	"		"			"
10-11	"		"			"
4-5			Pharmacology L.Camille School		Pharmacology L.Camille School	

3rd YEAR.

PRACTICAL WORK IN PHARMACIES.

REGISTER OF THE STUDENTS.

Section - Medicine.

5th Year. Interns of the Haitian General Hospital.
Louverture Alcindor, Laurent Saint-Armand, Joseph Rénélique, Ellie Villard, Louis Vilgrain.

4th Year. Charles Brutus, Lhérisson Cayemitte, François Chérubin, Urbain Débrosse, Jean-Baptiste Durand, Appolinius Garnier, Hilton Musset, Adolphe Hoppy, Frank Madiou, Jean Pressoir, Sténon Roy, Martelly Séide, André Som, Périclès Verret, Hermann Vilgrain.

3rd Year. Gustave Augustin, Pétion Baron, Mathieu Cantave, [illegible], Georges Castera, Constant Hollant, Clément Jean-Jacques, Camille Lhérisson, Justin Montas, Hubert Montas, Augustin Mathurin, François Mevs, Hermann Raymond, Ludner Saint-Eloi.

2nd Year. Christian Bayardelle, Claude Giordani, Antony Levêque, Méderic Morgan, René Nicolas, Constant Pierre-Louis, Luc Théard, Alfred Viau.

1st Year. Edouard Blanchard, Félix Buteau, Antoine Cadet, Alfred Célestin, Morice Hall, Thomas Large, Manès Lizutaud, Maurice Lizutaud, Louis Maximilien, Antenor Miot, Charles Parot, Wesner Polynice.

Section - Dentistry.

3rd Year. Henry Mevs, Félix Joseph, Gaston Salomon.

2nd Year. Faure Cox, Jules Hyson, Hector Ambroise, Vilbrun Chaperon.

1st Year. Lucine Coutard, St. Lucien Hector, Marie Jean.

Section - Pharmacy.

3rd Year. Théano Sanon, André Colimon, Christian Baptiste.

2nd Year. Edgard Charles, Newton Charles, Simon Desmangles.

1st Year. Jean-Baptiste Toussaint.

Section - Obstetrics.

3rd Year. Eda Dumoulin.

ACCOMPLISHMENTS FOR THE YEAR.

1. The Pan American Sanitary Code was ratified by Haiti on June 25, 1926 and the following laws were enacted during the fiscal year ending September 30, 1926.

Law.	Date of Enactment.
National Medical School transferred to the Department of Interior, Section of Public Health Service.....	July 16, 1926.
Modification of Personnel Law.....	August 8, 1926.
Registration of dogs.....	September 1, 1926.

2. The Central Office in Port-au-Prince was enlarged and the additional space acquired was utilized as a library. It has been equipped with steel book-cases and stands for periodicals. A nucleus of a well appointed library has thus been formed. A librarian has been placed in charge.

3. An extraordinary credit of Gourdes 300,000.00 was voted for the construction of a new medical school on the grounds at the Haitian General Hospital. The building is now under construction.

4. Another extraordinary credit of Gourdes 50,000.00 was voted for the purchase of equipment for the new medical school. Orders have been placed and some of the equipment received.

5. In December 1925 an extraordinary credit of Gourdes 500,000.00 was voted for permanent sanitary improvements. Many sanitary improvements of a permanent nature have already been accomplished and more will be accomplished as the balance of the credit will be available until December 1927.

Permanent drains have been constructed and large swamps drained and filled. Among the larger projects which have either been completed or started are:

(a) Draining and filling the marsh lands along the sea shore at Port-au-Prince.

(b) Draining and filling of two large swamps in the vicinity of Port-au-Prince (Cazeau and Bon Repos).

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Permanent drains have been constructed and large swamps drained and filled. Among the larger projects which have either been completed or started are:

(a) Draining and filling the marsh lands along the sea shore at Port-au-Prince.

(b) Draining and filling of two large swamps in the vicinity of Port-au-Prince (Damien and Don Bosco).

(c) Chlorinators have been ordered for chlorinating the water supply of Port-au-Prince.

(d) Cement trash boxes have been constructed in all the larger cities.

(e) At Cayes the course of the Menaud River has been changed and the old river bed is being filled.

