Report of Special Commission appointed to investigate tuberculosis : Commission appointed by the General Assembly of 1907, H.J. resolution no. 426, approved July 17, 1907. Report presented to the General Assembly of 1909.

Connecticut

REPORT

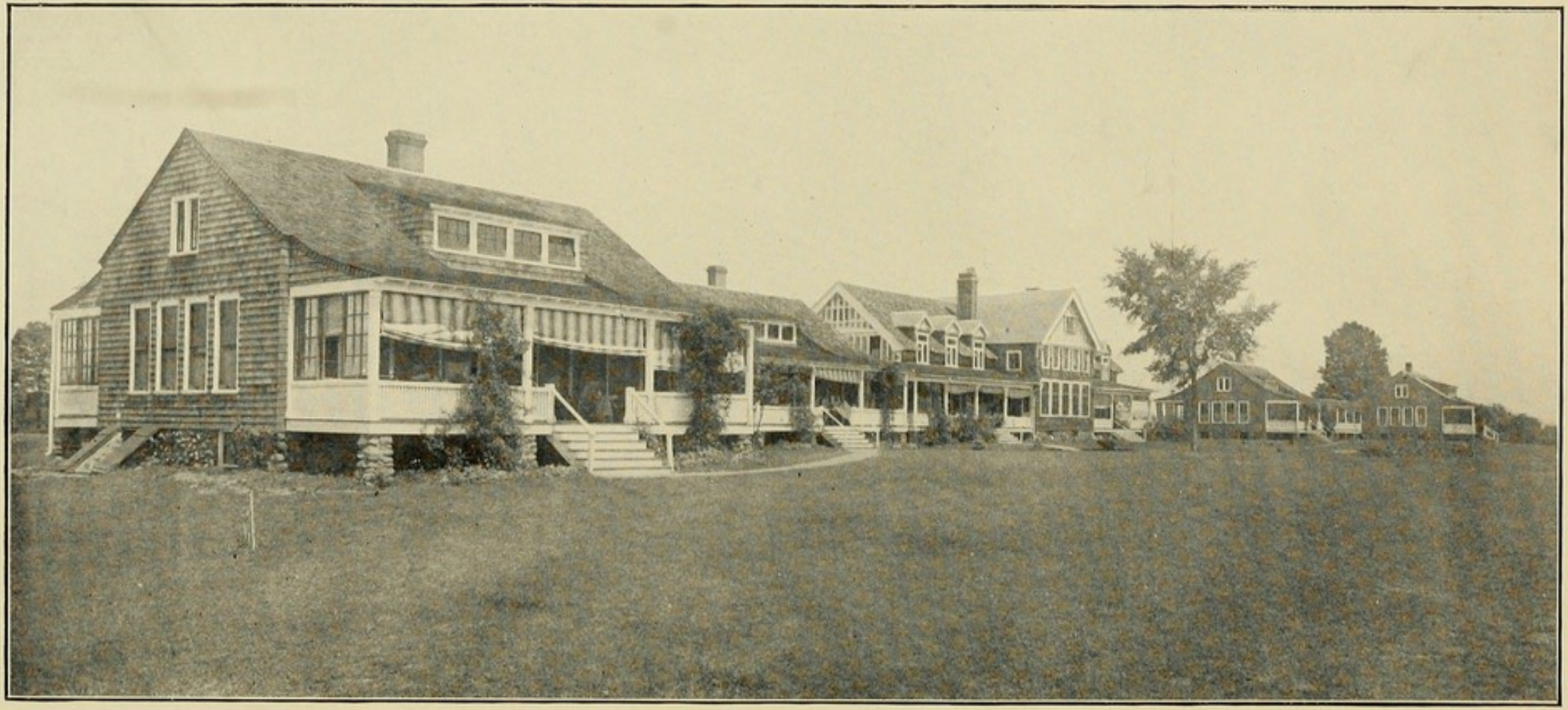
OF

SPECIAL COMMISSION

APPOINTED TO INVESTIGATE

TUBERCULOSIS

REPORT PRESENTED TO THE GENERAL ASSEMBLY OF 1909



GAYLORD FARM SANATORIUM.
Wallingford.

State of Connecticut
PUBLIC DOCUMENT—SPECIAL

REPORT

OF

SPECIAL COMMISSION

APPOINTED TO INVESTIGATE

TUBERCULOSIS

COMMISSION APPOINTED BY

THE GENERAL ASSEMBLY

OF 1907

H. J. RESOLUTION No. 426

APPROVED JULY 17, 1907

REPORT PRESENTED TO THE GENERAL ASSEMBLY OF 1909

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INTRODUCTION.

The appointment of a commission by the last legislature of the State of Connecticut, for the investigation of tuberculosis in its relation to the welfare of the citizens of the State and to make such suggestions as may seem practicable and suitable for the control of that disease, is a most significant act. It is a recognition of the prevalence and serious import of the disease throughout the State—in every city, town or hamlet—a disease so widely distributed and so destructive to the interests of all who fall under its influence, that no man in the State can truthfully say that it is a matter of no interest to him.

It is further a recognition of the all-important truth, that as a result of modern investigation, the control of a disease, once believed to be beyond human relief, has been made possible. The widespread distribution of the disease has placed its control beyond the power of individual effort and imposes the duty upon the State—a duty that, properly performed, must be of the broadest possible economic value to the whole community.

The people have a right to demand the assistance of the State in the war against tuberculosis. Every industrious man of ordinary intelligence understands that good health is the most valuable asset he can possess. If it is sacrificed through his own personal shortcomings, he has himself to blame, and he has no claim upon the State beyond what is now given to such unfortunates in our institutions for the poor. But when the health of a man is sacrificed, through governmental indifference to proper hygienic precautions—when he is tuberculous, because of being compelled to breathe air that might have been pure if simple rules had been properly enforced—then such a man has a right to look to the State for redress. No one questions his right to look to the State for protection of his property interests—why is this not equally true of his health, which is the basis of material prosperity in every community?

In preparing this report, your Commission has endeavored to avoid questions that are still under discussion and to place before the State a simple and practical statement of conditions as they exist, with such recommendations for the control of tuberculosis as may seem to be of value and at the same time within the power of the State to adopt. Investigation into the duty of the State in the effort to control tuberculosis, calls for consideration of the two most important forms of the disease—the human and the bovine. It will be shown in this report that there are many points at which the treatment of these two types of tuberculosis is identical. There are other considerations that point to the wisdom of considering them separately. It is highly desirable that the widespread impression that the movement to suppress bovine tuberculosis is solely in the interest of the effort to control human tuberculosis, should be corrected. If this was the truth, surely no higher motive could be conceived of. But the arrest of tuberculosis in the herds of the State has become a matter of extreme importance to the welfare of that industry. Until recently there has been so much effort to discredit the transmissibility of bovine tuberculosis to the human being, that the owners of cattle have, in the earnestness of the discussion, encouraged themselves in the belief that they were being persecuted, that their property rights were being invaded. Your Commission feels that by a separate discussion of the bovine disease, it may be made clear that, independent of all altruistic motives, it is to the interest of every owner of cattle to assist the State in suppressing the disease that is extending alarmingly and is seriously imperiling the dairy interest.

TUBERCULOSIS IN NEW ENGLAND.

It is an interesting question whether tuberculosis was introduced into New England by the white settlers or was already present among the Indians. There are, of course, no official records of the fact, but the historical references to consumption as a disease destructive to the Indians are suggestive.

Daniel Gookin, himself one of the earlier settlers of New England, says in his "Historical Collections of the Indians of New England": "Of this disease of the consumption sundry of those Indian youths died that were bred up to school among the English. The truth is this disease is frequent among the Indians; and sundry die of it that live not with the English. A hectick fever issuing in a consumption is a common and mortal disease among them." ("Collections of the Massachusetts Historical Society," vol. 1, page 173.) This would indicate that the cases referred to were possibly contracted by contact with the whites.

On page 140 of the same volume, an Indian authority is given for the following statement: "Before the English came among the Indians, there was two disorders from which they most generally died, viz.: the consumption and the yellow fever."

In vol. 7 of the "Massachusetts Historical Collections," General Lincoln says, in observations of the Indians of North America: "Their tender lungs are greatly affected by colds which bring on consumptive habits, from which disorder, if my information is right, a large proportion of them die."

Francis, in his life of John Eliot, the Apostle of the Indians, gives as his own opinion: "Consumption seems to have been a common malady among the New England natives."

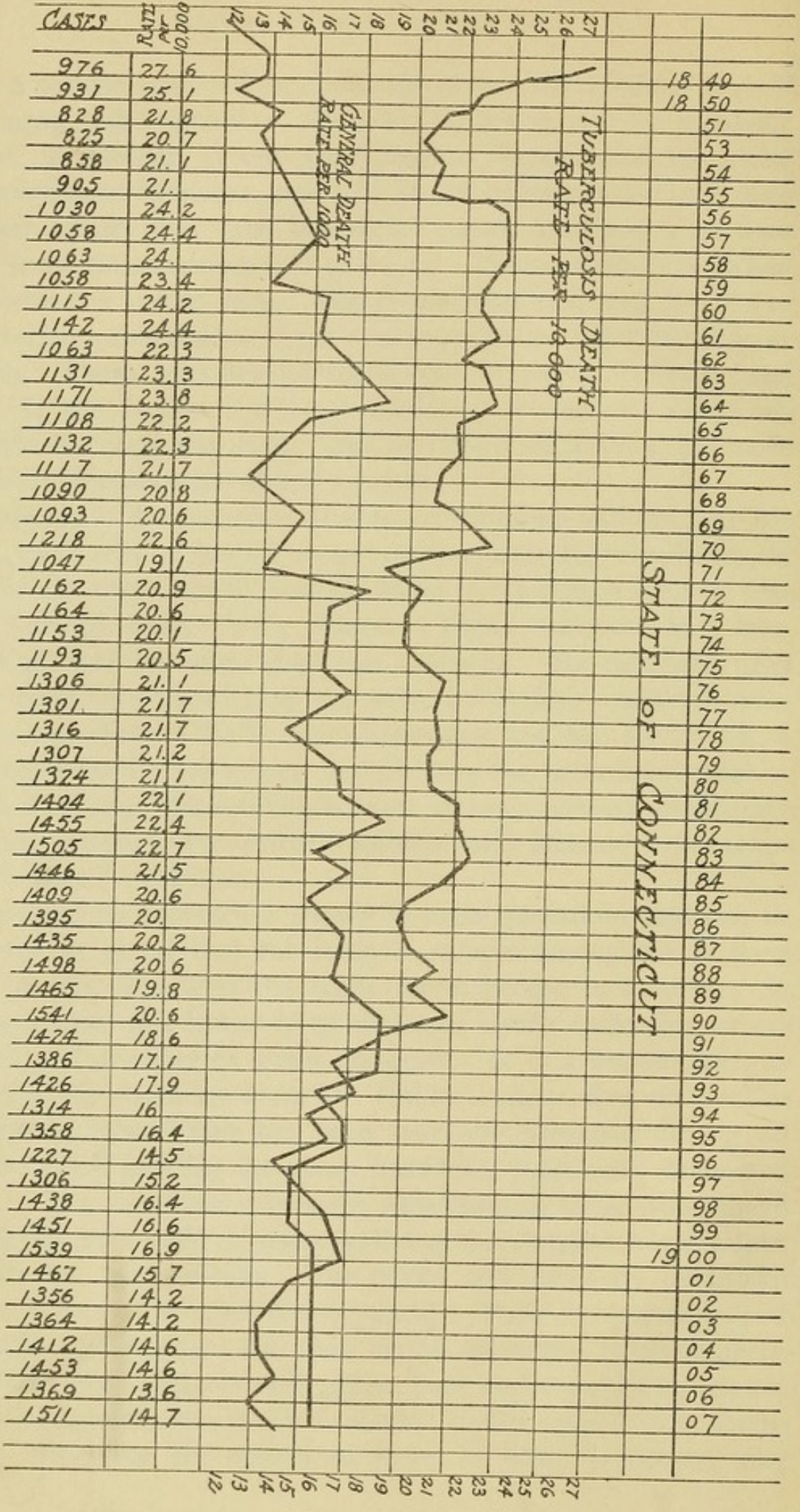
De Forest, on page 20 of his "History of the Indians of Connecticut," says: "The diseases of the Indians were quinsies, pleurisies, rheumatisms, quick consumption and such others as would be naturally produced by their exposure and hardships, and by their irregular mode of life."

In a notable series of papers in the *New York Medical Record* in August and September, 1892, on "Diseases Among Indians," Dr. A. B. Holder, at one time Agency Physician at the Crow Reservation in Montana, says: "I do not believe that at any time in their history they (the Indians of North America) have been free from consumption and scrofula. Tuberculosis is coextensive with the Indian race. The single tribe that may be said to be free from this disease, I have been unable to find after diligent search. Those who inhabit the torrid swamp of Arizona, and those in the frozen northwest territory of Canada, along the western seaboard and in the Atlantic States, all tribes suffer more or less from consumption and scrofula."

Addison, in the *Canadian Journal of Medicine and Surgery* for May, 1902, tells of finding in an ossuary, near Big Bay Point, in Simcoe County, Ontario, several skeletons of Huron Indians that had suffered from Pott's disease. These skeletons had been under ground for more than two centuries. He concludes that these bones are proof that not only the Indians suffered from tuberculosis before the European invasion, but also that it was a very common disease among them before the white man came.

"In Peabody Museum (specimen 17,223), among prehistoric remains, is a part of a vertebral column badly affected with caries-tuberculosis." (Holder.)

Certainly no evidence is shown in these quotations that can be accepted as proof that tuberculosis existed among the Indians prior to the advent of the white races, except such as may be inferred from the discovery of skeletons clearly indicating tuberculosis and possibly of great antiquity. It is a known fact, as shown in the quotation from Dr. Holder's paper, that since white settlement, tuberculosis has been fearfully prevalent among all Indian tribes and has in many instances, practically decimated them. This statement may seem surprising to those who regard the Indian as a child of nature—living the simplest life possible, in pure air and sunshine. The purity and simplicity of Indian habits, however, is somewhat mythical. Their lives were full of hardship and exposure and their camps insanitary in all respects. Their sleeping quarters were close, foul and crowded to excess, and every condition existed favorable to the spread of tuberculosis. Whatever the conditions prior to white settlement may


CASES
RATE PER 1000
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931 25.1
828 21.8
825 20.7
858 21.1
905 21.
1030 24.2
1058 24.4
1063 24.
1058 23.4
1115 24.2
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1063 22.3
1131 23.3
1171 23.8
1108 22.2
1132 22.3
1117 21.7
1090 20.8
1093 20.6
1218 22.6
1047 19.1
1162 20.9
1164 20.6
1153 20.1
1193 20.5
1306 21.1
1301 21.7
1316 21.7
1307 21.2
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1424 18.6
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1451 16.6
1539 16.9
1467 15.7
1356 14.2
1364 14.2
1412 14.6
1453 14.6
1369 13.6
1511 14.7
GENERAL DEATH RATE PER 1000
TUBERCULOSIS DEATH RATE PER 10 000
STATE OF CONNECTICUT
12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
18 49
18 50
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have been, it is known that the disease was fearfully and increasingly prevalent among the early New England communities, and from the settlement of the Colonies up to modern times no disease has been more destructive.

Reliable registration of the causes of death is of very recent establishment everywhere. In Connecticut, statistics bearing upon the subject are available for the period from 1849 to the present time. Through the courtesy of Dr. Joseph H. Townsend, Secretary of the State Board of Health, the Commission has received the accompanying table illustrating the tuberculosis death rate and the general mortality since 1849. A careful study of this table discloses many facts of interest. The most striking fact is the marked decrease that is shown in the tuberculosis death rate—somewhat irregular until 1882, but steady and impressive since that year. It was in 1882 that Professor Koch published his discovery of the bacillus which is the universally accepted cause of tuberculosis. Prior to that date, the conception of the nature of the disease was unscientific, and whatever may have been done in effort toward social betterment that could have influenced the mortality from tuberculosis to the extent shown in the table was, certainly to a large degree, accidental. Since 1882, with the knowledge of the cause of tuberculosis based upon unquestioned scientific demonstrations, the movement for the control and ultimate eradication of the disease has been steadily growing all over the civilized world. The character of the disease being now understood, the effects toward control can be intelligently planned and executed.

The impression that tuberculosis is constantly increasing and becoming more destructive is erroneous. The accompanying table shows beyond question the general trend of the disease in Connecticut, and it is a matter of great interest that the records of Maine, New Hampshire, Vermont, Massachusetts, and Rhode Island show a corresponding decrease.

All records of mortality are unreliable. The elements of carelessness, ignorance and willful misrepresentation upon the part of the reporting physicians, cannot be measured or controlled. Unintentional inaccuracy in diagnosis may change the tuberculosis record very materially, bronchitis, pneumonia, pleurisy, and even typhoid fever being entered as the cause of death, when, in fact, it should have been reported as tuberculosis. These inac-

curacies, in all records of the character under consideration, are universally recognized as unavoidable. There is, however, no reason to expect more inaccuracy in one state than in another, and the very close correspondence in the records of the New England states speaks for their accuracy. The average tuberculosis death rate for the past five years in Connecticut has been 14.3 per 10,000 population. In the other states mentioned the figures vary from 13.5 to 15.5 per 10,000, a very close correspondence, when due allowance is made for variation in the methods of reporting. Another remarkable fact connected with the Connecticut record is, that it corresponds very closely to the now famous table, published last winter in Dr. H. Timbrel Bulstrode's English Governmental "Report on Sanatoria for Consumptives and certain other aspects of the Tuberculosis Question." In Dr. Bulstrode's table, it is shown that the phthisis death rate for England and Wales fell steadily from 27 per 10,000 living in 1851 to 12 per 10,000 living in 1904, the decline in Connecticut for the period from 1849 to 1904, as shown in the table, being from 27 to 14.

When the tables of mortality from tuberculosis, taken from sources so widely separated, show such a marked decrease, and that, too, to no inconsiderable degree prior to the discovery of the bacillus, the question as to the cause of the decrease is of exceeding interest.

Your Commission would wish to emphasize the fact that the decrease of the disease in Connecticut within the past fifty years constitutes the most hopeful outlook for the future. It fully justifies the State in every effort to control tuberculosis, by rectifying all such social abuses as are now known to be most favorable to its continuance.

It is further to be understood, that the extremely favorable reports as to the decrease of tuberculosis in our State are not to be taken as evidence of a common experience in all parts of the world. While England shows a decrease of fifty per cent. or more, there is a considerable increase during the same period to the credit of Ireland. In France there is no such encouraging condition as we can claim, and so throughout the world, the decrease is showing an irregularity that is of great interest. The knowledge of the cause of tuberculosis, while it has materially affected the returns of mortality since 1882, cannot be accepted as the sole cause of the improved conditions in our State.

The table shows a decline from 1849 to 1882. The same is true of New England and England and Wales. In Connecticut, then, there has been some influence that has been quietly working toward that most beneficent result—the control of tuberculosis. Where is that influence to be found? In Connecticut, it is unquestionably a result of the movement toward the general improvement in social conditions that has steadily gained a foothold, in spite of the opposition of those who were to be most benefited. It is well understood that tuberculosis finds its most favorable field among insanitary surroundings. This being admitted, what argument would there be for the State to undertake measures for its eradication if it was increasing. Improved tenements, the regulation of child labor, sanitary science applied to the improvement of cities and towns—imperfectly, to be sure, but far better than in the past—shorter hours of labor in better ventilated shops, the uplifting effect of a higher and broader education, the education of the public into a reasonable attitude toward fresh air and sunshine—all of these influences have been gradually developing and becoming the accepted order of life during the last half century. While until very recently efforts toward an improvement in social conditions were inaugurated without thought of tuberculosis, it is interesting to note that there has been a coincident decrease in the mortality from consumption. This helps to establish the claim, that all undesirable social conditions are powerful factors in the causation of consumption. It offers encouragement for a broader effort to secure to the public the best possible conditions of living. The State, in all its efforts to secure the improvement of social conditions, is incidentally looking toward the control of tuberculosis.

TUBERCULOSIS—A CONTAGIOUS DISEASE.

The time is certainly at hand for the education of the public everywhere, upon all questions that may lead to a better understanding as to their individual responsibility in rendering assistance in promoting the success of the movement to control tuberculosis. Private organizations and isolated communities that have during the past few years undertaken this work, have felt that the only possibility of success rested upon universal education of the public as to the danger and its consequences. It has been their effort to publish broadcast, through every possible agency, a statement of the great prevalence of tuberculosis, the ease with which it may be disseminated and the disastrous results that follow in its course. It may possibly seem ungracious to criticise work of this character that has been done and is now being done with the best possible motive. There has been, in some instances, an exaggeration of statement that has been unfortunate in its effect upon those suffering from tuberculosis. It should be understood, that the great work in hand contemplates the arrest and the ultimate control of a chronic disease, that does not interfere with the daily habits of life in some instances for months and even years. Care should be exercised not to arouse the public alarm to such an extent as to seriously interfere with the rights of the innocent sufferer. The public should be made fully cognizant of all the essential facts to insure rational effort to avoid this disease. It should also be clearly understood, that the unfortunate sufferer is not a leper—not one to be avoided in daily life, if he learns fully his duty to himself and to society and is faithful in its performance. In some instances, this anxiety upon the part of the public has been so acute that serious suffering has ensued. This has in some localities led to a concealment of the disease by patient and physician, a result to be most seriously deplored by all who desire success in the undertaking under discussion.

This contagious element in the tuberculosis question has become of the highest importance. The whole question of con-

tagion—of the method of transmission of any disease from man to man—is most imperfectly understood. Within a very few years, yellow fever was supposed to be air-borne, one of the most highly contagious diseases. Malaria was long supposed to be water-borne and intimately associated with the upturning of the soil. The fact that both of these diseases are now known to be transmitted by inoculation only; that attendants of yellow fever patients are free from all danger, so long as they are not infected by the mosquito; that the most pernicious malaria can be avoided by an efficient mosquito bar, in places that were previously almost uninhabitable, must lead anyone studying the contagious element in tuberculosis to hesitate before expressing a positive opinion upon the matter. It can be stated with confidence that tuberculosis, under proper sanitary precautions, cannot be easily transmitted from man to man. If it possesses any contagious quality, it is not in the sense in which that word is commonly used in speaking of scarletina, measles, smallpox and such highly contagious diseases. Dr. Hermann Biggs of New York City, a pioneer in all good work for the municipal control of tuberculosis, says: "It seems to me that the difficulties in dealing with the disease have been greatly increased, because of the failure of sanitary authorities generally to recognize this distinction. Both to the public and to the medical profession the term 'contagious' conveys a distinct conception of the ready transmissibility of disease from the sick to the well after slight exposure. This is certainly not true of tuberculosis." Since the general public has become aroused as to the importance of intelligent measures to control the spread of tuberculosis, the contagious quality of the disease has been most injudiciously emphasized, and in consequence, an increasing fear of the unfortunate sufferers from the disease created.

It has been scientifically demonstrated, that under proper conditions, attendance and even constant attendance upon tuberculosis patients is not attended with danger. The sanatoria in all parts of the world report that their attendants of all classes remain free from the disease. If tuberculosis were air-borne and highly contagious to the degree that we suppose the acute contagious diseases to be, such a report would be impossible. Dr. Bulstrode, in his report previously quoted, gives many instances in support of the low degree of contagion in tuberculosis and to

its innocuousness under proper sanitary regulations. A few quotations will be of interest.

"At Falkenstein during 10 years 225 non-tuberculous friends accompanying patients have stayed at the sanatorium—many have stayed for six months and no case of infection has been observed."

"At Göebersdorf, where during 40 years 25,000 tuberculous patients have been treated in the sanatoria, pulmonary tuberculosis among the inhabitants in the village—notwithstanding the fact that during the last 30 years the population has nearly doubled—has according to the figures published by Dr. Nahon apparently decreased." This is shown in the accompanying table copied from Dr. Bulstrode.

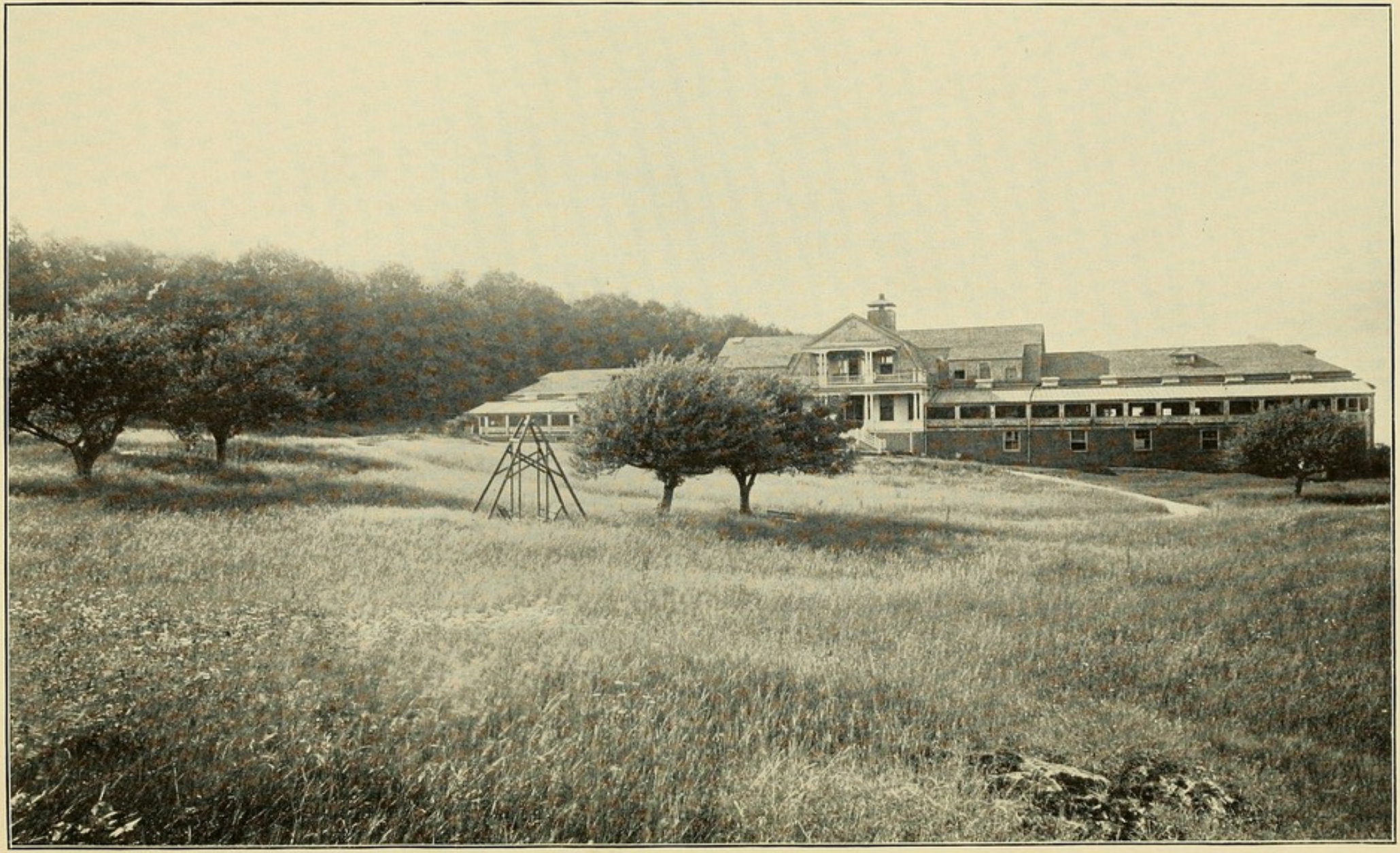
Years.	Deaths from Tuberculosis.
1856–1859	7
1866–1869	4
1870–1879	5
1880–1889	5
1890–1897	3

"In the village of Falkenstein before the sanatorium was opened the mortality from tuberculosis was 18.9-100 deaths, while since the opening—from 1877 to 1894—it has fallen to 11.9 per cent."

As regards our own country, the experience of Dr. E. L. Trudeau, in his world famous sanatorium at Saranac Lake, N. Y., corresponds with the German institution mentioned above. There has not been a case of infection among all the doctors and other attendants who have served the Saranac institution since its opening.

It is to be understood that this association, without harm, with the tuberculous, is invariably where the restrictions upon the habits of the patient, now so universally advocated, have been faithfully observed. It is known beyond controversy that tuberculosis—consumption as it is commonly called—is caused by a specific germ known as the tubercle bacillus.

Without the presence of this germ the disease does not exist. The common belief that consumption is usually the result of "a cold," of being overworked, mentally or physically, of being depressed physically because of poverty or prolonged exposure, is not accurate. The germ of the disease is about us everywhere.



WILDWOOD SANATORIUM.

To those in sound physical condition it is apparently harmless. In those who are ill and below the safe point of resistance, the germ finds a favorable soil and develops. The victim must in some way receive this germ directly or indirectly from an active case. It is a matter of very simple demonstration to prove that through expectoration, through the droplets intimately divided in the breath during coughing, and through other discharges from the body to a less degree, the bacillus is constantly discharged from those suffering from tuberculosis; and where the simple rules for decency and cleanliness—now so earnestly advocated and published broadcast in every community—are disregarded, the number of germs daily thrown into the air is innumerable. Once free from their host, the germ soon perishes in pure air and sunlight; but as the air becomes foul and damp and the sunlight is obscured, the life and virulence of the bacillus is prolonged. When the bacillus lodges in dark, ill-ventilated and damp lodgings, it can retain its virulence for an indefinite period. This explains the fact, that while tuberculosis can be found in the homes of the wealthy, living in surroundings that would seem to ensure safety, it is found in increasing frequency as the housing conditions become poorer, until in the crowded tenement it gains a foothold that contaminates the house and renders it unfit for use. Much has been written of late about infected houses. It will be shown that such exist, but space forbids any detailed investigation of this phase of the subject.

The two facts that it is most desirable should be clearly established in the minds of the general public, if a reasonable effort to control tuberculosis is to succeed, are: First, the disease known as tuberculosis, at all times so destructive to human happiness and life, is gradually coming under control, as the living conditions of society improve. There is every reason to believe that the day will come, if the measures to destroy the disease are systematically enforced by the State, when tuberculosis will be under control. Second, the sufferers from tuberculosis who are careful as to their personal habits and conscientiously observe all the rules for the destruction of the germ as it leaves the body, are not a source of danger to their associates.

The effort has been made, in writing of the contagious character of tuberculosis, to make it clear that the danger of contagion is very slight from association with those suffering from the

disease, when due precautions as to cleanliness are observed and when the patient is in such physical condition as to admit of free social intercourse. When the patient has become so ill as to require personal attendance, it become a very difficult matter to avoid occasional acts of thoughtlessness through which the sputum may be scattered, and at such times the danger of contagion is imminent. When the sufferer is careless, no matter in what stage of the disease he may be, he is a constant and positive source of danger. He is much more dangerous to the community than a patient suffering from an acute contagious disease—a fact that justifies including tuberculosis among contagious diseases.

WHAT IS THE STATE'S DUTY?

The efforts that have been made during the past few years to control the acute contagious diseases, have at last met with public approval, and no opposition is felt to reasonable supervision upon the part of the health authorities. Until very recently, the feeling toward the official supervision of tuberculosis has been inclined to be hostile. The character of the disease, its insidious development, the popular belief that it must necessarily prove fatal, has led to a feeling of scepticism as to the methods proposed for its relief. This scepticism has now very generally yielded to a belief in the possibility of cure, and the day is at hand when all reasonable measures that the State may adopt for the control of tuberculosis will meet with sympathy. What, then, is the duty of the State? The essentials of success are, first, measures to avert the development of the disease; and second, the systematic care of all sufferers who may be unable to secure suitable care during their enforced idleness.

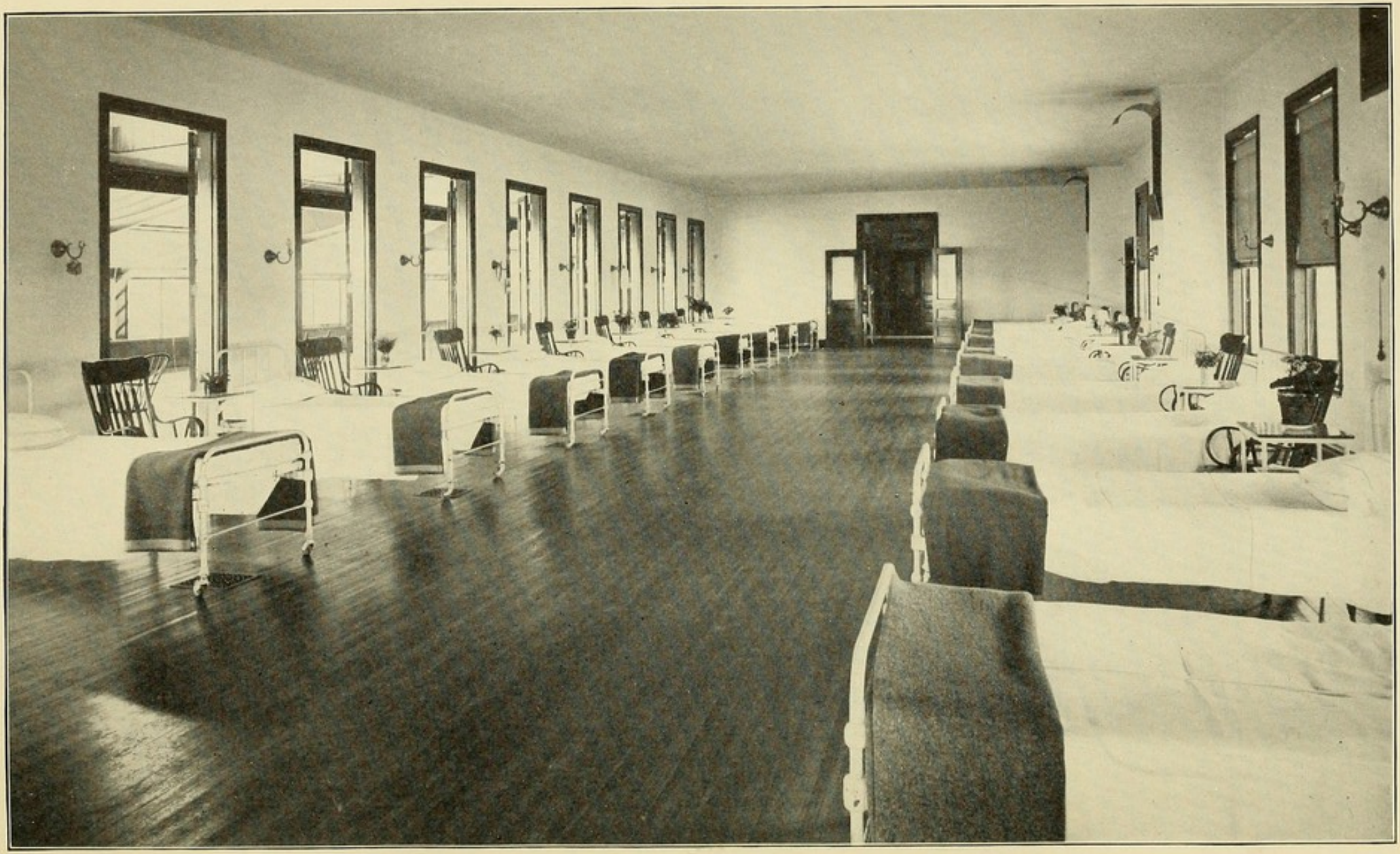
Measures to control the development of tuberculosis include:

1. Notification and registration of all cases of tuberculosis in every community.
2. Control of indiscriminate expectoration.
3. Rational tenement house legislation, embracing construction and subsequent inspection.
4. Sanitary supervision of all buildings where people are brought into intimate association.
5. Scientific supervision of the dairy and food industries.
6. Intelligent efforts to educate the public as to proper sanitary precautions.

All of these measures are essential to success in securing the control of tuberculosis. It is of interest and importance, in seeking state action upon the various measures toward the control of tuberculosis, to emphasize the fact that all other efforts toward the social betterment of the community have a common interest. These various measures, intelligently enforced, would be of the highest possible social and economic value to the whole State.

THE NOTIFICATION AND REGISTRATION OF TUBERCULOSIS.

If a scientific effort is to be made by the State to control the disease in question, it is obvious that no proper estimate of the value of the effort can be secured, unless it is based upon accurate statistical records. No information as to the extent of tuberculosis can be obtained by any other method than notification, such as is now required in the acute contagious diseases. In attempting to secure an accurate registration of all cases of this disease, no interference with the rights or liberty of the patient is contemplated. Among all those patients who are in position to meet the cost of treatment, the act of registration does not go beyond a confidential record of the case with the proper health officer. A record of those who are unable to meet the cost of treatment is of undoubted value, in bringing to official knowledge the extent and character of relief work that may be required. The opposition to notification of tuberculosis has been very active, wherever it has been attempted, and the most active in the opposition have been the physicians. There seems to be an impression that in some way notification is violation of professional confidence. Certainly a report to the local health officer, accompanied by a statement that the case is under suitable treatment, is not making public the patient's condition. Such an official record is a confidential communication and any violation of confidence upon the part of the health officer should be actionable. The cases not requiring official supervision, in the states where notification is enforced, are simply enumerated in the records, showing the prevalence of the disease, and aside from that have no publicity. Notification of the indigent is of the first importance. It is the indigent case that is the most difficult to detect and the most serious as a source of danger to the general public. These cases must be discovered and must be under official supervision, if any good is to be accomplished. No concealment of a tuberculous case that occupies apartments in common with others, is justifiable, unless there is intelligence to understand the necessity for



WARD.
Wildwood, Hartford.

precaution and the means and inclination to enforce the same. Among the indigent, it should be left with the health officer to decide as to the trustworthiness of individual cases, when they are reported.

In some states there has been an attempt to secure voluntary notification, but the results have been highly unsatisfactory. Even where notification is supposed to be enforced, physicians have been extremely careless in complying with the requirements. Many deaths from tuberculosis are being reported, where no previous report of the case had been received. Notification should be either enforced or not attempted. There is little value in a law that is observed or not, as the individual may prefer. There is no value in inaccurate statistics. The records of the true prevalence of tuberculosis in any state in the Union would be a source of surprise, even to those supposed to be familiar with the situation. The opposition to notification is, to a certain extent, due to a lack of interest in public measures to suppress tuberculosis, and to an unwillingness to make the slight exertion required for filling and mailing the report. The laws for the control of tuberculosis in Maryland are unusually complete, and it is of interest to note that the notification of cases became much more satisfactory after the establishment of a small registration fee. Such an expenditure upon the part of our own State would yield to the community a high rate of interest, in its influence toward securing an accurate report.

If it is understood that the notification of tuberculosis does not place that disease in the same category as the acute contagious diseases; that the notification is to be treated as a confidential communication and imposes no burdensome obligation upon patients, where the physician certifies that proper precautions are being observed; when, further, the fact of notification being compulsory, relieves the physician from all responsibility in the matter in so far as violation of professional confidence is concerned, the compliance with the law will soon become customary and objection to it will cease.

The Maryland plan of making fair payment to the physician for his service, is eminently proper and should be the rule everywhere. In doing his part toward securing reliable records of tuberculosis, the physician is rendering a service of value, for which he should receive compensation.

CONTROL OF EXPECTORATION.

It has already been stated that tuberculosis is a disease due to infection, caused by the bacillus that has escaped from someone already suffering with the disease. The chief avenue of escape is of course through the mouth, either in the act of expectoration, or through the minute subdivisions (called droplets) that escape into the air in the act of coughing. Many people in every community have tuberculosis long before they are conscious of the fact; often cases recover without the patient having even suspected that he was tuberculous. No man can say that there is no danger in his sputum. That indiscriminate expectoration is the chief source of a disease, so serious in its consequences as to justify large expenditure upon the part of the State to eradicate it, is a fact worthy of thoughtful consideration.

Why should men expectorate broadcast over the land, if in so doing they are often casting out the germ that is to bring misery and want, maybe, to many an industrious and worthy neighbor? This is not extravagance: it is simply truth. Why should people spit in an unsuitable place? Why should they cough directly into the air of any room they may happen to be in? In this whole question of the control of tuberculosis there is much still to be carefully considered. There are many questions justly open to discussion. As to this promiscuous spitting, there is not the faintest shadow of a question—it is indescribably filthy and offensive, is dangerous to others, is unnecessary and should be stopped. The efforts made during the past few years to check this unmitigated nuisance have been followed by very considerable improvement. In most of our cities, the sidewalks are comparatively clean and do not call for that care upon the part of the pedestrian that was formerly required. So much accomplished is a cause for some satisfaction, but the public should understand that offense in this matter does not begin and end on the sidewalk. The greatest source of danger is in the shops, the schools, the churches, in all places where people usually congregate. How

long suffering, to say nothing of the exposure to tuberculosis, are those who are obliged to find their solace in the average smoking car. It is a very simple matter to rectify all this abuse of the public. If certain people must expectorate, suitable receptacles should be provided and they should be properly cleansed. An effort to correct this evil has been made by many of the prominent manufacturers of the State. In some of our shops to-day, instead of walls and floor unspeakably foul, one sees clean surfaces, free from all objectionable matter. That this is a great movement toward the improvement of the health of the employees, is certain. When the movement is universal and especially when the people themselves won't allow promiscuous expectoration, then assuredly one great step forward will have been made toward the control of tuberculosis.

THE HOUSING PROBLEM.