(f) In the Cap-Haitien district the large swamp at Fort-Liberté is being drained and filled.

(g) At Gonaives breakwaters have been constructed and the lowland filled. Canals flowing through the town have been straightened and staked. The public market has been paved and drainage gutters constructed.

(h) At Hinche swamps have been drained and filled and the Hinquitte River dyked to prevent destruction of the hospital pump house. Public latrines and cement rubbish boxes have been constructed.

(i) At Jacmel swamps have been drained and filled.

(j) In the Petit-Goave district a large drainage canal was constructed at Anse-à-Veau. Swamps drained and filled in Petit-Goave. Cement rubbish boxes and public latrines constructed in the principal towns. Markets at Grand-Goave and Miragoane repaired, cement floors and drains constructed and tables screened.

(k) At Saint-Marc the course of a river flowing through the town has been straightened and the edges filled.

6. New construction, made possible by extraordinary credits donations and Communal funds, has either been completed or started as follows:

District of Cayes:-

(a) New dispensary, two new hospital wards and operating pavillion, at Cayes hospital.

(b) Rural dispensaries at Aquin and Camp-Perrin.

District of Cap-Haitien:

(a) Isolation ward completed at Justinien Hospital.

(b) Laboratory and animal house constructed.

(c) Rural dispensaries at Port Margot, Borgne and Le Trou.

(d) Plaza and kiosque completed.

District of Gonaives:

(a) Rural dispensaries at Gros Morne and Saint-Michel.

District of Hinche:

(a) New hospital completed and opened for patients on November 23rd, 1925.

(b) Rural dispensary at Mirebalais.

District of Jacmel:

(a) Two new buildings, new dispensary, private ward and isolation ward at the Jacmel Hospital.

(b) Rural dispensaries at Fond Melon, La Vallée, Marigot, Peredo, Bainet, Saltrou and Colline des Chenes.

District of Jérémie:

(a) Repairs of Hospital commenced.

District of Petit-Goave:

(a) Construction of new hospital begun.

(b) Rural dispensary at Anse-à-Veau.

(c) New garage constructed.

(d) New store-house.

District of Cap-Haitien.

(a) Isolation ward completed at Isolation Hospital.

(b) Laboratory and animal house constructed.

(c) Rural dispensaries at Fort Margot, Borgne and Le Trou.

(d) Plain and Hinche completed.

District of Gonaives:

(a) Rural dispensaries at Gros Morne and Saint-Michel.

District of Hinche:

(a) New hospital completed and opened for patients on November 23rd, 1925.

(b) Rural dispensary at Mirebalais.

District of Jacmel:

(a) Two new buildings, new dispensary, private ward and isolation ward at the Jacmel Hospital.

(b) Rural dispensaries at Grand Goave, La Vallée, Miragoâne, Petit-Goave, Trianon, Bainet and Cayes des Chenes.

District of Jérémie:

(a) Repairs of Hospital commenced.

District of Petit-Goave:

(a) Construction of new hospital begun.

(b) Rural dispensary at Anse-à-Veau.

(c) New drugs constructed.

(d) New store-house.

District of Port-au-Prince:

(a) Public market repaired, re-screened and painted.

(b) Dog pound and lethal chamber constructed.

(c) Rural dispensary Arcahaie.

(d) Rural dispensary, Trouin.

Haitian General Hospital:

(a) Chapel constructed.

(b) New ward, animal house and isolation ward constructed.

(c) X-Ray department remodeled and new X-ray apparatus installed.

(d) Private ward completely screened.

(e) Public Health Laboratory equipped and operating.

Medical School:

(a) Construction of new medical school building started.

District of Port-de-Paix:

(a) New hospital under construction.

(b) Rural dispensary at Jean Rabel.

District of Saint-Marc:

(a) New dispensary building at St-Marc Hospital.

(b) New operating pavillion and new ward under construction.

7. Clear titles have been obtained to all properties utilized by this Service with the exception of Jacmel. The acquiring of clear titles to property is often a difficult problem in Haiti.

8. Two sites of land have been purchased in the vicinity of Port-au-Prince; one for the construction of a quarantine station and the other for the construction on an insane and leper asylum.

District of Port-Au-Prince:

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(b) Dog pound and lethal chamber constructed.

(c) Rural dispensary ~~Frenain~~.

(d) Rural dispensary, Furcin.

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VITAL STATISTICS.

December 22, 1922, a law dealing with registration of deaths, births and marriages, modifying the law of October 2nd, 1918 was enacted. This law is primarily an attempt to increase the internal revenue. It places a charge of two gourdes on registration of deaths and births although special disposition is given to those who are "notoricusly indigent". The various "registrars" are commissioned by the President of the Republic on the proposal of the Secretary of State for Justice.

The registration does not accomplish its end. Thousands of deaths fail every year to be registered. As seen from the table on deaths the death rate per 1000 calculated from the returns for calendar year 1925 with an estimated population of 2,500,000 is only 6.77. As a matter of fact the actual death rate is probably five times as high. This would correspond more to the present birth rate. Registration of births apparently is carried on very much more accurately. An intensive study last year in certain limited areas, where the church records as well as other civil records were available, revealed a death rate of up to 30 per 1000 which figure probably approximates the truth for the entire Republic.

The actual numerical registration of deaths is a failure in Haiti today. The causes of death as given in the various reports consist to a very large extent of such terms as headache, crises, pain, colic, pain in heart, fever, inflammation, itch, liver trouble, etc. This is natural when one realizes that the majority of people in the rural districts die without having been seen by a medical man. The cause of death given to the registrar represents the opinion of a friend or near relative. But this condition prevails to a large extent even in the larger centers of population. During the last year this question has received the particular attention of the Public Health Service and a beginning has been made to have a new law on vital statistics introduced based on the model law of the United States Census Bureau. The ratification of the Pan American Sanitary Code obligates the Republic to take steps to collect vital statistics which will be reliable. It is believed that the present state of development warrants the introduction of these modern measures in the larger centers of population from where by a natural outgrowth the new ideas will slowly have to penetrate into the rural sections.

VITAL STATISTICS.

In July 1926, the International List of Causes of Death was introduced in our hospitals at the same time that a new system of morbidity records was started. This feature has been described in another chapter. By measures of this nature it is hoped that the Haitian Medical profession will be made to realize the responsibility that is theirs with regard to certain momentous happenings that are of importance to the State occurring during the life of the individual.

Births by months for Calendar Years 1923, 1924 & 1925.

Month	1923			1924			1925		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
Jan.	3,127	2,887	6,104	2,193	2,207	4,400	3,738	3,777	7,515
Feb.	4,989	5,235	10,224	3,645	3,726	7,371	4,455	4,439	8,894
March	2,638	2,637	5,275	2,418	2,460	4,878	2,492	2,453	4,945
April	3,649	3,840	7,489	1,964	2,057	4,021	3,045	2,939	5,984
May	2,321	2,308	4,629	2,647	2,620	5,267	3,270	3,278	6,548
June	2,426	2,537	4,963	1,761	1,854	3,615	2,291	2,240	4,531
July	2,382	2,383	4,765	2,032	2,104	4,136	2,615	2,552	5,167
Aug.	2,188	2,255	4,443	1,980	1,949	3,929	2,828	2,772	5,600
Sept.	2,429	2,289	4,718	2,242	2,239	4,481	2,757	2,719	5,476
Oct.	2,216	2,291	4,507	33624	3,682	7,306	4,515	4,299	8,814
Nov.	2,500	2,365	4,865	2,884	2,866	5,760	3,119	3,127	6,246
Dec.	2,834	3,058	5,892	3,957	3,865	7,822	2,913	2,872	5,785
Total	33,699	34,085	67,784	31,347	31,629	62,976	38,038	37,467	75,505
Birth rate per 1000			27.11			25.19			30.20

Estimated population 2,500,000.

Births by Districts for Calendar Year 1925.