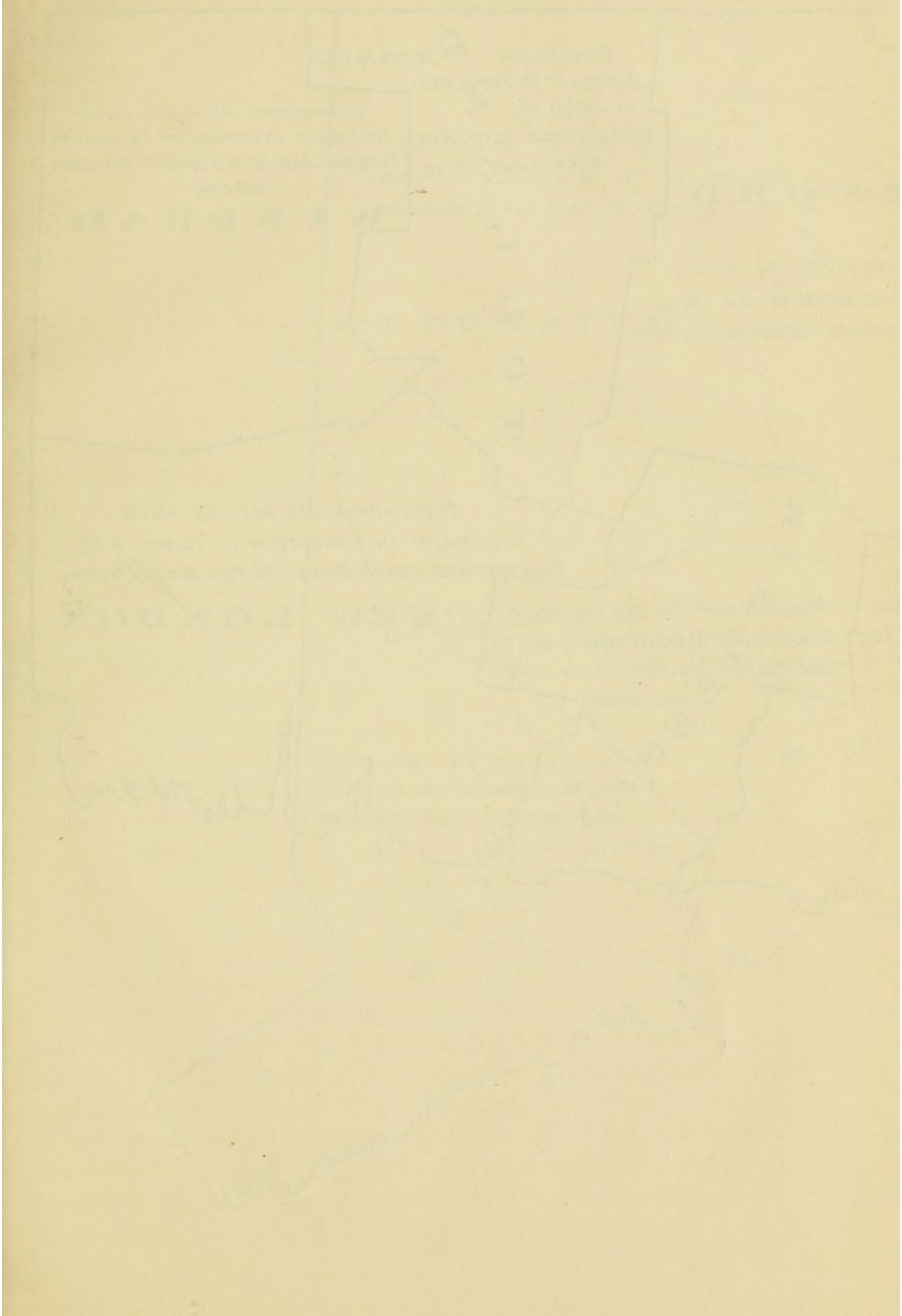
Early in the development of interest in the question of state control of tuberculosis, systematic investigation of the tenement house conditions in crowded centers of population attracted special attention. Tuberculosis was known to be a disease that was specially frequent and virulent in crowded habitations occupied by the extremely poor and ignorant. The excess of population was not alone responsible for the difficulty. The associated poverty and neglect of sanitary rules of conduct were equally potent factors. The conditions that have been revealed in New York City, Philadelphia, Chicago, and in fact all the great cities of the world, are appalling. Charts of the infected districts in those cities have been published, showing some portions of the poorest quarters so seriously infected as to justify the question whether any of the occupants of such homes escape some degree of infection. In Connecticut we have no great cities. In the neighborhood of the largest cities that we have, within a few minutes' walk of the centers of work, are open fields, ready for occupation and to be purchased at reasonable price. Such being the case and with trolley development rendering even more distant and more healthful localities easily within reach, the development of the unhygienic tenement is not a necessity and the growth of the nuisance is to be deplored.

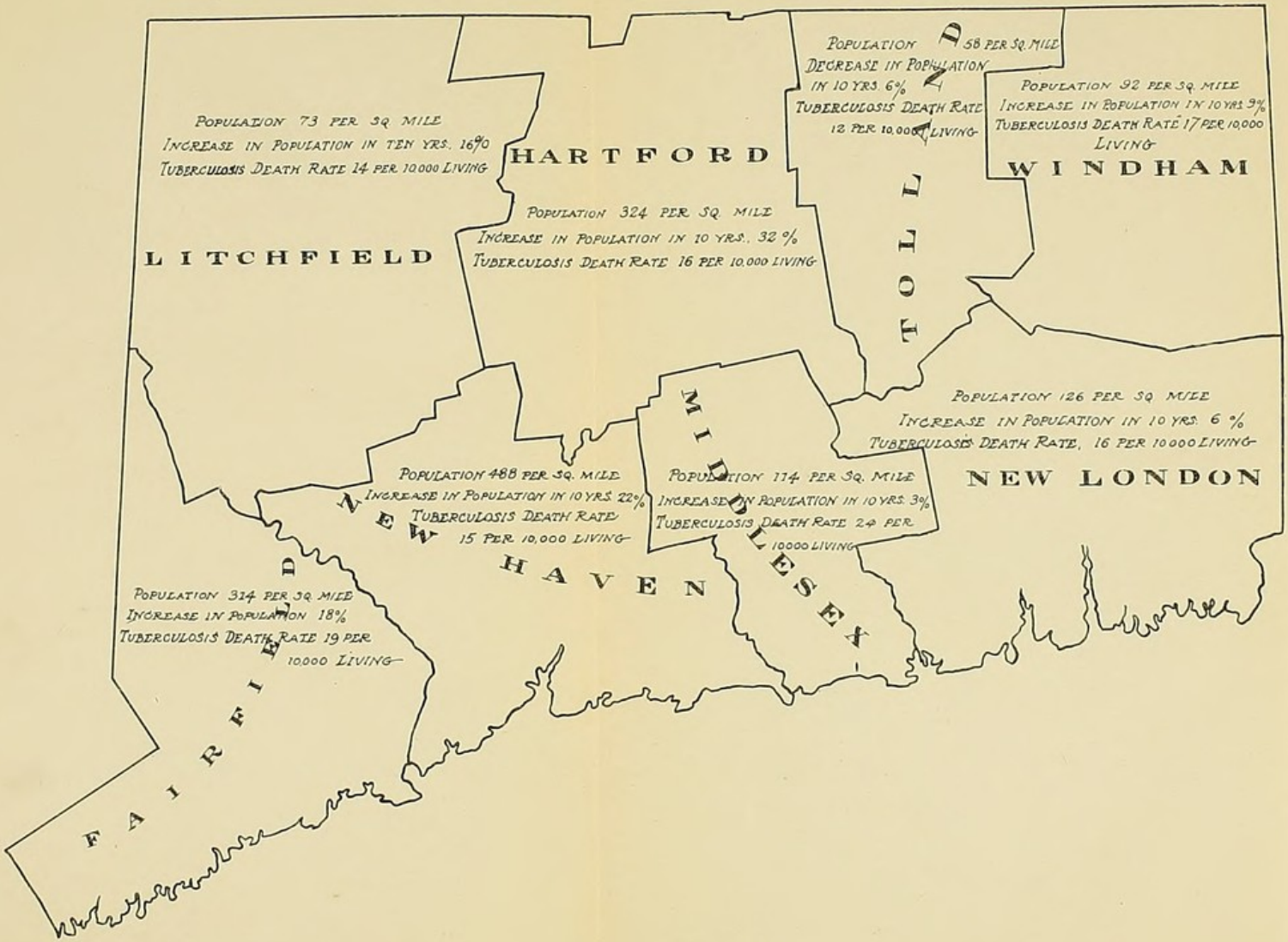
And yet in most of our cities, with apparently little necessity for overcrowding and unhygienic living, the evil of the tenement house is undoubtedly rapidly increasing. Under present conditions, this state of affairs seems to be unavoidable, for two reasons: First, the cheaply built, overcrowded tenement is a profitable investment and the owners of property, who look only for large returns, have a legal right to construct such buildings, if they comply with the building regulations that are specified in the laws for tenement construction. These tenement house owners form a class in every city that are active in maintaining their right to erect such buildings, and are a political factor that

cannot be disregarded. Second, most of the people who occupy these tenements are contented with their accommodations and are not in sympathy with the measures that enlightened members of every community have earnestly advocated on their behalf. The vast immigration to our country, that pours into every city and town annually, thousands of the poorest from the countries of Southern and Southeastern Europe and from the far East, has created a new order of things in our municipal life. These people have left conditions much worse than they find them here. The tenement that to the educated American seems insufferable, is to these immigrants superior to what they have left. They are often densely ignorant and prejudiced against all measures for their relief, regarding with suspicion the efforts of social reformers, whose motives they are incapable of understanding. These immigrants are not only content with the crowded tenement, but to a large degree they enjoy the life that brings them into close association with so many of their own class. They will endure privation and impaired health willingly, rather than accept employment in the open country, where they can receive good wages and clean and healthful homes. Many of these immigrants are industrious and thrifty, and prefer the cheapest rent possible to enable them to accumulate money. As they become accustomed to the new country and have saved sufficient to admit of living under better conditions, they move into homes of their own, or into tenements of a better class. The places that they leave vacant are immediately filled by the endless supply that comes from the home country, and their early experiences in America are repeated. The proper regulation of the tenements occupied by this class must ever rest with the local health authorities. These tenements are sure to become foci of infection that are a serious menace to the public health, if they are not kept under rigid supervision. This condition of affairs, that seriously complicates all effort toward hygienic living, seems to be destined to continue indefinitely. There is no reason to suppose that the attitude of these foreigners toward sanitary precautions will ever be changed from what it is to-day. The health authorities must ever be on the alert to suppress all vicious practices and thus keep these tenements in a condition as little prejudicial to the public welfare as may be possible.

The greatest influence that can be brought to bear upon this class of the community is in the education of the children. Every child should be educated in the rules of decent living, and in such rules for the avoidance of practices that lead to sickness as they may be old enough to comprehend. Our public educators have it in their power to do more than any other organization to accustom the children of our cities and towns to an appreciation of the value of fresh air, clean food, decent sanitary precautions. Children can be made to accept all such ideas and to influence their parents in observing them. If tuberculosis is to be controlled, a large part of the influence that is to bring about that beneficent result will come from judicious public school instruction.

Another evil is rapidly developing in our cities that calls for special attention. The lodging-house is an institution that seems some degrees lower than the tenement. A house so old that it would better give place to a newer and more suitable structure, is purchased for a very small sum and filled with beds and bunks to its utmost capacity. The occupants have no decent means for personal cleanliness, and it is to be feared that in the majority of cases they are not disturbed by that fact. In such houses the floating and extremely poor congregate. They are the beings most of all likely to be tuberculous, least of all likely to take the slightest precautions, or to receive kindly the suggestions of workers devoted to improving their conditions. To add to the undesirable characteristics of this lodging-house class, they are a floating population—fifteen cents a night for a bed, no matter where the bed is—in one part of the town one night, in another part the night following. So they roam about and scatter the germs of tuberculosis, with an industry that most of them are not in the habit of displaying in other directions. The occupants of lodging-houses are an indolent, undesirable class, upon the one hand; or a very poor class, who are soon to occupy better accommodations, as they find work and are enabled to better their condition. That the indolent should be restrained from becoming a serious menace to the public welfare, is right; it is equally right that careful inspection and regulation of these lodging-houses should render them as little harmful as possible, in the interest of the worthy who are for the time being compelled to occupy them. The profits that come to the owners of low tenements and lodg-




POPULATION 73 PER SQ MILE
INCREASE IN POPULATION IN TEN YRS. 16%
TUBERCULOSIS DEATH RATE 14 PER 10.000 LIVING
LITCHFIELD
HARTFORD
POPULATION 324 PER SQ MILE
INCREASE IN POPULATION IN 10 YRS., 32 %
TUBERCULOSIS DEATH RATE 16 PER 10.000 LIVING
POPULATION 58 PER SQ MILE
DECREASE IN POPULATION IN 10 YRS. 6%
TUBERCULOSIS DEATH RATE 12 PER 10,000 LIVING
TOLLAND
POPULATION 92 PER SQ MILE
INCREASE IN POPULATION IN 10 YRS. 9%
TUBERCULOSIS DEATH RATE 17 PER 10,000 LIVING
WINDHAM
POPULATION 126 PER SQ MILE
INCREASE IN POPULATION IN 10 YRS. 6 %
TUBERCULOSIS DEATH RATE, 16 PER 10000 LIVING
NEW LONDON
POPULATION 488 PER SQ. MILE
INCREASE IN POPULATION IN 10 YRS. 22%
TUBERCULOSIS DEATH RATE 15 PER 10,000 LIVING
NEW HAVEN
POPULATION 174 PER SQ. MILE
INCREASE IN POPULATION IN 10 YRS. 3%
TUBERCULOSIS DEATH RATE 24 PER 10000 LIVING
MIDDLESEX
POPULATION 314 PER SQ MILE
INCREASE IN POPULATION 18%
TUBERCULOSIS DEATH RATE 19 PER 10.000 LIVING
FAIRFIELD

ing-houses are relatively large. In all efforts to secure proper supervision of the business, these owners are found to be financially able to maintain an opposition that is not easily overcome. They have no interest beyond the return that they may get for their investment. It has already been shown, that the unfortunate occupants of their houses are, as a rule, wholly indifferent to any measures for their physical betterment. Why then do we not let them alone? Because it is the State's duty to do the best by every man, even when in his ignorance he scorns the effort, and because, in the foci of infection that are being established by these undesirable agencies, the well-being of the whole community is being jeopardized.

It is within the power of the Commission to publish charts of local conditions in our cities that would fully confirm what has been written upon the subject, but it is deemed wiser to avoid any specific exposure of the evils in question. The facts are known. The health authorities of our cities are fully cognizant of the truth. It is for them to act and for the State to stand back of them and further their efforts.

So much has been written of infected districts in our cities, that there seems to be a popular impression that tuberculosis is a city disease. Is this so? Has the farmer no interest in the question, because of his security from infection? To answer this question, your Commission has taken measures to investigate tuberculosis in rural Connecticut, exclusive of the cities.

The State of Connecticut has on an average about 200 people to the square mile. New Haven County has 488 to the square mile; Hartford County, 324; Middlesex County, 114; Windham County, 92; Fairfield County, 314; New London County, 126; Litchfield County, 73; Tolland County, 58.

During the past ten years the population of Connecticut has increased about 20 per cent. The population of New Haven County has increased about 22 per cent.; Hartford County, 32 per cent.; Fairfield County, 18 per cent.; New London County, 6 per cent.; Litchfield County, 16 per cent., while the population of Tolland County has decreased 6 per cent.

In the statistical year 1905-1906, the death rate from tuberculosis of all kinds in the different counties was as follows: New Haven, 15 per 10,000; Hartford, 16; Fairfield, 19; New London, 16; Middlesex, 24; Windham, 17; Litchfield, 14; Tolland, 12.

The death rate in the ten largest cities of the State was as follows:

City.	Population.	Tuberculosis death rate per 10,000.
New Haven	121,216	18 per 10,000
Hartford	95,822	16 per 10,000
Bridgeport	84,274	21 per 10,000
Waterbury	61,900	15 per 10,000
New Britain	33,720	15 per 10,000
Meriden	30,658	16 per 10,000
Norwich	25,620	16 per 10,000
Norwalk	21,243	16 per 10,000
Stamford	20,720	16 per 10,000
New London	19,822	16 per 10,000

These figures do not represent an exceptional year. They are approximately representative of the statistics from the different counties for the past ten years as may be seen by consulting the appended tables.

COUNTY OF NEW HAVEN.

1894–1906.

	Estimated Population.	Total Deaths.	Deaths from Tuberculosis.	Deaths from Phthisis.
1894–'95	236,662	4,017	503	429
1895–'96	236,662	4,232	491	417
1896–'97	254,605	4.525	470	391
1897–'98	259,550	4,067	481	404
1898–'99	263,528	4,318	515	466
1899–'00	274,375	4,153	486	437
1900–'01	269,163	4,773	543	484
1901–'02	269,163	4,451	498	446
1902–'03	281,162	4,371	500	450
1903–'04	287,209	4,549	489	417
1904–'05	293,200	4,620	510	443
1905–'06	299,225	4,848	470	427

	No. of deaths to 1,000 population.	No. of deaths from T.B. to 1,000 population.	No. of deaths from Phthisis to 1,000 population.
1894–'95	16.5+	2.1+	1.8+
1895–'96	17.3+	2.0+	1.7+
1896–'97	17.7+	1.8+	1.5+
1897–'98	15.6+	1.8+	1.5+
1898–'99	16.4—	1.9+	1.8—
1899–'00	15.1+	1.7+	1.6—
1900–'01	17.7+	2.0+	1.8—
1901–'02	16.5—	1.8+	1.6+
1902–'03	15.5+	1.7+	1.6+
1903–'04	15.8+	1.7+	1.4+
1904–'05	15.7+	1.7+	1.5+
1905–'06	14.5+	1.5+	1.4+

HARTFORD COUNTY.

1894–1906.

	Estimated Population.	Total Deaths.	Deaths from Tuberculosis.	Deaths from Phthisis.
1894–'95.....	161,725	2,560	280	250
1895–'96.....	161,725	2,827	303	264
1896–'97.....	172,119	2,987	287	231
1897–'98.....	186,408	2,891	358	309
1898–'99.....	185,858	2,939	308	275
1899–'00.....	189,260	3,217	349	324
1900–'01.....	195,415	3,418	339	315
1901–'02.....	195,415	3,082	321	294
1902–'03.....	205,117	2,891	263	242
1903–'04.....	209,683	3,253	316	282
1904–'05.....	214,698	3,367	303	270
1905–'06.....	219,626	3,488	352	300

	No. of deaths to 1,000 population.	No. of deaths from T.B. to 1,000 population.	No. of deaths from Phthisis to 1,000 population.
1894–'95.....	15.8+	1.7+	1.5+
1895–'96.....	17.4+	1.8+	1.6+
1896–'97.....	17.3+	1.6+	1.3+
1897–'98.....	15.5+	1.9+	1.6+
1898–'99.....	15.8+	1.6+	1.4+
1899–'00.....	16.9+	1.8+	1.7+
1900–'01.....	17.4+	1.7+	1.6+
1901–'02.....	15.2+	1.6+	1.5+
1902–'03.....	14.0+	1.2+	1.1+
1903–'04.....	15.5+	1.5+	1.3+
1904–'05.....	15.6+	1.4+	1.2+
1905–'06.....	15.8+	1.5+	1.3+

FAIRFIELD COUNTY.

1894–1906.

	Estimated Population.	Total Deaths.	Deaths from Tuberculosis.	Deaths from Phthisis.
1894–'95.....	166,927	2,817	335	237
1895–'96.....	166,927	3,069	411	291
1896–'97.....	172,898	3,063	375	251
1897–'98.....	178,074	2,812	336	257
1898–'99.....	179,070	2,807	341	307
1899–'00.....	182,395	2,892	337	299
1900–'01.....	184,203	3,220	343	309
1901–'02.....	184,203	3,027	369	330
1902–'03.....	191,014	3,088	322	283
1903–'04.....	194,440	3,269	308	289
1904–'05.....	197,848	3,328	341	311
1905–'06.....	201,261	3,453	386	336

	No. of deaths to 1,000 population.	No. of deaths from T.B. to 1,000 population.	No. of deaths from Phthisis to 1,000 population.
1894–'95.....	16.8+	2.0+	1.4+
1895–'96.....	18.3+	2.4+	1.7+
1896–'97.....	17.7+	2.1+	1.4+
1897–'98.....	15.7+	1.8+	1.4+
1898–'99.....	15.6+	1.9+	1.7+
1899–'00.....	15.3+	1.8+	1.6+
1900–'01.....	17.4+	1.8+	1.6+
1901–'02.....	16.4+	2.0+	1.7+
1902–'03.....	16.1+	1.6+	1.4+
1903–'04.....	16.8	1.5+	1.4+
1904–'05.....	16.3+	1.7+	1.5+
1905–'06.....	17.1+	1.9+	1.6+

LITCHFIELD COUNTY.

1894–1906.

	Estimated Population.	Total Deaths.	Deaths from Tuberculosis.	Deaths from Phthisis.
1894–'95.....	56,433	899	103	73
1895–'96.....	57,888	944	80	55
1896–'97.....	59,229	928	107	61
1897–'98.....	60,123	888	82	61
1898–'99.....	62,572	826	95	83
1899–'00.....	62,764	940	108	98
1900–'01.....	63,672	1,163	110	92
1901–'02.....	63,672	997	104	88
1902–'03.....	65,696	884	89	68
1903–'04.....	66,712	914	74	67
1904–'05.....	67,721	935	102	93
1905–'06.....	68,735	1,035	102	84

	No. of deaths to 1,000 population.	No. of deaths from T.B. to 1,000 population.	No. of deaths from Phthisis to 1,000 population.
1894–'95.....	15.9+	1.8+	1.2+
1895–'96.....	16.3+	1.3+	.9+
1896–'97.....	15.6+	1.8+	1.0+
1897–'98.....	14.7+	1.3+	1.0+
1898–'99.....	13.2+	1.5+	1.3+
1899–'00.....	14.6+	1.7+	1.5+
1900–'01.....	18.2+	1.7+	1.4+
1901–'02.....	15.6+	1.4+	1.2+
1902–'03.....	13.4	1.3+	1.0+
1903–'04.....	13.7+	1.1+	1.0+
1904–'05.....	13.8+	1.5+	1.3+
1905–'06.....	15.0+	1.4+	1.2+

MIDDLESEX COUNTY.

1894–1906.

	Estimated Population.	Total Deaths.	Deaths from Tuberculosis.	Deaths from Phthisis.
1894–'95.....	41,317	733	88	70
1895–'96.....	41,317	725	112	80
1896–'97.....	44,191	770	89	59
1897–'98.....	44,285	659	58	42
1898–'99.....	45,125	740	82	78
1899–'00.....	44,900	735	71	69
1900–'01.....	41,760	842	76	69
1901–'02.....	41,760	752	90	86
1902–'03.....	42,203	713	82	73
1903–'04.....	42,426	826	83	73
1904–'05.....	42,653	793	84	77
1905–'06.....	42,867	807	104	91

	No. of deaths to 1,000 population.	No. of deaths from T.B. to 1,000 population.	No. of deaths from Phthisis to 1,000 population.
1894–'95.....	17.7+	2.1+	1.6+
1895–'96.....	17.5+	2.7+	1.9+
1896–'97.....	17.4+	2.0+	1.1+
1897–'98.....	14.8+	1.3+	.9+
1898–'99.....	16.3+	1.8+	1.7+
1899–'00.....	16.3+	1.5+	1.5+
1900–'01.....	20.1+	1.8+	1.6+
1901–'02.....	18.0+	2.1+	2.0+
1902–'03.....	16.8+	1.9+	1.7+
1903–'04.....	19.4+	1.9+	1.7+
1904–'05.....	18.5+	1.9+	1.8+
1905–'06.....	18.8+	2.4+	2.1+

NEW LONDON COUNTY.

1894–1906.

	Estimated Population.	Total Deaths.	Deaths from Tuberculosis.	Deaths from Phthisis.
1894–'95.....	79,995	1,415	190	143
1895–'96.....	79,995	1,386	185	149
1896–'97.....	80,903	1,438	188	122
1897–'98.....	82,156	1,372	170	125
1898–'99.....	83,911	1,328	141	120
1899–'00.....	86,951	1,270	125	112
1900–'01.....	82,758	1,587	154	144
1901–'02.....	82,758	1,433	145	126
1902–'03.....	83,984	1,339	144	132
1903–'04.....	84,593	1,492	155	138
1904–'05.....	85,211	1,502	138	119
1905–'06.....	85,894	1,476	140	116

	No. of deaths to 1,000 population.	No. of deaths from T.B. to 1,000 population.	No. of deaths from Phthisis to 1,000 population.
1894–'95.....	17.6+	2.3+	1.7+
1895–'96.....	17.3+	2.3+	1.8+
1896–'97.....	17.7+	2.3+	1.5+
1897–'98.....	16.7—	2.0+	1.5+
1898–'99.....	15.7+	1.6+	1.4+
1899–'00.....	14.6+	1.4+	1.2+
1900–'01.....	17.9+	1.8+	1.7+
1901–'02.....	17.3+	1.7+	1.5+
1902–'03.....	15.9+	1.7+	1.5+
1903–'04.....	16.4+	1.8+	1.6+
1904–'05.....	17.6+	1.6+	1.3+
1905–'06.....	16.0+	1.6+	1.3+

WINDHAM COUNTY.

1894–1906.

	Estimated Population.	Total Deaths.	Deaths from Tuberculosis.	Deaths from Phthisis.
1894–'95.....	43,306	873	107	79
1895–'96.....	46,306	914	101	69
1896–'97.....	45,690	877	96	80
1897–'98.....	47,536	824	97	73
1898–'99.....	48,321	808	94	82
1899–'00.....	45,448	796	87	76
1900–'01.....	46,861	910	108	96
1901–'02.....	46,861	732	75	70
1902–'03.....	47,192	734	72	68
1903–'04.....	47,329	746	85	57
1904–'05.....	47,543	781	78	72
1905–'06.....	47,714	822	83	74

	No. of deaths to 1,000 population.	No. of deaths from T.B. to 1,000 population.	No. of deaths from Phthisis to 1,000 population.
1894–'95.....	20.1+	2.4+	1.5+
1895–'96.....	19.7+	2.1+	1.4+
1896–'97.....	19.1+	2.1+	1.7+
1897–'98.....	17.3+	2.0+	1.5+
1898–'99.....	16.7+	1.9+	1.6+
1899–'00.....	17.5+	1.9+	1.6+
1900–'01.....	19.8+	2.1+	2.0+
1901–'02.....	15.6+	1.6+	1.4+
1902–'03.....	15.5+	1.5+	1.4+
1903–'04.....	15.7+	1.7+	1.2+
1904–'05.....	16.4+	1.6+	1.5+
1905–'06.....	17.2+	1.7+	1.5+

TOLLAND COUNTY.

1894–1906.

	Estimated Population.	Total Deaths.	Deaths from Tuberculosis.	Deaths from Phthisis.
1894–'95.....	25,892	385	40	30
1895–'96.....	25,892	449	50	33
1896–'97.....	25,600	447	46	32
1897–'98.....	25,060	402	37	35
1898–'99.....	24,675	404	33	27
1899–'00.....	26,066	378	38	36
1900–'01.....	24,523	455	41	40
1901–'02.....	24,523	372	32	27
1902–'03.....	24,417	366	31	28
1903–'04.....	24,356	441	52	31
1904–'05.....	24,303	385	32	27
1905–'06.....	24,248	369	30	25

	No. of deaths to 1,000 population.	No. of deaths from T.B. to 1,000 population.	No. of deaths from Phthisis to 1,000 population.
1894–'95.....	14.8+	1.5+	1.1+
1895–'96.....	17.1+	1.9+	1.2+
1896–'97.....	17.4+	1.8+	1.2+
1897–'98.....	16.0+	1.4+	1.3+
1898–'99.....	16.3+	1.3+	1.0+
1899–'00.....	14.5+	1.4	1.3+
1900–'01.....	18.5+	1.6+	1.6+
1901–'02.....	15.1+	1.3+	1.1+
1902–'03.....	14.9+	1.2+	1.1+
1903–'04.....	17.6+	2.1+	1.2+
1904–'05.....	15.8+	1.3+	1.1+
1905–'06.....	15.2+	1.2+	1.0+

It appears from these tables, that the death rate in our cities has been very nearly the same as that of the whole county. This is not to be taken as any evidence against the excessive development of tuberculosis in large cities. It is clearly due to the fact that there are no large cities in Connecticut, and that the conditions of excessive crowding and poverty do not exist to a great extent in any section of the State. The two cities in the State showing an increase over the county rate are New Haven and Bridgeport, where unsuitable tenement conditions are as likely to be found as anywhere in the State.

Of course it can be maintained, in relation to these statistics, that they are not accurate; that many cases of consumption are returned as deaths from bronchitis or pneumonia, or other

diseases that neither suggest a family taint nor interfere with the full payment of life insurance. But there is no reason to assume that such false returns are more frequent in one county than in another.

Early in April, a circular was addressed to a resident physician, the town clerk and the town health officer of each town in the State, in which they were requested, to the best of their ability, to answer the four following questions:

1. Have the cases of consumption occurred frequently in certain houses?

2. Have these houses harbored cases of consumption only when tenanted by certain families?

3. Have the houses in which cases of consumption occurred been especially damp or dark, or near to unhygienic barns or coops?

4. Have the cases of consumption been limited to one particular part of the town, or have they occurred in all parts of the town?

The replies have been surprisingly numerous. We have heard from all but 11 of the 163 towns to which the circular was sent. Most of the men who were courteous enough to answer, were satisfied with saying "Yes" or "No" to the different queries. A few of the town clerks, instead of answering the questions, simply said that there was little of the disease in their towns. As a rule, the most valuable replies were from the physicians, but some of the lay officials showed a remarkably intelligent and sympathetic interest in the investigation.

To the first question, "Have the cases of consumption occurred frequently in certain houses?" the great majority of the answers, as will be seen by the table, were in the negative. Yet in the 33 affirmative replies, some interesting facts were developed. Of these, only 16 reported that the houses in which frequent cases of consumption occurred, harbored cases after a first consumptive family moved out.

Only about one-fourth of the reporters say that insanitary environment was usual in the houses in which consumption occurred, and of this one-fourth, a majority lay emphasis on a damp cellar as a common finding in the house of the consumptive.

With practical unanimity, the reporters state that the cases of consumption have occurred in all parts of the towns.

The 260 answers received from the 152 towns may be tabulated as follows:

Q. 1. Have the cases of consumption occurred frequently in certain houses?

A. No, 181; Yes, 33; No answer, 44.

Q. 2. Have these houses harbored cases of consumption only when tenanted by certain families?

A. No, 8; Yes, 16; Doubtful, 1.

Q. 3. Have the houses in which cases of consumption occurred been especially damp or dark, or near to unhygienic barns or coops?

A. No, 173; Yes, 32; No answer, 48.

Q 4. Have the cases of consumption been limited to one part of the town, or have they occurred in all parts of the town?

A. All parts, 202; One particular part, 2; No answer, 51; Two parts, 1.

The Commission feels that a few of these letters will be of interest. With due appreciation of the courtesy of the writers, it seems best to publish them impersonally.

No. 1. "To illustrate from my practice, a farmer and wife, apparently healthy, came from ——— with a family of four children, and bought a farm. As children came to adolescence, they died of consumption until all but one were gone, and she has spent years in a sanatorium. They sold the place, but not before they had adopted two children, and moved to another. One of the adopted children is phthisical and father has active focus on lung. No family history. No signs before coming to that house. I can get no history of there having been any in the house, yet where did it come from? They are good, nice, clean, religious people."

No. 2 reports all the cases occurring in the town since January 1, 1904, 43 in number, and concerning them he makes the following comments: "Nearly all the cases are widely separated from each other, and no two in the same house, except in two instances. I am well acquainted with the location of the houses, and except one on ——— Avenue and one on ——— Street, they are all high and dry."

No. 3 says, in answer to question four: "No particular part of town; though I am of the opinion that the larger number of our cases are in the near vicinity of the Connecticut River."

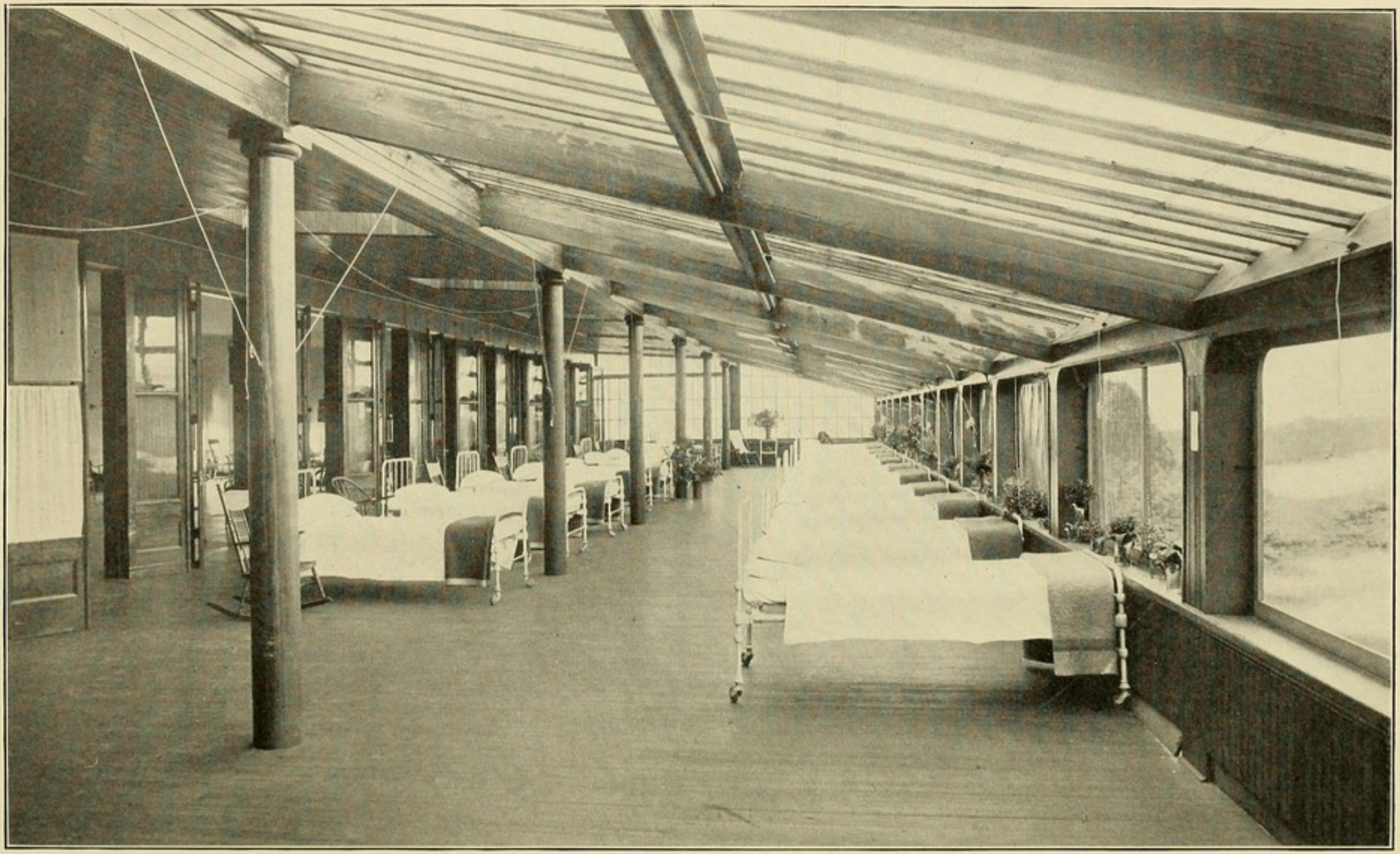
No. 4 says: "Cases have not been limited to one particular part of the town. They have been general, and as frequent in the farming sections (if not more) than in the manufacturing sections."

No 5. The Commission appreciates highly the response to their questions contained in the following interesting letter: "I am deeply interested in the work of your Commission, and am glad to be of any assistance. I have examined the records of deaths in this town since October, 1896, at which time I assumed the duties of Registrar, and have taken the names of all persons who have died from tuberculosis during the eleven and one-half years which have elapsed since that date. Fourteen deaths have occurred during the period, but I shall exclude one in answering inquiries, because of the fact that in that case the person came into town in the last stages of the disease, living but a few weeks.

"I am surprised to find, on looking over this list, that every death occurred within a mile of the Connecticut River, or its tributary, Eight-Mile River. This may be a mere chance, and I had never thought of the disease being at all confined to certain localities, but you will further see that nine, or nearly three-quarters of the deaths, were in one very small corner, as shown by the enclosed map.

"In the house marked '4', the first death occurred in June, 1897, the victim being a lady of thirty-six, who had up to a few months before been very strong and healthy. In December, 1892, a brother died, aged twenty-nine, and in May, 1903, another sister was taken, at the age of thirty, after a long illness, which she endeavored to overcome by outdoor life here and in the West. In January, 1906, the father died, at the age of eighty. The house occupied by this family has been the home of their ancestors since before the Revolution, and I am informed that no other cases have ever been known there. Although near the water, the house stands in a sunny, well-drained location.

"The house marked '2' is not as well situated, but is near a large marsh and built into a bank on the rear. The first case was that of a girl of sixteen; the second that of her mother, two years later, the mother having taken all the care of her daughter, and beginning to fail in health soon after her death. With the exception of two, all of the persons dying from tuberculosis since 1896



SLEEPING PORCH.

have been native Americans, and all but one have lived in this locality most of their lives.

"All of the homes are on a par with the average country home, and with two or three exceptions, the locations would appear to be healthful. More than half of the victims were past middle life, and only two were under twenty-five.

"In the past, tuberculosis has been by no means confined to one section of the town, and a general examination of the records for fifty years back seems to show that the average death rate from this cause forty to fifty years ago was thirty to fifty per cent. greater than at present.

"I hope I have not gone into details too much, but knowing the people of my town and their condition personally, I thought these facts might be of interest.

"There have been no deaths in this town from tuberculosis for more than two years, and so far as I know, there are no clearly defined cases here at present."

No. 6. Dr. George H. Wright of New Milford says, that most of the cases in the neighborhood of New Milford occur among men grinding silica, and he suggests that the State find a way to do away with the dangers of the present methods of grinding, either wet or dry.

No. 7 says: "We have in our town two houses, in which the people who have occupied them for the last fifty years have died with tuberculosis.

"Taking up the matter of the first house, I would say that the old residents were of New England stock, and with one exception, died with said disease. About fifteen or twenty years ago, a family from Sweden, who were apparently well and strong when they arrived, lost four of the family, who died with the same disease in this house.

"The house is free from tenants at the present time; in fact, has not been occupied for three or four years. The other house, history shows the death of the old New England farmer, his first wife, second wife and himself, who died of consumption. Another family moved in; the father old New England stock, the mother Irish. They raised seven children, five of whom died with tuberculosis. One daughter, despondent because of her condition of health, and having been told by physicians that she would

die of consumption, drowned herself. The other, a son, was drowned. Then a family from Canada, French people, moved into the house, and the mother has just died with consumption. In fairness to the history, I will say, when the woman came from Canada, the physician told her she had bronchial trouble, but never told her she had tuberculosis. However, after living there a short time, she was taken with the same disease and died.

"Neither of the houses are damp or dark, nor have barns or coops near enough to be unsanitary. The cases of consumption have not been limited to any part of the town, but occasionally in various sections of the town."

No. 8 says: "In one house built by the father forty years ago, and no other family occupying it, when the youngest of the children was about twelve years old, she died with consumption; in about two years the next oldest died, and in about two years the next died—all girls, and apparently healthy until the first developed the disease. There are two older sisters still living and in fairly good health. The house is in good situation and well cared for.

"In house No. 3, built about twenty years ago, there was a case of tuberculosis in the first family residing in it. This family moved away and another family came, and in a few years three of the second family died. When this family moved to another house, another member of the family died in a few months, and then another was taken ill with the disease, but was sent to the Wallingford Home and returned very much improved, and still seems to be improving. This house is on low, wet ground, with damp cellar."

No. 9 writes: "I find upon examination of the records of this town, that in the last fifty years, which is as far back as the records are accurate in the matter of deaths, that there were 176 deaths from tuberculosis, an average of about 3½ each year. Dividing this into two periods of 25 years each, it shows that during the first period there were 116 deaths, a little over 4⅗ per year. In the second period, from 1882 to date, there were 60 deaths, an average of 2⅔ per year.

"Again, taking up the period from 1888 to 1898, 33 deaths, and from 1898 to 1908, 17 deaths, which shows a remarkable decrease. I cannot find any locality where the disease has appeared for any length of time. The cases are scattered over all sections of the

town, and in the majority of cases, isolated. I find that in some families there have been several deaths in one house, no cases having appeared in that locality or house, either before or after the removal of that family from that particular house or locality."

No. 10 says concerning that town: "For a manufacturing town, with its mixed population, exceedingly unhygienic tenements, and no general sewer system, we have very little consumption. Our freedom from it has been ascribed to the fact that so many are employed in the paper mills, which use large quantities of chloride of lime; also that the chloride not only disinfects those who work in the mills, but tends to disinfect the air of the town. This would hardly seem to explain the comparative immunity from tuberculosis, for we certainly have enough other infectious and contagious diseases, except typhoid.

"In Litchfield County, where I practiced six years, we had a good many cases of consumption, and there were many houses, old, damp and poorly lighted, where several successive families had developed tuberculosis, often two, three and even five members of the same family dying one after the other.

"I cannot say that unhygienic barns or coops were a factor, but dampness, filth, and failure to paint and whitewash, after the house had been infected, were nearly always factors."

No. 11 says, that the cases have occurred "In the valley, and on the mountain top; in all parts of the town."