District of	Male	Female	Total
Cap-Haitien	4,355	4,623	9,478
Cayes	3,351	3,244	6,595
Gonaives	4,443	4,164	8,597
Hinche	1,204	1,135	2,339
Jacmel	4,617	4,658	9,275
Jérémie	2,537	2,595	5,132
Petit-Goave	4,312	4,209	8,521
Port-au-Prince	7,442	7,463	14,905
Port-de-Paix	2,559	2,584	5,143
Saint-Marc	2,728	2,792	5,520
TOTAL	38,038	37,467	75,505

Births by Districts for Orléans in Year 1896

District of	Male	Female	Total
Cro-Nolion	4,388	4,823	9,478
Cuyee	3,381	3,244	6,625
Gonclves	4,443	4,164	8,607
Hinche	1,204	1,135	2,339
Jeanel	4,617	4,658	9,275
Jérémie	2,837	2,395	5,232
Petit-Goave	4,312	4,209	8,521
Port-au-Prince	7,443	7,413	14,856
Port-de-Paix	2,859	2,784	5,643
Saint-Marc	2,728	2,792	5,520
TOTAL	36,382	37,417	73,805

Deaths by months for Calendar years 1923, 1924 & 1925.

	1923			1924			1925		
Month:	Male	Female	Total:	Male	Female	Total:	Male	Female	Total:
Jan.	650:	646:	1,296:	588:	643:	1,231:	912:	906:	1,818:
Feb.	804:	820:	1,624:	682:	635:	1,317:	708:	733:	1,441:
March:	895:	749:	1,644:	658:	667:	1,325:	708:	720:	1,428:
April:	644:	642:	1,286:	571:	561:	1,132:	592:	583:	1,175:
May	707:	658:	1,365:	523:	493:	1,016:	574:	590:	1,164:
June	752:	753:	1,505:	473:	565:	1,038:	573:	501:	1,074:
July	588:	601:	1,189:	544:	580:	1,124:	607:	591:	1,198:
Aug.	552:	567:	1,119:	592:	563:	1,155:	808:	886:	1,694:
Sept.	513:	537:	1,050:	560:	625:	1,185:	689:	810:	1,499:
Oct.	533:	557:	1,090:	715:	729:	1,444:	843:	805:	1,648:
Nov.	694:	716:	1,410:	865:	842:	1,707:	695:	675:	1,370:
Dec.	733:	728:	1,461:	851:	878:	1,729:	711:	705:	1,416:
Total:	8,065:	7,974:	16,039:	7,622	7,781:	15,403:	8,420:	8,505:	16,925:
Death rate per 1000			6.41/):			6.16/):			6.77/):

/) This death rate is obviously much lower than is actually the case. In certain limited areas where more complete returns are available it runs as high as 30 per 1000 which figure may be said to represent the whole Republic.

Estimated population - 2,500,000

Deaths by months for Calendar years 1923, 1924 & 1925.

Months	1923			1924			1925		
	Males	Females	Total	Males	Females	Total	Males	Females	Total
Jan.	6501	7445	13946	7009	8203	15212	6109	7333	13442
Feb.	6048	6920	12968	6588	7517	14105	7088	7932	15020
March	7958	7459	15417	6584	7355	13939	7088	7920	15008
April	6414	6424	12838	6014	6980	12994	6098	6902	13000
May	7077	6584	13661	6223	7115	13338	5743	6611	12354
June	7558	7308	14866	6758	7308	14066	5731	6507	12238
July	6981	6401	13382	6446	6804	13250	6074	6911	12985
Aug.	6582	6479	13061	6329	6758	13087	6086	6944	13030
Sept.	5135	5371	10506	6251	6859	13110	6109	6903	13012
Oct.	6531	6571	13102	7181	7284	14465	6085	6917	13002
Nov.	6944	7161	14105	6651	6965	13616	6596	6751	13347
Dec.	7353	7281	14634	6851	6751	13602	7054	7161	14215
Total	8,065	7,974	16,039	7,885	8,420	16,305	8,055	8,396	16,451
Death rate per 1000	(16.41)			(16.68)			(16.82)		

*) This death rate is obviously much lower than is really the case, in certain limited areas where more complete returns are available it runs as high as 30 per 1000 which figure may be said to represent the whole Republic.

Estimated Population - 6,500,000

DEATHS BY DISTRICTS FOR CALENDAR YEAR 1925.

District of	Male	Female	Total
Cap-Haitien	1,890	1,922	3,812
Cayes	561	687	1,248
Gonaives	914	956	1,870
Hinche	317	280	597
Jacmel	570	605	1,175
Jérémie	291	314	605
Petit-Goave	652	623	1,275
Port-au-Prince	1,786	1,703	3,489
Port-de-Paix	563	612	1,175
Saint-Marc	876	803	1,679
Total	8,420	8,505	16,925

Important causes of death for the whole Republic.
Calendar Year 1925.