No. 12 reports: "Many of the houses are very old, many over the century mark, and more from fifty to ninety years of age. In many, no doubt there have been more than one case of tuberculosis, but I do not recall any marked ones.

"Regarding this place, we have had considerable tuberculosis during the thirty-five years of my practice, but I believe not as much as in many towns of like size. It has been amongst all classes, rich and poor, native and foreign born, and I must confess, with a good many cases in the same family.

"In many years past it is of record that whole families like the Y's, a family of six, and the H's, a family of seven, were taken one by one, until all are gone, or maybe one left to grow old."

No. 13 gives the following succinct data: "In one house, same family, six deaths; one house, same family, four deaths; three houses, same family, three deaths; one family, three deaths in

two houses; one family, four deaths in three houses; nine families, two deaths each in nine houses."

He says that 125 cases have been reported since they organized as a town in 1869—44 cases in 16 families, and 81 cases in as many families, scattered.

No. 14. The following history is one of unusual interest: "James and Margaret, each now ninety years old, were the parents of seven children, five girls and two boys. The last child died four years ago last fall. All were born and raised on the farm, and all were well developed and well nourished. All but two of them died on the farm. The farmhouse was low-studded, a short roof on one side and a long roof on the other side reaching to the ground. The barn was fifty feet away. In it were usually kept twelve to fifteen cows and horses—no goats or sheep. This barn was unhealthy and located between three swamps, which were an eighth, a tenth and a sixth of a mile distant. Most of the children assisted in the milking of the cows. The milk was used on the place and made into butter and cheese. The girls usually left home when about sixteen years of age, to work in hotels and families as servants, and usually returned home sick, where they lasted from six months to four years."

In many of the houses, alluded to in these letters from some of our most beautiful country towns, there may possibly have been nothing to indicate the reason for the persistence of the tuberculous infection. In most of them the owners were undoubtedly industrious and worthy people. In practically all of them, it is quite possible that the blinds were tightly closed, the windows always closed, except during house-cleaning, the cellar windowless, or nearly so; in short, they were all barred against sunlight and fresh air, as has been the almost universal custom in Connecticut for generations. The sun may fade the carpet, but if it puts healthful color into the cheeks, the exchange is no loss.

Upon a farm located in the most healthful part of Connecticut, a family has resided for some years that was of the kind so often described as "consumptive." Four members of the family had died of tuberculosis and two were seriously infected, when one member of the family, in seeking employment, was hired by a sanitarium for the treatment of tuberculosis. While in service at the sanitarium, the girl learned the value of fresh air and sunlight and returned home to institute reform. The house was completely

embedded in trees; the windows were never opened and no attempt had ever been made to disinfect. All was immediately changed; the trees came down, the fresh air was admitted everywhere, paint and work cleaned the place. The two invalids remained at home and began to improve. One is well to-day, the other improving. Not another case has developed in that house. The farm was attractive, the people industrious. The story applies to hundreds of homes in New England to-day. The disease and death are not in such cases to be attributed to a want of cleanliness, but to a lack of understanding as to the vital importance of sunlight and fresh air.

From the facts at hand it would appear that

Human tuberculosis has occurred in all parts of Connecticut—highland and lowland and plain, in city or village.

There is considerable evidence to show, that in rural Connecticut human tuberculosis occurs most frequently in badly drained districts and in houses with damp cellars.

The reports received do not support the view, that in rural Connecticut cases of consumption occur frequently in close proximity to unsanitary barns or coops.

While the preponderance of testimony is that in rural Connecticut only a minority of cases of consumption have been followed by other cases in the same house, or the same family, the evidence in favor of the hypothesis of "consumption houses" and "consumption families" is often very striking and is deserving of careful consideration.

The fact that private houses may become infected with tuberculosis, as well as the larger tenements, is conceded. Where such residences are occupied by one family, it does not appear that the State has any duty in the matter. With people of even ordinary intelligence, to know the facts should be enough to secure correction of the evil, and the local health officer already possesses the power to disinfect such premises. A physician in attendance upon such a family holds a position of responsibility, and is derelict in his duty if he does not recognize the necessity for disinfection and proper living, and make such necessity apparent to his patients. In tenements where several families are under the same roof, it is the duty of the State to see that these families are protected. One careless and indifferent consumptive may imperil the whole tenement, and without the aid of the State the occupants

of the house have no redress. So long as the laboring people are forced to reside in tenement houses, simply by reason of the lack of more desirable accommodations, it is the duty of the State to protect them against abuses in the construction and maintenance of the building. So far as the construction of tenement houses is concerned, the law of Connecticut, as it has been in force since June 29, 1905, would seem to be satisfactory and to ensure in all tenements to be erected in the future a sufficient provision of light and air. To secure this result, it is indispensable that the law should be enforced. As to tenements already in existence, the State law has no effect. It controls the construction in the future. It does not affect the old tenement and lodging-houses that have been occupied for many years and are in some instances inconceivably filthy. The control of this evil must reside in the health officer of the community in which it exists. How far the control of the State Board of Health might be substituted, in the matter of tenement inspection, is a question worthy of consideration. It is not always easy for a local health officer to combat strong political pressure. It is his duty to do so, of course; but if the performance of his duty results in the appointment of a substitute more congenial to the tenement owners, then, certainly, no good has been gained. Inspection placed in the hands of an outside inspector, beyond local control, might be more effective. This question is beyond the scope of this report. It is fair to say in addition, that if the public is interested in an effective administration of the local health boards, and is ready to uphold them in their efforts to control these tenement abuses, then they must see to it that the health officers receive a salary to some degree commensurate with their responsibility. Your Commission desires to be on record as advocating state tenement house inspectors, to act in coöperation with the local health authorities and to assume responsibility, if need be, for such action as may be required to protect the public health.

FACTORY CONDITIONS.

It is manifestly wrong, that one who is cleanly in person, who takes all possible precautions against infection in the home, should be subjected to possible infection from preventable sources in the place where he or she has to work for a living.

It is the duty of the public to see that the conditions in all workshops are made as safe as is practicable, and that whatever safeguards may be necessary to that end are provided.

What, then, are the sources of danger to be provided against in the workshop?

Spitting. This pernicious habit has already been referred to as being especially prolific of harm to the whole community. In workshops and stores it attains its highest efficiency as a destroyer of public health. If persons infected with tuberculosis expectorate on the floors or walls, the sputum becomes dried and is inhaled by their fellow-workers to their great danger. This is the most easily prevented source of infection, and it should be made a misdemeanor for any person to expectorate upon the floors, walls or stairways of any factory, store, public building or vehicle, and the owners should be required to post the law in conspicuous places. The factory inspector should have the authority to require suitable spittoons, in such numbers and places as may be necessary; and to require that they be cleaned and disinfected at regular intervals, not less than twice a week, or oftener if necessary; and he should further require that they be kept partly filled with water, or disinfectant.

The Massachusetts Commission has recommended that spitting upon the floors or walls of factories be prohibited by law, but their recommendation is not sufficient, as it provides no penalty. At the present time, with very few exceptions, there is practically nothing done in Connecticut to prevent indiscriminate spitting, or to provide spittoons in even the best managed factories. Recently, the subject has been so forcibly brought to the attention of the public, as a measure for the suppression of tuberculosis,

that a few factories are endeavoring to check the evil. But conditions in most factories in this respect are as bad as they can possibly be, all corners and walls being foul with spittle and tobacco juice. The efforts made to educate the public as to this foul and unnecessary habit will in time create a sentiment among the workmen themselves, that will be the most potent influence toward its correction. Until that time arrives, the factory inspector should be endowed with every power requisite to enforce reform. Many manufacturers have expressed to the Commission a desire to be informed as to a simple and practicable method for controlling expectoration in the shops. The problem is no mean one—how to cleanse 3,000 cuspidors a day calls for careful consideration. The plan adopted by the United States Government Printing Office, which was exhibited at the exhibition in Washington, during the International Congress on Tuberculosis, was so simple and effective that a large part of the pamphlet explaining the work is inserted in this report, with an earnest recommendation that all manufacturers will give the matter due consideration.

"In the United States Government Printing Office, approximately 4,800 persons are employed under one roof. A great many there employed have sedentary duties, their work being placed directly in front of them or within a given space. Many use tobacco, which excites salivation and consequent expectoration, and as a result of this condition, about 1,400 cuspidors are required for use, and which must be cleaned at the termination of each eight-hour shift.

"Some idea of the magnitude of this work may be gained, when one considers that under the old system about 400 barrels of sawdust were used each month, at a cost of $100, to fill spit boxes. The sputum caked and accumulated against the sides of boxes which could not be thus properly cleaned, and as a result they were insanitary and dangerous to health.

"Under the present method, now being installed, the cleaner picks up the dirty or used cuspidors, five at one time, in a 'nested' fashion, by a specially designed clutch or device, as shown in exhibit, and with the movement of one arm only. The five vessels, so confined, are then carried to a box truck lined with galvanized iron. After the truck has been filled (they hold 140 cuspidors), in this manner, it is pushed to the freight elevator on

each of the respective floors, and by this means is taken to the basement, whence the truck is wheeled directly into the sterilizing chamber.

"Here the cuspidors are cleaned and sterilized with boiling water and steam, the contents of vessels being carried or flushed directly into the sewer by means of a drainpipe.

"After remaining in the racks long enough to dry, where they are placed directly after the steam and water bath, the operator pulls the vessels from the rack and places them back into the truck. As each layer of cuspidors is placed in the truck, about two or three ounces of a disinfecting solution is poured into each.

"The solution is used to disinfect the sputum and to destroy or greatly attenuate (weaken) all forms of germ life, including the tubercle bacillus (consumption germ), and the organism causing pneumonia in its various forms, that may be found in the expectorations. The antiseptic remains in the cuspidor until it is washed again.

"The solution is composed of bichloride of mercury, citratic acid and a coloring agent, and is odorless. The bichloride of mercury is used for its germicidal and antiseptic properties, tests having shown that the most resistant disease germs die, when brought in contact with this agent, in less than half a minute. The citric acid used retards the coagulation or lumping of albumin in saliva, thus rendering the mercury more potent and penetrating to the mass. The coloring agent (eosin) is used to differentiate the solution from harmless liquids, such as water, only as a matter of precaution.

"The operator at no stage of the collection or cleaning procedure touches his hands or person to the dirty vessels, thus avoiding danger of infection to himself and others. The cuspidors used in demonstration were especially designed for service in the Government Printing Office, and are made without any sharp angles or overhangs, thus presenting a vessel that is self-draining and permits of very easy cleaning.

"Experience has shown that it is almost impossible to have the ordinary stock cuspidors properly cleaned, owing to the sharp undercuts and overhangs and the repugnance of the work in general. The cuspidors now in use are made of hard, tough, vitreous ware, to stand rough usage, and at the same time to withstand the corrosive action of bichloride of mercury, in addi-

tion to presenting a smooth sanitary surface for cleaning purposes. The cost is about thirty-eight cents apiece wholesale.

"The chemicals going to make up the solution necessary for an entire year's supply in the Government Printing Office cost about fourteen dollars—five gallons can be made for less than two cents—and may be purchased at any drug store or chemical concern. The labor of one man at two dollars per diem covers the cost of operation for each twenty-four hours, or three eight-hour shifts.

"No device or method in connection with this exhibit is patented, and all or any part, if desired, may be freely copied by manufacturers and persons interested in stamping out tuberculosis."

Sweeping. The factory inspector should have full power to regulate the method of sweeping in shops and stores. No method should be allowed that results in the raising of clouds of dust that must carry with it and scatter broadcast the material for infection. This regulation is to the owner's interest as well as the employee's. The method of sweeping, whether by damping or by use of some mechanical contrivance for that purpose, should be left to the judgment of the owner. Proper efforts to avoid dust during the process of cleaning the shops are now in force in the best shops in the State. Where attention to the matter is neglected, it should be immediately corrected.

Dangerous Occupations. There are certain occupations where tuberculosis is much more common than in others, such as buffing, polishing, grinding, working with emery or carborundum in foundries, or in other work on metals where minute particles of metal are taken into the lungs, causing irritation of the passages and creating an inflammatory condition favorable to the lodgment and subsequent development of the germs. Cutlery grinders and stone cutters are particularly prone to contract the disease.

All persons working in dusty occupations of any kind are liable to contract tuberculosis. Among the occupations most favorable to the development of the disease may be classed work in rooms where hemp, cotton, woolen or silk is opened, carded, picked or spun, and where dust and fibre are floating in the air; also in the fur-cutting rooms in hat manufacturies, and in woodworking establishments, such as bobbin shops, where there is much fine sawdust.

Those occupations are also classed as dangerous where there are irritating fumes of chemicals or metals, such as blast furnaces, nickel and silver plating, japanning, lacquering and hat making, also where persons are subject to extreme heat, such as glass-works, etc., or where the workers sit or stand in cramped positions, as tobacco workers, garment workers, etc.

Wet Grinding and Polishing. What measures, then, can be taken to make occupations of the above classes less dangerous? It is probable that no step in this direction has been of more value than the substitution of wet for dry grinding in cutlery, the latter, we believe, being nearly eliminated. The same principle could be followed, wherever practicable, in a great variety of cutting and polishing operations in the metal trades, by the use of water or oil, either on the polishing or grinding surface, or in jets of spray which would carry down the dust.

Exhaust Fans. Second, the introduction of exhaust fans and dust separators with hoods over dusty machines, carrying away the dust from the operator, is to be recommended. The same method should be adopted in all places where there are poisonous or irritating fumes.

Dressing Rooms. Third, providing washrooms and dressing-rooms, and places to dry the clothing taken off, in such trades as require work in wet clothing, that the workers may not catch cold from going out in wet clothing.

Conditions in Connecticut. The state factory inspector reports, that such conditions for the workers in this State are much above the average, and, on the whole, fairly good; that the laws governing such cases are satisfactory and that the manufacturers show a disposition to do what is right; and that he is issuing orders as fast as practicable, requiring the introduction of exhaust fans, dust separators, and also washing- and dressing-rooms in foundries. He says that all such orders are complied with in a reasonable time. His report for 1906, the last published, shows forty-five new washrooms, etc., ordered in foundries and other places, and eighteen orders relating to exhaust systems and hoods. Of course, this only represents one year's work.

If those who are deeply interested in measures to ensure safety to those employed in dangerous occupations, will take the trouble to inform themselves by visiting the shops, they will find that in a very large number of cases provision for absolute safety

has been made. They will further find the safety appliance out of use, because of the singular indifference of the workman to his own safety; or in use, by reason of the careful supervision of the owner. This attitude of the general public, not only in the shops but in all the everyday affairs of life, is the most serious discouragement the workers for a better social condition have to contend with. To disregard all efforts toward safeguarding the employee because of his indifference, cannot be tolerated. No man in the community belongs to himself. During health he may have the mistaken notion that he does, but if he is injured, he in the vast majority of cases becomes a public charge. Aside from all altruistic motives, the safety appliances are to the advantage of the community, from an economic point of view, and their use should be required.

Full justice is seldom done to manufacturers in such matters. Most men, if shown that any measure will be a decided advantage to their employees in health or safety, will adopt it, even at considerable expense to themselves. The average manufacturer thinks more for the health and safety of his employees than the average worker does for himself, and safeguards provided by them are often disregarded or thrust aside by their employees.

In the hat industry, the introduction of the kiln system, as well as the substitution of denatured alcohol, has greatly reduced the danger from alcoholic fumes. Formerly the hats were dried on racks, and the men who had to work in these rooms and take out the dry hats were frequently overcome by the fumes. In some instances blindness resulted from this exposure. Now the hats are dried in kilns and the fumes exhausted and the alcohol reclaimed.

Owing to the greatly varying circumstances in factories, it is impossible to provide a law, in respect to working conditions, which shall apply to all alike. What would be very good in one place would be very bad in another. The Massachusetts Commission has recommended the passage of a law, by which the factory inspector may require any manufacturer to bring the conditions as to dust, ventilation and sanitation in his factory up to the best, where there are similar conditions as to dust, building and employment, allowing an appeal from the decision of the factory inspector. Any such law should be careful to protect the

manufacturer against improper exactions, particularly in the case of old buildings, but is worthy of consideration.

Air Space per Person. Both New York and Massachusetts have laws which require a minimum of two hundred and fifty cubic feet of air space per worker. In New York, four hundred are demanded where there is night work, though this provision is aimed mostly at sweat-shops, of which there are practically none in Connecticut. It is a fact that there is not much overcrowding in our factories, yet some such law might be of value.

Ventilation. It is of even more importance that the air in workrooms should be changed in such manner as to provide pure and uncontaminated air to the workers. The best modern factories are provided with heating apparatus, which supplies an ample amount of fresh air from outside, or through systems which humidify and warm the air at the same time. In the summer there is plenty of ventilation through open windows.

Our laws provide for the ventilation of all workrooms, and these laws are, we believe, enforced by our factory inspector. Here again, we do not have to contend with the sweat-shop. But there can be much done to improve conditions. Exhaust fans carry away dust and at the same time provide fine ventilation. The work of our factory inspector in this direction should be cordially supported and its extension helped.

Sanitation. The Connecticut law as to sanitation in factories is, in the main, good and sufficient, as regards plumbing, closets and cleaning floors, machinery, etc. The New York law gives the factory inspector authority to order walls and ceilings lime-washed, when the health of persons working may be affected. Connecticut law gives this power in bakeries. It might well be extended to all factories.

Bakeries. The Connecticut law in respect to bakeries is excellent. No new bakeries are allowed to be built below grade, nor old ones that have been closed to be reopened. Workrooms must be at least eight feet in height, the walls plastered or wainscotted, the ceilings plastered or ceiled with lumber or metal, floors and utensils kept clean and sanitary, the rooms dry and airy. Sleeping places, also all closets, ash pits, etc., must be separate from the workrooms. The inspector might be given the additional authority to order medical inspection of all persons employed in bakeries,

and the same law entire might be extended to cover tobacco factories, confectionery shops, and all factories for the preparation of food, and shops where food products are sold.

Laundries. The New York law makes all public laundries factories, and subject to the same inspection and regulation as other factories. It also prohibits such work being done in sleeping- or living-rooms, but exempts any female doing custom laundry work at home.

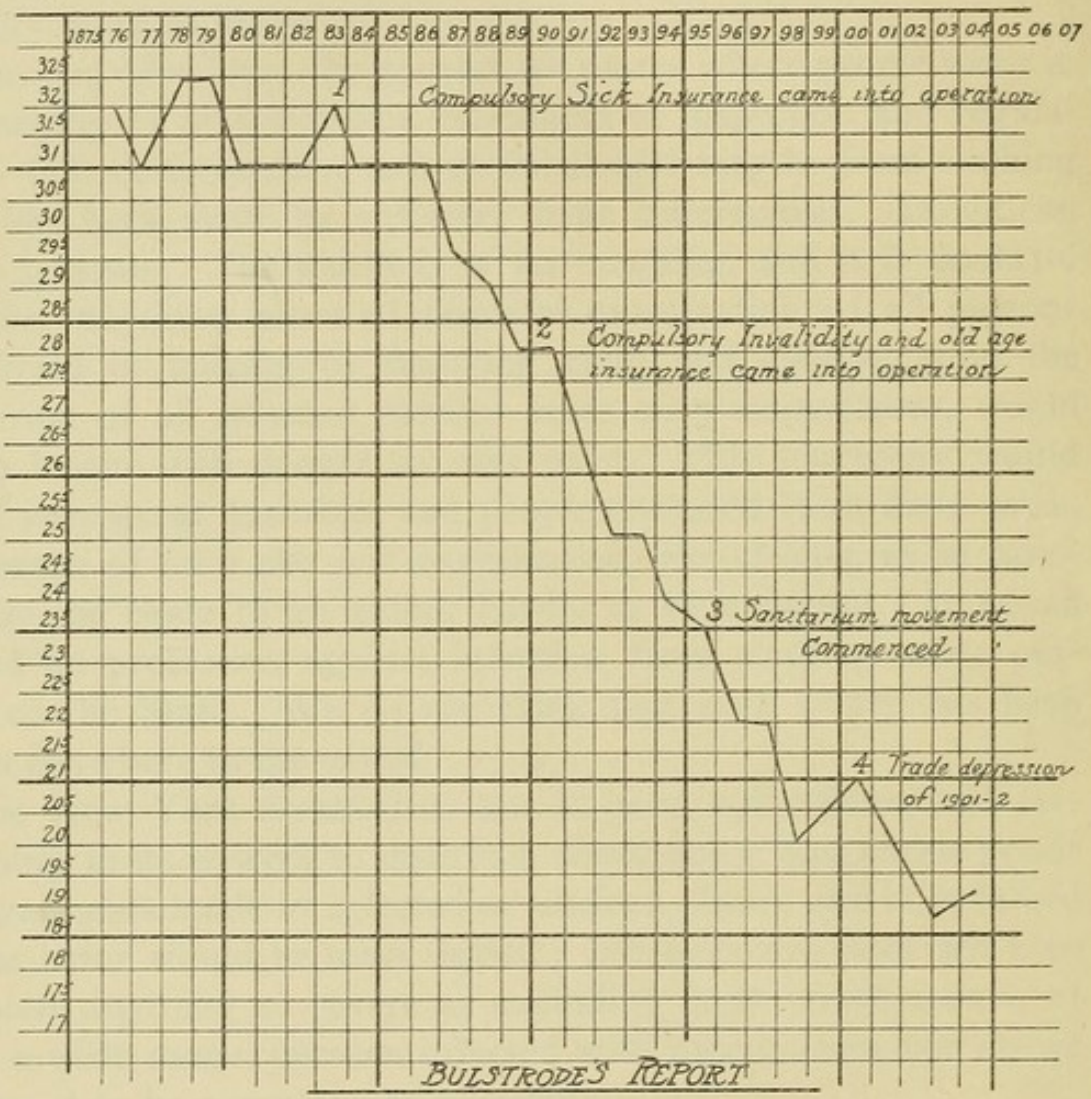
Garment Workers. In general, all places where people work in the employ of others should be subject to inspection and regulation. It is doubtful how serious the danger may be from clothing that has been made by sufferers from tuberculosis. Doubtless, there is some. The question is far-reaching, and it is doubtful whether anything short of physical examination of all persons employed in making or handling cloth and clothing, and the exclusion of all infected persons from such employment, would much lessen such danger as may exist. This procedure would work very great hardship, and people excluded from their work, by reason of such physical examination, would have to be cared for by the State to an extent hardly to be expected. It would afford no protection against infection from clothing made outside of the State. We do not think that such a step has been taken anywhere in the world.