Causes of Deaths	Male	Female	Total.
Anemia, pernicious	1	-	1
Aneurism	1	1	2
Appendicitis	5	-	5
Bronchitis	33	27	60
Burn	7	6	13
Broncho-pneumonia	20	15	35
Cancer	12	15	27
Cerebral hemorrhage	21	15	36
Childbirth, accidents of preg.	-	50	50
Cirrhosis of liver	22	6	28
Drowning	6	4	10
Dysentery	163	155	318
Enteritis	57	58	115
Epilepsy	3	1	4
Gastro-enteritis	27	28	55
Heart disease	100	95	195
Influenza	11	15	26
Intestinal obstruction	4	4	8
Leprosy	4	-	4
Malaria	250	263	513
Malnutrition	48	51	99
Nephritis	92	74	166
Peritonitis	13	5	18
Pneumonia	62	31	93
Puerperal septicemia	-	19	19
Rheumatism	23	22	45
Senility	126	175	301
Suicide	5	-	5
Syphilis	159	122	281
Tetanus	16	8	24
Tuberculosis	306	291	597
Typhoid fever	6	15	21
Whooping cough	34	18	52
Other causes	296	236	532
Fever, unknown cause	1194	1185	2379
Ill defined or unknown cause	5281	5486	10767
Still births	12	9	21
Total	8420	8505	16925

Imp rtant causes of death for the whole Municipio.
Calendar Year 1925.

Causes of Death	Male	Female	Total.
Abortion, Spontaneous	1	-	1
Anemia	1	1	2
Appendicitis	3	-	3
Bronchitis	33	27	60
Burn	7	6	13
Bronchо-pneumonia	20	15	35
Cancer	12	15	27
Cerebral hemorrhage	21	15	36
Childbirth, accidents of preg.	-	30	30
Cirrhosis of liver	22	6	28
Drowning	6	4	10
Dysentery	153	165	318
Enteritis	57	58	115
Epilepsy	3	1	4
Gastro-enteritis	57	29	86
Heart disease	100	98	198
Influenza	11	15	26
Intestinal obstruction	4	4	8
Leprosy	4	-	4
Malaria	280	233	513
Malnutrition	48	51	99
Nephritis	92	74	166
Peritonitis	13	5	18
Pneumonia	62	31	93
Puerperal septicemia	-	19	19
Rheumatism	23	22	45
Senility	126	175	301
Suicide	5	-	5
Syphilis	139	122	261
Tetanus	15	9	24
Tuberculosis	306	291	597
Typhoid fever	6	15	21
Whooping cough	34	18	52
other causes	296	236	532
Fever, unknown & ma	134	1185	2319
Ill defined or unknown	5921	5476	11397
Still birth	12	9	21
Total	8420	8605	16925

PLANS FOR THE FUTURE.

The future of the Public Health Service of Haiti is closely connected with the economic and agricultural development of the country. This holds true particularly with regard to permanent sanitary improvements. The unsanitated areas in Haiti are vast, not only in the rural sections but also in urban ones. Consider the city of Port-au-Prince with a population of over 120,000 people and not having a water carriage sewage system. Lack of funds is of course the reason for such sanitary negligence. There is square mile after square mile of swampy areas and low lying land where the malarial rate amongst the population is 100 per cent. When it is realized that not a single commune, city or village in this Republic has sufficient income to institute the most simple sanitary measures within its confines but that all depend upon State funds, the size of the problem the State has taken upon itself to solve looms big. But if accomplishments in the past may serve as criteria, the possibilities for the future look quite promising in spite of the present limited funds.

Division of Sanitation. During the past year efforts in sanitation proper have been mostly confined to intensive work within limited areas, particularly in the larger centers of population, although a few rural sections have been included especially in the districts of Port-au-Prince and Cap-Haitien. A similar policy will be pursued during the coming year although funds for this work have been markedly reduced.

Port-au-Prince.

Continued work along the shore line, extending in each direction from the city proper, consisting of drainage, filling and grading of low lying areas to prevent mosquito breeding.

Completion of sanitary spot-map of the city.

Renovation of the closed markets.

The continued construction of gutters and drains.

More intensive sanitary work in rural communities.

Chlorination of Port-au-Prince and Petion-Ville water supplies.

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Continued work along the shore line, extending in each direction from the city proper, consisting of draining, filling and grading of low lying areas to prevent mosquito breeding.

Completion of sanitary clean-up of the city.

Renovation of the closed markets.

The continued construction of gutters and drains.

More intensive sanitary work in rural communities.

Chlorination of Port-au-Prince and Petion-Ville water supplies.

Improvements in reports of deaths and births based on model law for collecting vital statistics.

Regulations regarding the installation of plumbing.

Cap-Haitien.

Mosquito control on shore line of Rivière du Haut du Cap.

Construction of gutters and drains.

Drainage of swamps at Fort-Liberté.

Introduction of sanitary measures in rural communities.

Cayes.

Continued construction of gutters and drains.

Filling of the old bed of Rivière Aenaud.

Drainage of swamp lands.

Improvement in system of nightsoil disposal.

Gonaives.

Continued drainage of swamps.

Construction of a new abattoir.

Construction of storeroom and garage.

Hinche.

Drainage of swamps.

Construction of public latrines in the smaller towns.

Jacmel.

Complete survey of swamps east of Jacmel for purpose of determining possibility of their drainage.

Screening of market.

Construction of public latrines.

(30) PROSPECTING FOR A NEW DISPENSARY SITE

Petit-Goave.

Continued drainage and filling of swamps.

Port-de-Paix.

Organization of the division and improvement in sanitary condition of the larger towns.

Saint-Marc.

Construction of cement refuse boxes.

Chlorination of water supply.

Construction of gutters and drains.

Division of Quarantine. The ratification of the Pan American Sanitary Code for all practical purposes obligates the Government to construct at least one quarantine station. Site for such an institution has already been acquired in Port-au-Prince.

Division of Hospital activities. In this division there still are funds left from previous extraordinary credits to carry out plans decided on last year. There is one item, however, for which funds are not available and that is screening of all hospital buildings. At the present time the private ward at the Haitian General Hospital is the only hospital building which is completely screened. Funds for this work will soon be requested.

Standard Rural Dispensaries:

August 5, 1926 - 144,000.00 gourdes were appropriated for the building of rural dispensaries. At the end of the fiscal year 10,071.21 gourdes were remaining from a previous credit for the same purpose. From these funds rural dispensaries will be built at the following places:

Port-au-Prince District: Ganthier, Cabaret, Gressier, Léogane, Croix-des-Bouquets and Anse-à-Galets on La Gonave Island.

Cap-Haitien district: Le Trou, Ouanaminthe, Vallière, Fort-Liberté.

Gonaives District: Marmelade.

Petit-Cerva.

Continued drainage and filling of swamps.

Port-de-Paix.

Organization of the division and improvement in sanitary condition of the larger towns.

Saint-Marc.

Construction of cement retaining boxes.

Chlorination of water supply.

Construction of gutters and drains.

Division of Agriculture. The rectification of the Plaisance Boundary Code for all parcels of property obligates the Government to construct at least one permanent station. Site for each of the following has already been acquired in Port-au-Prince.

Division of Hospital Activities. In this division there still are funds left from previous extraordinary credits to carry out plans decided on last year. There is one item, however, for which funds are not available and that is screening of all hospital buildings. At the present time the private ward at the Haitian General Hospital is the only hospital building which is completely screened. Funds for this work will soon be requested.

Standard Rural Dispensaries.

August 8, 1922 - 144,000.00 Gourdes were appropriated for the building of rural dispensaries. At the end of the fiscal year 19,071.21 Gourdes were remaining from previous credit for the same purpose. From those funds rural dispensaries will be built at the following places:

Port-au-Prince Centrists Quartier, Orient, Cressier, Lodieme, Croix-des-Bouquets and Mes-à-Glaire on La Gonave Island.

Cap-Haitien district: Le Trou, Ouanaminthe, Vallière, Port-Liberté.

Gonaives District: Terrasse.

Hinche District: Belladère, Maissade.

Jérémie District: Moron.

Petit-Goave District: Grand-Goave, Miragoane, Petit-Trou, Baradères, l'Asile.