The New York sweat-shop law is most voluminous and far-reaching in its powers to disinfect, condemn or quarantine goods and garments made in infected or unclean places, and if enforced to the letter would be most drastic; but even this does not contemplate anything so severe as excluding from employments, of such a wide range, persons infected with tuberculosis, nor do we believe it to be necessary or advisable.

Free Bed Funds. No report on factory conditions in Connecticut would be complete which did not mention the work of the Workingmen's Free Bed Fund. Started first in Hartford and promoted largely by the indefatigable work of Mr. John Gunshanan, it has proved to be a work of great value to the workingmen of that city. A large amount of money has been raised by subscriptions from the men in the shops, which has been applied to the care of workmen suffering from tuberculosis and to the relief of their families. This plan to secure funds for the care of the tuberculous and for the maintenance of their families dur-

Death Rate from Tuberculosis per 10,000 living

CHART SHOWING MORTALITY FROM ALL FORMS OF TUBERCULOSIS IN PRUSSIA PER 10,000 of the POPULATION from 1875 TO 1903



BULSTRODE'S REPORT

ing the enforced idleness of the invalid, has already been adopted and organized in most of the large cities of the State and is fast developing into a work of magnitude.

It has recently been reorganized on a new basis. A number of groups are formed, each one comprising the workers of one factory, or a number of small factories. Each group is to have its own officers and a fund for the benefit of its own members. In some instances, the employer has agreed to contribute a sum equal to the amount contributed by the employees. These funds are devoted to the care of workers, or their families, suffering from tuberculosis.

In Germany, the government requires the employer to deduct a certain amount of the wages of the employee, to place with it a like amount, and the fund so created is used for sick benefits and kindred purposes.

In some factories in this country, a similar arrangement is in operation, each worker being asked to allow so much to be taken from his wages, the employer adding an equal amount, which forms the basis of a fund to be used for sick benefits. It is possible that some such arrangement might take the place of the subscription paper, as a means of raising money for the Free Bed Funds.

This movement to secure an organized effort throughout the State, to establish and maintain a sick relief fund for the care of the tuberculous and their families, is worthy the unusual attention. It goes far, if it can be maintained, toward meeting the serious loss that comes to every man from tuberculosis. It affords him the opportunity for securing proper treatment, and aids immeasurably in that treatment by caring for his family and thus relieving the mental anxiety that is otherwise unavoidable. The German method of sick and invalid insurance has been in operation now since 1884, and the accompanying chart shows very graphically what has resulted, largely from the influence of that movement. The present compulsory insurances now in force in Germany are

1. Accident Insurance (came into force July 6th, 1884). Provided for by payment from employers only.

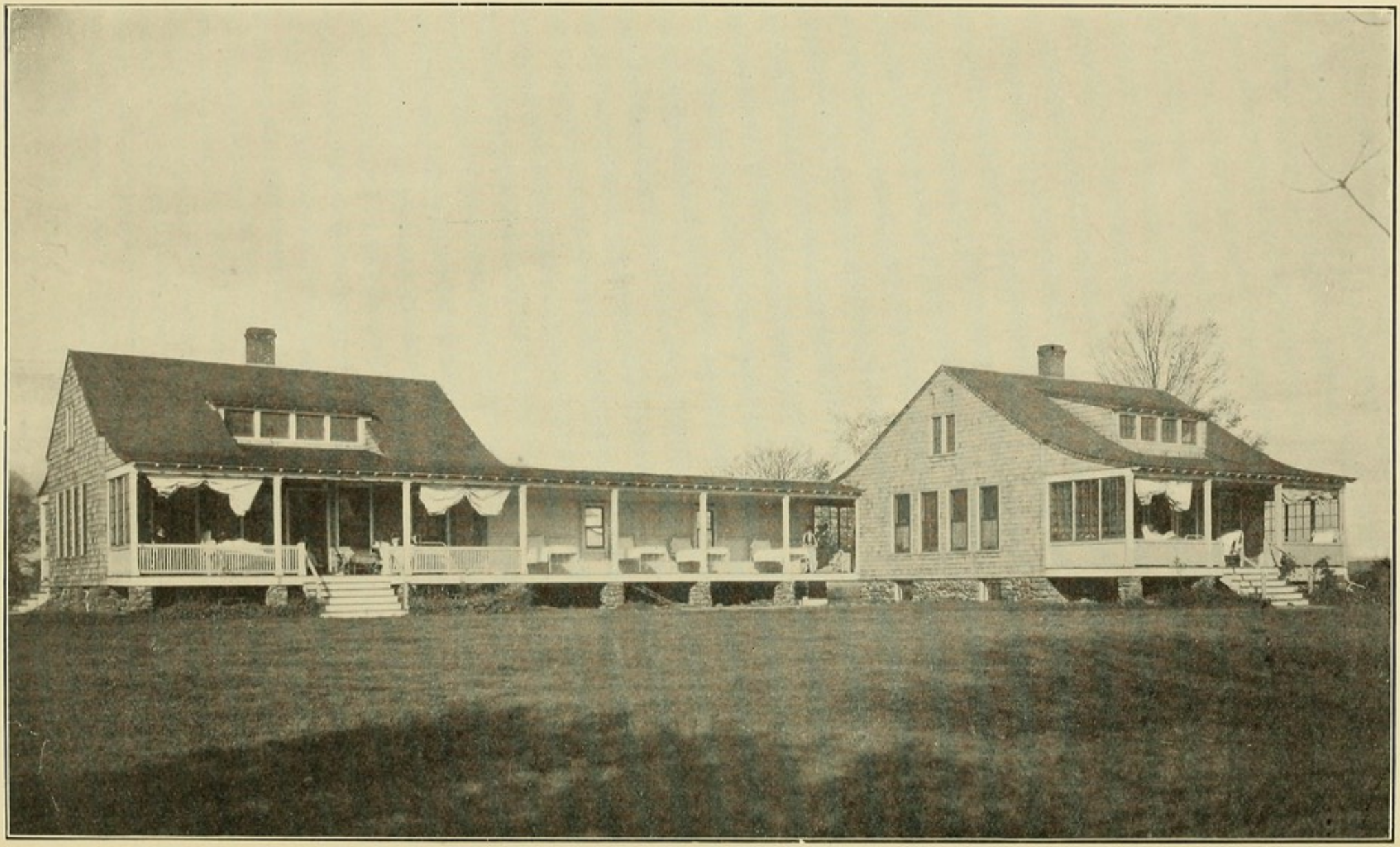
2. Sickness Insurance (came into force December 1, 1884). Provided for by payment from workmen two-thirds, from employers one-third.

3. Invalidity and old age insurance (in force January, 1891). Provided for by payment from workmen, employers and the state.

This sickness insurance subjects to compulsory insurance all workmen over sixteen years of age, who are employed in mines, quarries, factories or other industrial concerns, provided that in all cases the annual earnings do not exceed $500. To illustrate the operation of the law, Dr. Bulstrode says: "An insured workman having a weekly wage of $6.00 pays 12 cents weekly toward the Insurance fund. In case of sickness he receives $3.00 per week together with free medical attendance and medicine. In the event of death the burial money would amount to $19.50. In addition to those rights gratuitous medical attendance is frequently granted to the family." This question of industrial insurance is outside of the work of the Commission and is far too important a question for careless discussion. It is mentioned here briefly, as in its operation it accomplishes the work that Mr. Gunshanan has inaugurated in our State upon a purely voluntary basis, a work that your Commission urgently desires to see thoroughly organized, in all available parts of the State, and for which it bespeaks the careful consideration of the public.

Providence Factories. An interesting work is being carried on in the factories of Providence, R. I. The employers work in connection with the charity organizations and help them to find the incipient cases of tuberculosis, one of the most difficult things to do. The following notice, or a similar one, has been posted in the factories:

> "There is at present a strong effort being made to exterminate the disease, consumption. It is known to be readily prevented by proper ways of living. The hopeless or incurable cases are those that have been allowed to go neglected.
>
> "In order to aid in this matter, we have provided, free of expense to our employees, a physician who is especially interested in this disease, and who can advise about the best treatment; and for the purpose of helping those who may be afflicted and protecting others, we shall feel free to suggest an examination of any who may



SLEEPING CORRIDOR CONNECTING COTTAGES.

possibly have symptoms of this disease, as indicated by coughing, loss of appetite or weight. If the lungs are found to be healthy, there is then no need to worry; if, on the other hand, there is disease, it can be treated before it is too late."

In addition to the above notice, each room foreman is instructed to report any persons working under him who, he thinks, might need examination and care. It is made plain that the information is not to be used as a basis of discharge but help. The name of the physician is not posted; he generally acts without pay. In some cases the employer supports or helps the patients found to be diseased, during treatment, which is very often given to the patient while living at home. The work, first started at The Brown & Sharpe Manufacturing Company and the Wanskuck Woolen Mills, has been extended to include about thirty-five employers and is meeting with success.

Food and Alcoholism. An eminent authority maintains, that three-fourths of all disease is caused, directly or indirectly, by bad food and bad cooking (Huber). Anyone who has eaten of the messes prepared by a slovenly housewife might be prepared to believe it. Such persons are most liable to have recourse to alcohol, to tide them over an unsatisfying meal, and the same authority claims that eighty per cent. of the alcoholics become tuberculous. Teach the wives of our factory workers to cook good food and much will be done to improve their general health.

Lunchrooms. Some of the factories in the State provide lunch-rooms, where a caterer is allowed to sell good wholesome food at a reasonable price, providing the workers with a hot meal in place of a cold lunch, the former being much more healthy and easily digested. Such rooms also allow of the working-rooms being aired during the noon hour. The Underwood Factory of Hartford has probably the most successful of these lunchrooms in size, length of service and patronage. This factory is one of the best in the State and has worked out many interesting problems.

In general, the conditions in Connecticut are equal to those in any other state and the manufacturers are quite ready and willing to do whatever is necessary to make them the best anywhere in the world.

THE STATE CARE OF INDIGENT CONSUMPTIVES.

Public sentiment throughout the civilized world has been fully aroused as to the economic crime of allowing tuberculosis, a preventable disease, to destroy annually the productive value of a vast army of workers. How to meet the trouble economically and effectively is a question that can no longer be disregarded. At first there was in many states of the Union a demand for the construction of state sanatoria for the care of tuberculosis patients. In a number of states such institutions were erected and are to-day in successful operation. All experts in sanatorium work are now agreed upon the fact, that the value of such institutions is limited and the number of beneficiaries cannot exceed one hundred and fifty in any one institution without detriment. It is true that in a few instances sanatoria have been increased in capacity up to three hundred and fifty beds, but such a large number is regarded as undesirable. An increase beyond that number cannot be considered, if the institution is to be conducted for treatment of hopeful cases. It is important to make the fact clear that a sanatorium is an institution designed for the cure of tuberculosis. It is not a reception hospital for hopeless cases. The incipient, hopeful cases cannot be housed with the advanced and hopeless with any reasonable expectation of success. The vast number of cases of tuberculosis under present conditions, the constant increase in that number that is assured, places the state sanatorium out of the question as a satisfactory solution of the problem of tuberculosis control. It is idle to suppose that any state could construct and maintain such highly expensive institutions, in numbers sufficient to care for all the demand that would arise. It is not desirable, even if it were financially justifiable. The sanatorium undoubtedly fills an important place in the scheme of controlling tuberculosis, but the all-important question for the State is how to care for the large

number of sufferers from tuberculosis who are financially unable to care for themselves. These cases are not only numerous in every community, but they are increasingly a menace to the public health in direct proportion to the degree of their poverty. The absolutely poor are the most prolific in scattering abroad the infection, and are, as a rule, the most intractable in all efforts for sanitary reform. It should always be borne in mind that a large part of this extreme poverty is the direct result of tuberculosis. The willing worker, after he is infected with the disease, works until he drops. His failing strength curtails his productive value. His wages decrease. His family are steadily dispensing with one necessity after another until, in the weakened condition that inevitably results, they offer a fertile field for the development of the germ that has been by this time freely scattered about their home. By an intelligent and perfectly feasible supervision of the public health, a vast number of these innocent sufferers might have avoided infection and remained self-supporting until life was closed by natural causes. These cases are suffering from insanitary conditions that they are not able to control, and their care is a responsibility upon the State that cannot be shirked. How can these cases be cared for most economically and at the same time with due consideration for their comfort and possible cure?

It is a self-evident proposition that to be able to care for such cases as require state aid, it is necessary to know who and where they are. For a proper understanding of conditions in any community, the notification and registration of indigent cases, already alluded to, is of the utmost importance. In fact, without such a systematic enrollment of cases, satisfactory work in controlling the spread of the disease is impossible. Cases, once discovered, should be kept under observation. This is not in many cases an easy task with the extremely poor, as they are so constantly changing their rooms. It is, however, absolutely necessary that every change should be immediately reported and the vacated quarters should be thoroughly disinfected by the local health authorities. This, let it be distinctly understood, the health officers are at the present time authorized and willing to do, and neglect is due to carelessness, or indifference in reporting the case upon the part of the physician.

The only effective measure, for intelligent treatment of the conditions under discussion, is through the free dispensary and visiting nurses. The noble work that these agencies are at present effecting in our own State is worthy of the greatest praise, and yet it is known to comparatively few that in our leading towns such institutions even exist. Through the dispensary, indigent patients can secure such advice and treatment as their condition may require, and such cases can be subsequently kept under observation by the visiting nurse. She shows them how to care for themselves, how to cleanse their rooms and to keep them clean. She teaches them what the value of fresh air, sunlight and water is. She protects the family against the infection that without her intervention is almost sure to occur. For the patient she provides the milk and eggs and nourishing food, and where possible, the comforts that may in a degree lighten the burden and even lead to recovery. The beneficent work of these free dispensaries and visiting nurses cannot be exaggerated. Quietly, unostentatiously, sustained by a sense of duty and a love of the service they render to their patients, these nurses work in the community, often beyond the limit of their strength. In every city and town of sufficient size to require such service, the dispensary and the visiting nurse should be established and liberally maintained. After very careful investigation, your Commission feels that this part of the work should be sustained by the separate communities and is not within the sphere of the State's responsibility. It is, however, impossible not to emphasize the importance of this local work in its relation to state control. The cost of maintaining these dispensaries and nurses, when brought into comparison with their achievements, is insignificant. All such work to-day is sustained by private charity, and those devoted workers who secure the funds to maintain it have many hours of anxiety. The funds for maintaining this work should come from the communities that are directly benefited, and a liberal annual appropriation should be made from the public funds for that purpose.

Wherever it is possible to keep the tuberculous patient at home and to control the danger of infection through the coöperation of the trained nurse and the family, it is manifestly desirable to do so. In caring for cases among the extremely poor, due consideration must be shown to avoid all regulations that may be unneces-

sary and may add to their already heavy burden. It is often the experience of the visiting nurse to find a patient for whom care at home is an impossibility. If it is essential, in order to provide for a family, that the able-bodied should go to work, it is often a question what to do with the helpless invalid at home. Is this an unusual situation? By no means. It is the daily experience of those who are engaged in the work, and it can be truthfully asserted, that for the care of such poor and helpless consumptives there is no place in Connecticut to-day. Town authorities all over the State are called upon to provide for such cases, to save the whole family from pauperism, and they find that there is literally no place to put them. The town farm has for time immemorial been their final resting-place upon this earth, but such cases can no longer, with propriety, be so cared for. In some towns, very comfortable accommodation has been arranged upon the town farms for a limited number of cases; but the public mind is not in sympathy with the confinement of the unfortunate tuberculous, who are ill largely through no fault of their own, in intimate and prolonged association with those who are frequently on the town by reason of intemperance or inefficiency. If any city or town constructs a separate building for the exclusive care of the tuberculous, no reasonable objection to going into such an institution can be sustained, even if such a building is placed in the neighborhood of the poorhouse.

It should be borne in mind, in considering this question, that these patients, who come upon the care of the public, are afflicted with a disease that is often slow in its progress and may continue for a prolonged period. At the same time, the change from their tenement to a suitable environment, with good food and relief from mental anxiety as to those dependent upon them, may so improve their condition as to make a return to work possible. In not a few cases recovery may be looked for. The care, then, of these indigent cases, is such as should be extended to a hospital patient rather than to a pauper.

COUNTY HOMES RECOMMENDED.

It is apparent that to meet the situation as it is presented to the State to-day, there must be some suitable place selected and suitable buildings constructed for the care of all cases of tuberculosis that are indigent and cannot with safety be cared for at home. For such a provision for the tuberculous, your Commission finds, after careful investigation, a demand upon the part of the public that cannot be disregarded. It would appear that the most economical and at the same time efficient method to meet the demand will be in the construction of county Homes for consumptives in each county in the State. It is at the outset to be understood, that in proposing such a measure, your Commission is not recommending the construction of expensive sanatoria, which it has already endeavored to make evident are uncalled for.

If this work is to be undertaken by the State, it should be done with a view to the possible cure, or material betterment of the inmates. It should be understood that the curability of tuberculosis in our own climate has been definitely established. Long years of training in a contrary opinion has so influenced the general public that they are still sceptical. Within the borders of every county in Connecticut, there are many attractive locations, healthful, beautiful and well adapted to the modern fresh air treatment of consumptives. Some such place should be secured in each county for the work proposed. In making such selections, due consideration should be paid to proximity to the larger centers of population; not near enough to interfere with the purpose of the institution, but as near as possible, in order to secure to friends inexpensive access to the inmates.

In selecting a farm for such an institution, it is desirable that one should be chosen that has upon it good farm buildings, in a proper state of preservation. There is no difficulty whatever in securing such farms in any part of the State to-day, and the present farm house and outbuildings will easily suffice for the offices of the proposed consumptive Home.

As to the buildings for the accommodation of the patients, two frame buildings of simple design, one for male and the other for female patients, can be constructed so as to meet every requirement. The details of such buildings are not to be discussed in this report, as the designs will necessarily be varied to conform to the location and to the expected number of occupants. In a general way, it may be stated that these buildings should be two stories in height, the first floor containing a ward for such patients as may not require special care, the second floor divided into separate rooms, for the accommodation of those who are confined to their beds. A double piazza can be made, to supply out-of-door rest for the occupants of each floor. In the report of the Massachusetts Commission for the Investigation of Tuberculosis in that state, it was estimated that such buildings might be constructed for $50,000 and supply accommodation for one hundred patients. A county Home for the largest counties in Connecticut would require this capacity at the outset, while in the smaller counties much less would be called for.

Your Commission, in making this suggestion as to the character of the Homes recommended, is earnest in advocating the avoidance of all extravagance. Built simply, as suggested, it will be a matter of slight expense to increase accommodations as the demand arises. The public sanatoria in this country and in Europe are built upon a scale of magnificence, in many instances, that is wholly unjustifiable. The cost of maintenance is very excessive and for a disease of the character of tuberculosis such ornamental structures are most unsuitable. The very beautiful private sanatoria that have been built in some parts of this country are in the main memorials, and the feeling of the builder has found expression in lavish expenditure. Such institutions it is not proper to criticise, but in some instances their maintenance has become a serious embarrassment. The simple frame building and the inexpensive "shacks," now so much commended by workers in institutions for the treatment of tuberculosis, undoubtedly seem mean by the side of stone and marble, but they are more comfortable to the average occupant. If there is money to spend, let it be expended in the care of the patients and in proper remuneration of the attendants.

An argument against extravagance may seem uncalled for, but in all public work, unless checked at the outset, the danger of

attempting too much is well understood. A first expenditure in excess of what is desirable not infrequently brings a commendable public work into disrepute and seriously imperils its usefulness.