Saint-Marc District: Petite Rivière, Mont-Rouis, Lully.

Improvements in Hospitals:

Haitian General Hospital, Port-au-Prince.

A credit for 156,000.00 gourdes has been voted for the completion of the final wing of the E shaped ward unit; the construction of a pharmacy, store room and dental office; the construction of garage, stable and store house. During the year it is hoped that the plumbing system of the hospital will be completed. Plans are now under way for the construction of a new kitchen and repairing of floors in three of the wards.

Les Cayes.

Credit is available for the completion of the operating pavillion, and for the purchase of additional land for the hospital. In addition it is hoped that various outbuildings will be constructed during the year such as latrines, showers, laundry, etc.

Gonaives

Credit is available for the completion of an operating pavillion combined with a dispensary building.

Hinche.

Gourdes 31,600.00 are available for the construction of a combination building for laundry, carpenter shop, morgue, storeroom and servants' quarters.

Jacmel.

During the year the various major repairs of the hospital will be finished putting this place in a-1 condition.

Jéremie.

Funds are available for the construction of a dispensary, showers and general repairs of the hospital buildings.

Petit-Goave.

Funds are available for the completion of one ward, dispensary building, kitchen and latrines. Plans are under way for construction of the central section of the Hospital unit proper, operating pavillion, storehouse and morgue; thus furnishing a complete although small hospital for this important center.

Port-de-Paix.

The hospital proper will be completed. In addition funds are available for the construction of a dispensary building, storehouse and garage.

Saint-Marc.

During the coming year the new ward building and operating pavillion will be completed. Plans are also under way for the construction of various outbuildings.

Insane and Leper Asylum. The purchase of land last year for the site of future construction of insane and leper asylums was the first step in realizing our plans for these important institutions. It is hoped that during the coming year some definite steps may be taken to insure that definite progress will be made in caring for the many unfortunate insane who are now cared for in the various prisons and for the lepers who are spread generally over the country.

Division of Supplies and Accounts. Funds are available for the enlargement of the garage space and storehouse.

Division of Medical Education. The construction of the Medical School that is now under way marks a very important step in the progress of medical education in Haiti. The future of the Public Health Service is naturally closely bound to a proper development of the National School of Medicine. Hence our extreme interest in this institution. The changes in the School planned for the year 1926-27 have been discussed in another chapter.

As we have had occasion to say several times our aim is to develop this institution along such lines that even from the start

the Haitian medical profession will realize that the burden is theirs and that the success of the plans depends upon their willingness to work. With this end in view no radical changes were introduced in the teaching staff. The leading men of the faculty were approached and the plans for the future explained. The majority of them realized the soundness of the proposed scheme and were willing to cooperate with the Public Health Service in carrying it out. It is a pleasure to state that the confidence placed in them was not overestimated. Indeed, Haiti may point with pride to their dean of the Medical School, Doctor Justin Dominique; to the Professor of Surgery, Doctor Paul Salomon, and to the Professor of Medicine, Doctor Lélio Hudicourt.

These men have already shown that their one aim in view is the raising of the standard of the Haitian medical profession. Our plans for the school for the present depend to a large extent upon possible aid from the Rockefeller Foundation. It is understood that a representative of the Foundation will soon arrive in Haiti to investigate the question of medical education and the advisibility of the Foundation rendering some aid. Such help could be in the nature of further equipment of the new school, of scholarships, etc. It is believed that the financing of scholarships in foreign countries will be the solution of this particular problem. In such a fashion a faculty properly trained in the various branches of modern medicine will, within a few years, be organized and be able to carry on. The scholarships should include the basic subjects of Anatomy and Physiology, the various laboratory subjects, those of clinical application as well as those of public health.

Even if the Rockefeller Foundation could not see its way clear to extend aid the future plans for the development of medical teaching in Haiti should be based on such scholarships. Without outside aid it would naturally be a slower process, but none the less a necessary one.

The building that is now being constructed will give an adequate number of classrooms on the first floor and five special laboratories on second floor. The latter include dissection room, bacteriological and serological, chemical, physiological and pharmacological, histological and pathological laboratories. It is believed that this new structure will take care ofthe needs for medical teaching in the way of buildings for a few years to come, especially as clinical instruction is given in the wards of the Haitian General Hospital.

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