The resident staff requisite for the proper conduct of the institutions proposed will vary in accordance with the service required. In the smaller counties, a matron, assisted by nurses when their services are necessary, will easily suffice. The occasional medical attendance that may be called for, can be secured and can be paid for at the rates prevailing in the neighborhood of the Home. In the larger counties, a resident physician will be called for, to superintend the institution and to meet the emergencies that may arise and demand immediate professional attention.

A majority of the cases that will be cared for in these institutions will be found to require only such attention as may be necessary to comfort and the suitable direction of their daily life. For the cases that show evident improvement, that give promise of ultimate cure, patients for whom sanatorium treatment is desirable, another provision will be made.

HOW CAN THESE HOMES BE BUILT?

There is no part of Connecticut exempt from tuberculosis, and no part where there will not be some demand for these county Homes. The demand, however, will be vastly greater in some counties than others. While New Haven and Hartford and Fairfield counties would surely require hospitals adequate for the care of at least one hundred patients each, Tolland and Windham would be cared for by institutions of much smaller capacity. This proposition to build county tuberculosis Homes is involved in the great public question of the proper care of indigent cases of tuberculosis, and is proposed as the most economical and vastly the most effective system for its solution. It must be emphasized that every government in the civilized world to-day recognizes the responsibility for energetic measures to control tuberculosis. Many efforts have been made to devise the plan that will be the most far-reaching in its operation. The objection to all previous measures has been in their centralization and in the great expense that has seriously limited their influence. The state sanatorium is a large central building, easily filled by nearby communities and totally incapable of caring for the large number of cases for whom provision is contemplated in this report.

The duty of the State to share in the cost of this work is evident. It is further evident that a large part of the cost should come from the region most benefited. By the county Home plan, each county has accommodation for its own patients, and if the county shares the cost with the State, the expense will be justly balanced. If each county purchases a suitable farm for the proposed consumptive Home, and places thereon suitable buildings for the use of the administration staff, it seems to be reasonable to advise that the cost of the construction of the Homes in question should be borne by the State.

The choice of location for these Homes should be subject to the approval of a special tuberculosis commission; and the size of the buildings, their character and mode of construction,

should be controlled by the same authority. If Connecticut is to have these county hospitals for tuberculosis, it should see to it that in all that pertains to them, in their construction and in their future maintenance, there is intelligent supervision. There are many to-day who feel competent to carry through such a proposition, who have not the faintest conception of what should be done, aside from a very liberal expenditure of public funds. In some state sanatoria, expensive alterations have been immediately called for, after the reception of patients, because of the ignorance of those in authority as to the proper requirements for successful treatment.

The first cost of these hospitals should not exceed a stated amount. It would seem just for the State, in directing their construction, to assume the cost, as has been already stated, the whole allowance from the State for any given county not to exceed $10,000 for each 50,000 inhabitants or fraction thereof in the county. Taking New Haven County as an example, with a population of 300,000 an amount will be assured that will be sufficient for the construction of the buildings that have been proposed. It has already been stated that the cost of the site of the hospital and of some of the buildings, if suitable buildings for the purposes of administration are not already on the property, should be met by the county. Owing to the irregular distribution of population in the State, the proposed allowance to New Haven County of $60,000 would be fully required, and a like amount would be required in Hartford and Fairfield counties. In the other counties it would be excessive. Through the proposed appropriation, based upon population, a just distribution of the State's funds seems to be assured.

The appropriation herein suggested should provide comfortable Homes for at least four hundred patients. While it is possible that the building of such institutions for the accommodation of one hundred may be effected at the cost named in the Massachusetts report, this estimate can only be regarded as approximate. An appropriation from the State, made upon the proposed basis, for the construction of these county Homes for the care of all stages of pulmonary tuberculosis, would certainly meet a great public necessity, at a cost far below what has been expended in other states for institutions of far less efficiency. If the expenditure of this appropriation is entrusted to a permanent commission

on tuberculosis the State will receive full value from the outlay and probably an even larger provision for the work than has been estimated.

It should be remembered, in any discussion as to the cost of maintaining these proposed Homes, that the beneficiaries of such institutions are now and always have been a public charge. These indigent consumptives are supported in poorhouses, or as outside paupers. They are wholly dependent, and bringing them together in some institution where they can all receive suitable care, simply concentrates effort that is now widespread and extravagant. The actual financial value to the community, to be secured through the segregation of all these cases of helpless sufferers from an infectious disease, cannot be stated. It will mean health and productive energy to thousands.

The Massachusetts Commission estimates the probable per capita cost for such hospitals at from $6 to $8 a week, according to the location. Prices in Connecticut will be found to be much the same as in Massachusetts.

Reference to the reports of charitable institutions in Connecticut, that have heretofore received the indigent consumptives—hospitals excepted—would seem to indicate that an average cost of even $7 per week was excessive. It should be understood, that in calculating the per capita cost for the care of the inmates of a poorhouse, the cost for the care of the sick is immensely reduced by being included in the total for the care of a great number who are simply paupers, receiving mere food and lodging and reducing the expense materially by rendering service in the institution. The tuberculous inmates of an institution cannot be relied upon for work, require good, nourishing food, nursing and competent medical service. In one institution in the State, where a few consumptives are excellently cared for, there are over four hundred other inmates, who are town charges by reason of age or inefficiency. These really able-bodied people do practically all the work of the house and farm, and can thus be cared for at a cost of little over $2 per week. Whatever the care of the limited number of tuberculous patients in this institution may cost, it is immensely reduced in making the estimate when the whole household is included. In the proposed consumptive Home, most of the labor must be hired and the food provided must be of entirely different

quality from that in the poorhouse, even where there is no cause for criticism in the poorhouse management. The people of Connecticut, if they provide relief for the tuberculous, will wish such relief to be given in the hope of returning the invalid to work, or in mitigating his suffering during the remainder of life.

Whatever the cost may be, it is desirable that all beneficiaries of these consumptive Homes should be required to pay something toward their care. It is the belief of your Commission, that such institutions should be so conducted as to avoid the taint of pauperism. Many of those who will be forced to seek assistance are not paupers, have always been industrious and thrifty, until prolonged illness has exhausted their savings and forced them to appeal for aid from the public. At the present time such people are dependent upon private charity and town aid, and what they receive simply prolongs mental and physical agony, while the helpless family sink lower and lower, until they are too often paupers in truth. These people are not paupers in spirit. Let our State see to it that they are not made so in fact, by reason of suffering that the State can alleviate. Your Commission feels that such patients should be required to pay for their treatment in the consumptive Home at least $2 per week. If the town authorities know that they can pay more than that, it should be left discretionary with the town agent to charge what he believes to be reasonable, or to receive them free of cost.

It has been said, in criticism of this charge for treatment, that there are some absolutely destitute in every town, who could not pay anything and for whom the sick benefit associations are not willing or obligated to pay. Such cases must be left to the discretion of those having the town poor in charge. It is possible that there may be some such cases, when, without fault of their own, the destitution and friendlessness is absolute, but they are very few in number and for such the town may provide. Most of these extreme cases are broken-down drunkards, prostitutes and worthless. They are from the criminal and degraded classes. Such should be decently cared for as town paupers, as they are to-day. The occupants of a consumptive hospital, where long residence and intimate association is inevitable, should be protected from the enforced society of such people. The fear of such intercourse is to the worthy poor to-day one of the heaviest burdens they have to bear.

If the patients pay a weekly charge of $2, the balance of the cost should be divided equally between the State and the county to which the patient is accredited. Taking $7 per week as a possible average of cost, the patient will pay $2, the State $2.50, the county $2.50. The cost to the towns for their tuberculous poor will not be more than it averages to-day, if they are obliged to assume the charge made to the patient. The cost to the State will amount to a sum vastly under what is being paid by many states to-day, while the accommodations provided through the proposed plan will far exceed what is being provided elsewhere. Many cases will desire care in these Homes that are able to pay the full cost and will willingly do so. The regulation of this question will be necessarily left to the decision of those to whom the responsibility for regulating the management of the Homes is referred by the Legislature.

SANATORIUM TREATMENT.

The Homes that have been proposed in this report are designed for the reception of all cases requiring public assistance and are not to be considered sanatoria. A sanatorium is an institution in which patients are received who are supposed to be curable. They are received specifically for treatment. Under good management and when judgment is shown in selecting the cases, there are many sanatoria to-day curing tuberculous patients, and returning to active life many who, but for the treatment, would have gone on to hopeless invalidism and death. The greatest embarrassment that such institutions have to meet, is in the demand for admission that comes from all quarters from unfavorable cases. Another serious question in sanatorium work is, what to do with patients who have been received under pressure usually, and who are so advanced as to be helpless and a constant source of anxiety to those associated with them. It is especially for such cases that the county tuberculosis Homes have been proposed. In the Homes there will be found many such cases, that under rest and good food and pure air will improve and will show evidence of ultimate recovery, if they can be under suitable guidance. Such cases, as they occur, should be given every opportunity for receiving scientific treatment. They are too poor to go to what are supposed to be more desirable climates. They are just as much a public charge as they were when they were forced by illness to enter the Home. Their cure is a public gain. For such cases, sanatorium treatment is most desirable and should be provided, if possible. It is to be emphasized that the Homes have the first claim and their construction is to be earnestly advocated. It is further to be emphasized that these Homes are not to be regarded as Homes for incurables—as very many of the inmates will undoubtedly be able to return to work after a few months.

The sanatorium treatment in Connecticut has already been provided, through the construction of the Gaylord Farm Sanatorium

at Wallingford (the property of the New Haven County Anti-Tuberculosis Association), and through the Wildwood Sanatorium in Hartford (the property of the Hartford City Hospital, but at the present time conducted as a separate institution, with a resident medical superintendent). Both of these institutions came into existence as private charities, the State having assisted by the appropriation of $25,000 to each association after the institutions were established and in process of construction. The Gaylord Farm Sanatorium, while it received this sum from the State to assist in its development, represents an investment of over $100,000, contributed by citizens of New Haven County. These two institutions are well adapted to receive and care for the suitable cases that may be encountered in the county Homes. They contain one hundred and ten beds—sixty in Wallingford and fifty in Hartford. It has been the purpose of the directors of these institutions, that they should be conducted as charities, and the charge made for treatment has never approximated to the cost. The deficit that has occurred each year has been met by private subscription and an allowance from the State. The State, by continuing its appropriation at such ratio to the cost as the work may require, will be possessed of adequate sanatorium privileges at comparatively small cost. There is no reason why these two institutions should not be increased as the demand arises. Their increase within reasonable proportion is only a matter of cost. It should be emphasized, that the care of patients in these institutions is extremely expensive, as compared to the cost in other charities. The patients are making an effort to overcome a wasting disease and require the best of nourishing food. Scientific medical attention from a resident specialist is indispensable. In every way, to make the work a success, outlay of money is unavoidable. The beneficiaries of sanatoria of this character are required to pay a considerable part of the cost. The work is entirely unlike the work of the proposed Homes. The curable patient in the sanatorium expects to return to work. For such, friends can render assistance with expectation of return. The State can divide a certain portion of the sanatorium cost with the town from which the patient comes—the balance the patient must pay. Connecticut can well afford to pay an adequate annual allowance to these institutions, when it is understood that in this State there is to-day sanatorium provision for tuberculosis fully equal in capacity to

most other states and built at a cost of $50,000 to the State, about one quarter of what would have been expended by the State for such accommodations, if private citizens had not assumed the responsibility.

The deep interest that has been felt in this work, especially in Wallingford, insures a broadening of its influence and a greater material development as the work goes on. Left to private supervision, the State is free of the cost and care of supervision, while through its annual appropriation toward the deficit, it secures adequate sanatorium work for its citizens at small cost. For example, the appropriation voted by the last Legislature for the Wallingford Sanatorium was $7,500 per annum. The work of the institution has been carried on at its full capacity, and the per capita cost to the State has been somewhat under $2 a week for each patient. The balance, over and above charge to the patient, has been contributed by private charity. These private sanatoria receiving State aid are the most economical and satisfactory solution of the sanatorium question. If other associations of a private character should establish a sanatorium, fully equipped through subscription and located in a suitable spot where there was no reason to suspect hostile competition as a motive, it would be proper for the State to assist in the maintenance of such work, if the necessity for its existence is made clear to a competent board, who should keep supervision upon all such matters.

To the State the highest value to be derived from sanatorium treatment is in the educational influence. The cured patient goes to his home, instructed in all that makes for good health and intelligent personal care. He has experienced the evil of tuberculosis, knows what it means, and makes every effort to preserve the health that his residence in the sanatorium has given him. Such a man is a teacher of sanitary living in his community. He is a most important factor in the work of suppressing tuberculosis. He not only refuses to live as he was wont to do before his illness, but he teaches others to follow his advice and profit from his experience. The sanatorium is a school in right living, and as such, returns to the State a hundredfold its cost.

No assistance should ever be granted by the State to an association that is not incorporated under the laws of the State and is not absolutely free of all possible suspicion of commercialism.

As matters stand to-day, if the county Homes are provided and the two sanatoria are generously supported in their work, the provision for indigent tuberculosis patients in Connecticut will be liberal and adequate to meet any demand that may arise for years to come. Connecticut will be recognized in the front rank of states trying to solve the problem of tuberculosis. The State will offer to other states a plan that for simplicity, economy and the broadest possible charity, surpasses all that has yet been done in the war against the Great White Plague.

RELATION OF TUBERCULOSIS TO CATTLE INDUSTRY.

So many investigations have been published upon the milk question, by unquestioned scientists, which are in direct contradiction, that an earnest seeker after the truth hardly knows what to believe. Many are inclined to question the importance of the measures to secure purer milk and to denounce them as unwarrantable interference with an important business interest. Whatever differences there may be as to measures to secure a pure milk for the community, there is no possible question as to the fact that impure milk is an active agent in causing ill health. The fact that epidemics of typhoid fever, scarlet fever and other diseases of serious import to the well-being of society, are often directly traceable to milk contamination, cannot be controverted and is sufficient to establish the right of the State to investigate and regulate the dairy business. It is chiefly regarded as a hardship when it interferes with the sale to the public of food unfit for consumption. The day has passed for discussion as to the propriety of proper legislation upon dairy matters. The question now is, what can be done to secure pure, wholesome milk, at the lowest possible cost to the consumer and at the same time protect the financial interests of the producer. It is not oppression of the farmer to seek to secure milk free from impurity, but it is a movement of the highest interest to him, in which he should cheerfully coöperate. At the same time, it is utterly unreasonable to suppose that every precaution demanded by enthusiastic sanitarians can be complied with, and a suitable, clean milk furnished to the public for the same price as now exists in most towns of the State. Much of the uncleanliness now existing is due to the extremely low price of milk, that makes the employment of suitable farm labor prohibitive. The improvement that must come must be paid for by the consumer.

Within a few years public interest in securing pure milk has greatly stimulated the development of model dairies, in which

every possible precaution is taken to avoid contamination. The extreme care for all the details of the business that is called for in these dairies, has unavoidably raised the price of their milk and cream to a point that excludes them from the use of the general public. The public-spirited citizens, who have invested a large amount of capital in model dairies and have persevered in their effort, often at considerable loss, have done an important service to the State. Their example has unquestionably aroused a general interest among dairymen to improve the quality of their products. While this influence of the model dairy does much to improve the general output of milk, the cost of first grade milk is to-day prohibitory. It is for the State to see that regulations of the dairy business are such as to secure for public use reasonably pure milk, at a price that will insure a fair return to the producer. The magnitude of this undertaking is not appreciated by many who are ardent and often injudicious in their demands for immediate reform. When it is understood that in New York City the daily consumption of milk amounts to one and a half million quarts, that of this vast amount only sixteen thousand quarts are "certified" as pure milk, that the main supply comes from thirty-five thousand farms, scattered over many states, that it is handled over and over again unavoidably, it must be admitted that the utmost judgment and practical sense are called for to meet the situation. No one with a proper understanding of the situation can for a moment believe, that by any legislative enactment, all the farms in the State could be immediately transformed into model dairies. There are, however, two very important questions that call for serious consideration; first, the proper care of cattle upon all farms and, second, the wisest action to take in the effort to suppress bovine tuberculosis.

It is only within a few years that the owner of cattle has had any state supervision. For two centuries and more, farmers cared for their cattle or neglected them, and were in no way responsible for their act to anyone. Barns were built all over Connecticut, a hundred years or more ago in many instances, in which no provision was made for light, air or cleanliness. Cows stood in their manure, in dark stalls, only ventilated and lighted by the cracks in the barn walls. Milking was done in the midst of such conditions and the milk allowed to stand for hours, until it suited the convenience of the owner to remove it. Such was the condition

of affairs in the past and such it is to-day in many instances. Throughout the State it is probably fair to estimate the present care of cattle as five per cent. perfect, twenty per cent. good, fifty per cent. fair, and the remaining twenty-five per cent. infamous. Those who are taking intelligent care of their stock are reasonable, and ready, as a rule, to comply with any reasonable suggestions for their improvement. The opposition to dairy inspection and all efforts to secure better conditions comes invariably from that twenty-five per cent. who produce their milk under conditions of filth that is almost inconceivable. A considerable proportion of these negligent farmers are foreigners, largely from Southeastern Europe, who have recently come to this country and have been aided by charitable societies to take up farms throughout Connecticut. These people are not familiar with our institutions and not infrequently regard the comparative freedom from state supervision in this country as encouragement to license. These abuses in dairy management are susceptible of correction, and efforts in that direction will in due time be supported by all the better citizens in the State. The present movement for the suppression of bovine tuberculosis throughout the country, has given new interest to the question of advanced dairy farming, and the time has arrived for the State to act; first, to secure proper conditions for all cattle, as a measure imperatively required, if any headway is to be made in the battle with tuberculosis; and second, to secure the proper care of tuberculous stock.

The State should require compliance with the following regulations:

1. Cattle should be suitably housed and cared for.

2. All persons employed as milkers and at work about the stable should be cleanly and of good personal habits.

3. Milking should be done in a cleanly manner and the milk should at once be suitably treated.

4. Every effort should be made to secure rapid transportation and rapid and sanitary distribution of the milk.

5. Any cow known to be sick should be isolated from the herd and its milk should not be used during its illness. In case of chronic or contagious diseases, not susceptible of treatment, the cow should be killed and its remains so disposed of as to ensure safety for the remainder of the herd.

6. Cows known to be suffering from tuberculosis, the diagnosis having been made by physical examination, should be killed and the owner should receive fair value from the State.

7. Cows known to be tuberculous, by tuberculin test only, should not be used for dairy purposes, unless the milk is pasteurized. Such cows should be isolated from the rest of the herd.

8. No cows should be allowed to be brought from outside of the State, unless accompanied by a certificate of health from a properly constituted state official of the state from which she comes, including a certificate of freedom from tuberculosis, as shown by the tuberculin test.

A careless perusal of these regulations may lead to the opinion that they are burdensome, but they are simply the rules that are voluntarily followed by all good dairymen in the State. A fuller consideration of each of these regulations will be profitable.

THE HOUSING OF CATTLE.

It is a recognized fact, that human tuberculosis is, in its extent and virulence, in direct proportion to the character of the dwelling and the habits of life. It has already been stated that this disease is found in the most sanitary homes, where the sufferer has all his life enjoyed the privilege of intelligent care, but as the environment becomes less desirable, the frequency of the disease increases, until it is found in its most virulent and persistent form in the crowded and filthy tenements of the extremely poor and ignorant. The same is true with bovine tuberculosis. The rigid inspection of all herds, now practiced by advanced dairy farmers, by means of the tuberculin test, reveals many incipient cases that could not by any possibility be detected by the usual physical examination. Some herds of apparently perfect, high grade cattle, have by the test been shown to be infected to a degree that is almost incredible. In one of the finest, best cared-for herds ever owned in Connecticut, there was hardly one healthy cow. There has been some disposition shown to discredit the whole effort toward the scientific care of stock by reason of these facts. That such reasoning is faulty can be easily shown, by examining the cattle in those stables in which the effort to eliminate tuberculosis has been persistently conducted. Large herds can be shown in Connecticut, in which there is not now one cow that will react to the tuberculin test, while investigation into the condition of cattle kept in insanitary stables will disclose many cases of generalized tuberculosis, easily recognized without examination.

The necessity for light and well-ventilated barns, suitably drained, is self-evident. The arrest of bovine tuberculosis calls for as much regard for such conditions in the care of cattle, as does the present fresh-air treatment of human tuberculosis. In the best dairies, cattle are kept in special barns, well lighted, ventilated and drained, without cellars or upper lofts. Such arrangements are unquestionably most desirable and conducive

to the general well-being of the stock. It is, however, manifestly impossible for the State to require such accommodations for all dairy cattle. Thousands of farmers owning small herds, scattered all over the State, own barns that were built many years ago. Most of these barns are up to the standard of the day in which they were built. Many were and are still provided with what were supposed to be the most advanced conveniences. The problem now is, how to render these barns suitable for the care of cattle, how to rectify errors and to introduce new safeguards to protect the cattle against infection. The owners are reasonable, intelligent men, ready to do their part; but, as a rule, they are unable to command the capital required to meet many of the requirements that have been proposed by some sanitarians. The old barns cannot be replaced—in many cases, the cost of cement flooring is prohibitory. There are changes, however, that are called for in almost every instance, that are not oppressive and that the State should insist upon on all farms selling milk.

1. There should be an immediate stop put to the confinement of dairy cattle in windowless, unventilated apartments. Light and air are essential to health, to cleanliness, to common decency. And yet there are to-day thousands of cows, crowded into dark rooms and cellars throughout Connecticut, in which the filth is indescribable. Windows should be immediately introduced into all such barns, sufficient to allow four square feet of light to each cow. If the stable is so arranged as to make it impossible to comply with this requirement, it is not suitable for the healthful care of cattle. An abundant air supply is of equal consequence. In every stable there should be sufficient space to allow at least five hundred cubic feet of air to each animal.

2. The stable floors should be tight and so graded as to be properly drained. To ensure clean milk, a clean floor is necessary. The practice of keeping cattle in barn cellars, where they stand upon the earth, and, by reason of their dejections, are practically knee deep in liquid manure, is nothing less than criminal. Such offensive conditions it is to be hoped are unusual, but they do exist in an aggravated form in some parts of the State. The usual board floors are not clean and cannot be made so. The wood must absorb much filth that cannot be removed by the most scrupulous care. The fact remains that most of the barns in the State have

board floors, and a change to the modern cement floor cannot be made without placing an unreasonable burden upon many farmers. It is desirable that the State should require the laying of cement floors in all new barns. If the present floors are made tight and evenly laid upon a grade that will ensure good drainage, they can be kept reasonably clean, if the owner is disposed to make the necessary effort.

3. All manure should be removed from the cow stable daily. It should be stored in a suitable place, from which drainage back to the stable would be impossible. The manure of a stable is a valuable asset upon every farm. The small extra effort required to collect and store it in a suitable manure pit, removed from the barn, brings an appreciable return in the fertilizing value of the manure. In some barns, the manure is simply hoed carelessly away and left in a pile alongside of the cows throughout the whole winter. In one case inspected by the dairy commissioner, the manure was not only stored in this filthy manner, but the morning's milk was left to stand in this odoriferous stable throughout the day, until the evening milk could be added and the whole delectable product be shipped to the creamery, there to be mixed with the product from neighboring farms, upon which every effort to secure clean milk may have been made. The collected milk of a creamery is little better than the worst specimen included in the lot—it is only a question of a dilution of filth. It is not true that such conditions are approved by intelligent and conscientious farmers. It is true that the delinquent in the case I refer to, resented the invasion of his personal liberty to be as nasty as he pleased. It is to be hoped that the law will soon make the selling of such milk a crime. Some years ago, in constructing model barns, it was the approved custom in some sections to have the boards back of the stable so arranged that they could be raised and the manure could be easily hoed out and dropped into the cellar, where it remained all winter. This condition is not unusual on good farms to-day. It is not cleanly and is not wholesome. It most seriously interferes with the pure milk product that most of the owners of such barns desire to put on the market. The air in such barns must be impregnated with odors that the milk is sure to absorb. The systematic removal from the barn of all manure can be easily accomplished at small cost of either time or money. The present carelessness is mainly

the result of an established habit that it is difficult for many to overcome. Education and the force of public opinion will undoubtedly tend to a correction of the evil in due time.

The ceilings of cow barns should be tight and the ceiling and side walls and stalls should be whitewashed at least once in six months. In case of sickness, after the removal of the cow, the stall should be thoroughly scraped, cleansed with boiling water and a strong solution of chloride of lime and whitewashed. In the barns in use upon fancy dairy farms, such a procedure is not called for, as the woodwork is treated in such a way as to render it as nearly as possible asceptic. Upon the average farm, whitewash is needed and is a fairly reliable safeguard, if carefully applied. The question of tight ceilings over the stalls is one of some difficulty, as matters are at the present time. Over many stalls occupied by cows there is no ceiling at all. The space is open to the roof, or a roughly constructed support holds the hay, not far above the cattle. Such construction makes cleanliness impossible. Dust of all kinds must sift down upon the stock, and if the milking is done in the stall, such dust cannot be kept from contaminating the milk. The cost of correcting this construction would be very insignificant and it should be insisted upon on all farms from which milk is sold to the general public.

Cows should occupy the same stalls and should not be turned into the stable indiscriminately, to occupy any place they may chance to find unoccupied. The object of this procedure is apparent. It is a well-recognized fact that a cow may be dangeruously tuberculous long before she gives evidence of ill health. Under such conditions, by an indiscriminate use of the stalls, she can readily infect the whole stable and imperil the entire herd.

Cows should be thoroughly cleaned every day. This cleaning should be done at a time and in a manner best suited to protect the milk from dust contamination. With a stable suitably lighted, aired and drained and properly conducted in every manner, it is obviously impossible to protect the stock from a certain amount of filth. In far too many stables such matter can be seen dried and encrusted upon the cattle, clearly showing that no effort had ever been made to clean them. Microscopical examination of the foreign matter in market milk has frequently disclosed fæces and other repulsive substances, that might have been avoided had the

cows been suitably cleaned. It is possible that this suggestion as to regular cleaning of cattle may be extremely irritating to the ordinary farmer. In the hurry of work, it is true that the horses are liable to go uncurried for a long time. Why then devote so much time to cows, animals that have never enjoyed the consideration accorded to the horse? Simply because the cows produce a marketable product, for which there is an unlimited demand; a product that the public, with ever-increasing insistence, demand shall be clean; a product that cannot be secured, in cleanly and healthful condition, from stock that is encrusted with filth. In connection with the question of tuberculosis in cattle, it is claimed that the milk from an infected cow may be innocuous if the udder is not diseased. However this claim may be settled, it is an undeniable fact, that a tuberculous cow with a perfectly healthy udder may pass innumerable bacilli of tuberculosis in the fæces. The entrance of an infinitesimal portion of such material into the milk, by being rubbed off the udder or the neighboring parts during the milking, is sufficient to contaminate the milk of the whole herd and render it unfit for use. This has been repeatedly demonstrated in the laboratories, by the injection of the infected milk into the lower animals and the production thereby of tuberculosis.

These suggestions as to the housing and care of dairy cattle, if carefully considered, will be found to be wholly reasonable. They are observed on the best farms to-day and should be universally observed, with such modifications as may be demanded by special conditions.

MILKERS AND MILKING.

The importance of securing clean milk, not only as a protection of the public health, but to ensure a remunerative price to the producer, makes careful attention to every detail in its production and distribution a matter of the deepest personal interest to every dairyman. The cows may be housed in the best manner possible and the whole product of the dairy ruined by a careless or unclean workman. This phase of the subject introduces perhaps the most difficult problem that the dairyman has to solve. Farm "help" must be entrusted with much of the work about a stable of any size, and farm "help," as it is to-day, is often exceedingly indifferent. It is easy to advocate the employment of intelligent and sympathetic workers upon our dairy farms, men who in the absence of the owner will consider his interests as their own; but such "help" is not easily found, and in some sections of the country cannot be procured at any cost.

It is not an idle refinement to insist that the person doing the milking shall be clean, that he shall be dressed in a clean milking garment and have absolutely clean hands, thoroughly washed and dried before milking. It is essential that all utensils used shall have been properly cleansed and sterilized. The large dairies can usually secure the services of a qualified superintendent, who attends solely to the dairy work, but the smaller farmers cannot afford the services of an expert and must rely upon their own executive ability. The amount of extra time called for, in following out these suggestions for the proper production of milk, is in fact much less than at first appears. The stables once properly ordered, do not require much more attention than before. The cattle, if treated systematically, can be cleaned and milked within a reasonable time, and it should be remembered that all this work is to secure, in best marketable condition, the most important article of food in the world.

To some who are constitutionally averse to all new ideas, these regulations of the dairy are irksome, and there is not infrequently

a disposition shown to cover personal indolence with the cloak of ridicule. The small farmer is liable to discouragement and, in a spirit of discontent, to disregard all sanitary precautions. There is, furthermore, an unfortunate tendency, widespread in its influence, to treat with the most unreasoning hostility the efforts of our boards of health to rectify the evil conditions that do so much to bring disease and death, not to the city people alone, but to the whole community. To those who believe that all the efforts made to secure pure milk are in the interest of a privileged class and are of no interest to themselves, it is proper to reply: You may leave out of consideration all humanitarian considerations, you may be utterly indifferent to the quality of the milk you sell, but you are blind to your own interests if you do not care for your cows. The great question for all farmers to-day is, What is to be done to arrest the progress of this tuberculosis, that is already threatening the value of our stock? Whatever may be done, the first duty is to give them pure air, clean stalls and fair treatment.

The reforms advocated cannot be brought to fruition without the assistance of the State. Much can be done by a well-organized effort, to interest the public as to proper methods and to arouse them to a due appreciation of the danger to their own interests from bovine tuberculosis. But there is a large element that will not be influenced by any consideration, whose carelessness imperils the interests of their neighbors. These misguided people can only be reached by state inspection, and in case of obduracy upon their part, by having to suffer a proper penalty. The present statute, empowering the dairy commissioner to inspect all milk-producing farms, is in a measure satisfactory, but it does not go far enough.

It is as follows:

> "The Dairy Commissioner shall make an investigation and examination of the premises of any farm or dairy, or of any place where cattle, dairy stock or other domestic animals are kept within this state where any unsanitary condition affecting the products of such farm or dairy exists or is reported or suspected to exist. When any such condition shall be found by said Dairy Commissioner he shall notify the owner or occupant of the premises upon which such conditions

exist to remove or abate the same, at the expense of such owner or occupant, within such time as the Dairy Commissioner shall direct; and if such owner or occupant shall neglect to remove or abate such condition within said time prescribed he shall be fined not more than 25 dollars and shall pay such expense and costs as shall be incurred in such removal or abatement. The Dairy Commissioner is authorized and empowered to employ such assistants as shall be necessary to enforce the provisions of this act, and said Commissioner and assistants shall have free access at all reasonable hours to all such premises and places for the purpose of making the investigation and examination provided by this act. Every person refusing said access shall be fined not more than seven dollars or imprisoned not more than 30 days or both."

This statute would seem to meet, in a reasonable and satisfactory manner, the requirements for a thorough inspection of all dairy farms. As a fact, the inspection has been already in force and some effort made to improve insanitary conditions, as they have been encountered. Such a statute is, however, of no value, if it is not supported by an appropriation that is sufficient to allow a proper execution of its requirements. The State of Connecticut has a great duty to perform in this matter. It is a wealthy and a generous state, and it cannot afford to appear to favor an important reformatory measure and then render it practically inoperative by making an appropriation wholly inadequate. No man, who is conducting his farm in a suitable manner, has cause for objection to repeated inspection. The leading dairies of the State welcome every form of inspection. It is only the careless and indifferent and criminal who seek to avoid the light. These are a menace to the welfare of all their more thrifty and conscientious neighbors and money cannot be better spent than in bringing them to a proper recognition of their duty as citizens.

There is another point in which this statute would seem to be unsatisfactory. The commissioner, where he discovers a serious condition, has not sufficient power to bring about an immediate abatement, if there is a refusal to comply with his directions. There should be some provision by which the dairy com-

missioner could bring offenders to immediate compliance with the law. In Section 10, Chapter 143, we read:

> "The warden and burgesses of a borough, or the Mayor with the approval of the Common Council of a city, may appoint a competent person as milk inspector who may personally, or by some competent person appointed by him, inspect all milk or cream sold or offered for sale in such borough or city; may inspect all animals producing such milk, the buildings or places where such animals are kept, the dairy and other places where such milk or cream is kept, handled, sold or produced, whether the same be within the limits of such borough or city, or not: and said burgesses or common council may prohibit the sale of such milk or cream within the limits of such borough or city, except by such persons as shall register their names, residences and numbers in a book kept for the purpose at the office of the clerk of such borough or city. Such inspector or assistant shall have the right to take samples of milk or cream from any producer or vendor upon tender of the market price thereof, but he shall, if such producer or vendor so requests, seal and make a duplicate sample of such milk or cream and leave the same with such producer or vendor."

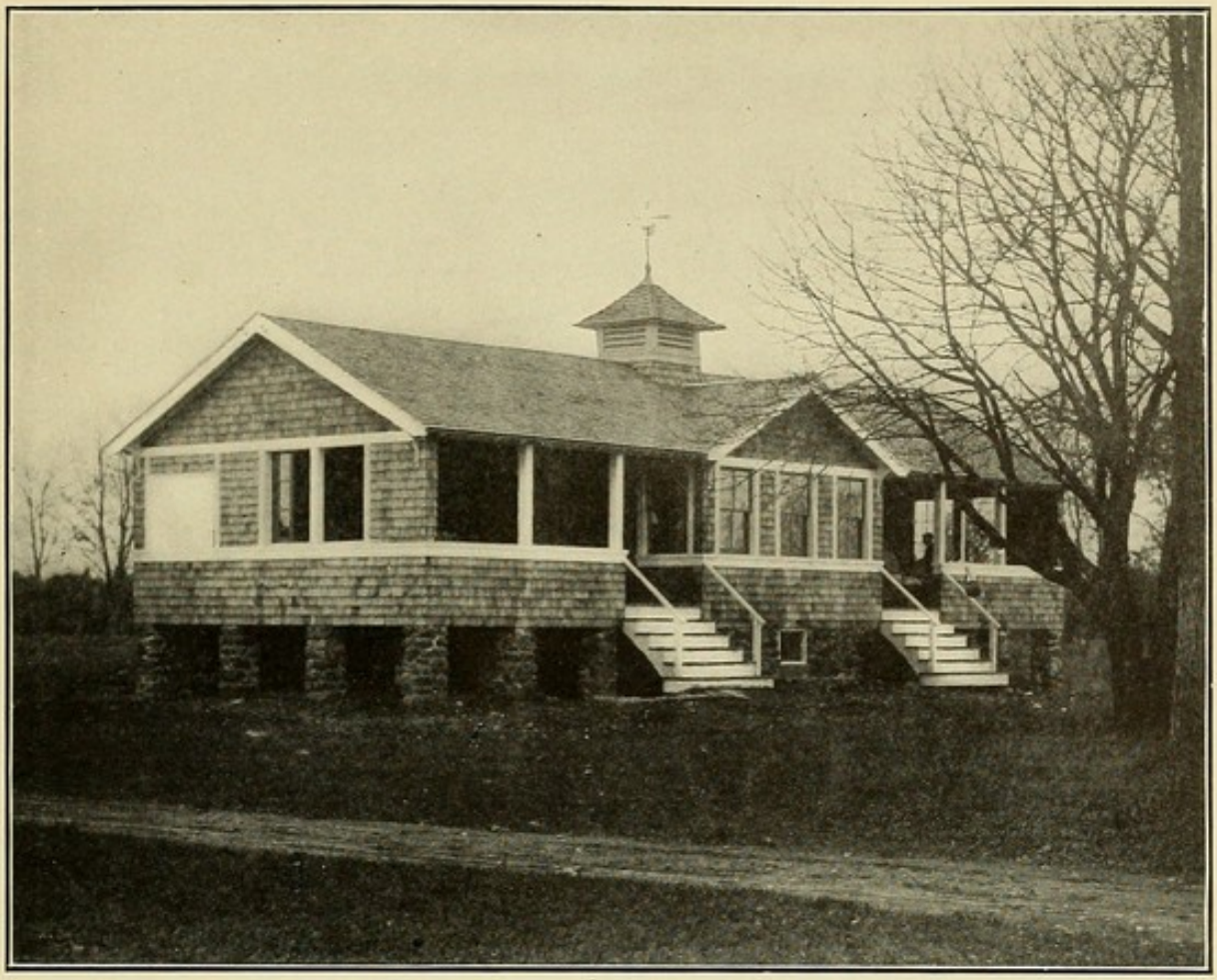
This statute certainly gives broad powers to the communities in which milk is sold, to protect themselves against an impure article. It would seem to be a perfectly reasonable and practicable measure, to insist by an amendment to the present statute, that every citizen of the State who produces milk for sale shall be required to procure a license to conduct such business from the State Board of Health; such license to be issued free of cost to the producer, and without previous examination by the State Board of Health into the conditions under which such milk is produced; the names and numbers of all persons so licensed to be immediately forwarded by the State Board of Health to the dairy commissioner's office. The present statute, already quoted, empowers the dairy commissioner to inspect as fully as may be deemed necessary. His efficiency would seem to be greatly augmented, if the present statute could be amended so as to read:

"If such owner or occupant shall neglect to remove or abate such condition within the time prescribed, his neglect shall be reported to the secretary of the State Board of Health, who shall cause his license to sell milk throughout the State of Connecticut to be suspended, until the dairy commissioner shall report to said board that the producer has complied with his directions." The power that would thus be given to the dairy commissioner, through the State Board of Health, to stop the business of an objectionable dealer, would enable him to exert an immediate influence of great potency. It is to be remembered, that such power to stop the sale of milk already exists in all cities and boroughs, and it should be further understood that no milk can be sold in our cities except under a license from the local board of health. The suggestions as to the alteration in the present statute, introducing the State Board of Health to work in support of the dairy commissioner, is simply an effort to broaden the present plan in such manner as to embrace the whole dairy business of the State.

The transportation and distribution of dairy products has been the subject of earnest study for years. The product of the best farms not infrequently is passed through so many hands and carried in so many vehicles as to seriously impair its value. The regulation of this side of the business is largely under control of local health boards, and for the present at least, it would seem that the State cannot attempt to secure the direction of such a complicated undertaking. If the State will insist upon the proper care of cattle and thus ensure the production of pure milk, it will have done its full duty and will have taken, at the same time, the most important step toward the arrest of bovine tuberculosis.

Within recent years, it has been the custom to pasteurize milk; that is, to subject the milk to the temperature of 140° Fahrenheit for twenty minutes and then cool rapidly, thus destroying the pathogenic bacteria that may infect it. The question has been asked, why this pasteurization may not be universally practiced in our cities and all the injurious qualities of the milk be summarily disposed of by this process. While such procedure would undoubtedly be hailed joyously, by dairymen who have no desire to conform to the strict regulations demanded of them by the seekers for pure milk, it would be most disastrous to the interest of the public. It would simply put an end to efforts to purify the raw product and would be nothing less than encouragement to

the prevalent carelessness. As matters are to-day, the milk sold in all cities in the country is very unsatisfactory. The product of the dairies that aim to furnish a pure article is a mere drop in the bucket. No one can hope for a very radical change for many years. The State has its duty clearly laid out, to suppress the evils that exist as rapidly as possible, and the effort must ever be to secure, at some time in the future, a milk service that will be safe and profitable. Until that day comes, pasteurization must be resorted to in the larger towns and cities. This is best done in the home where there is sufficient intelligence, but in the main it will have to be done by central pasteurizing plants, which may be supported by private enterprise, or by some municipal board. The greatest danger in the process comes from the assurance of perfect safety that it gives to the consumer. Heated milk is not necessarily safe milk. It calls for as careful and intelligent after-treatment as raw milk. When the progress of decomposition of impure milk has been simply arrested by heat, no one knows what the condition of the milk is, but it certainly is not fit for use. Any attempt to pasteurize at the dairy and dispense to the public would be, if scientifically done, quite as expensive as the simple methods that have been suggested to secure pure milk. Much objection has been raised against the proposition to pasteurize milk, upon the ground that it will seriously hamper the efforts that are being made to secure a clean, pure article. The pasteurization is recommended simply because, in the present condition of the dairy industry in our State, much of the milk is dangerous and unfit for infant feeding. It will be a long time before the milk sold in our cities will be of the proper standard. Certified milk, and milk known to come from properly conducted dairies and known to be free from tuberculosis, need not be pasteurized. Any plant established by a city for the purpose of distributing pasteurized milk to its citizens, should be under competent scientific supervision. The milk received at these institutions should be subjected to a close examination, and all milk found unfit for use should be destroyed. The idea that any milk, no matter how old or how foul, can be sold to the pasteurizer and converted into a suitable article of food, is preposterous.



SLEEPING SHACK. GIFT OF MR. S. W. HART.

A TUCKER TENT. GIFT OF MR. MAX ADLER.
Gaylord Farm Sanatorium.

THE CARE OF TUBERCULOUS CATTLE.

The care of tuberculous cattle has become a question of unusual interest the world over. The discovery of the tubercle bacillus and the subsequent discovery of the bovine tuberculosis, with a similar but distinct bacillus as its exciting cause, has led to much investigation, to determine the possibility of the transmission of tuberculosis from animal to man and from man to the lower animals. The widespread interest that has been developed in the efforts to suppress tuberculosis has led to much extravagance of statement. Many questions of vast importance to the dairy interest are still unanswered and are in some instances the source of bitter controversy. The assumption that the milk from tuberculous cows was the cause of the major part of human tuberculosis, has led to demands for radical measures that imperil the dairy industry, to say nothing of the possible milk famine that the wholesale slaughter of apparently healthy cattle might cause. It is assumed that all right-minded producers desire to sell a healthful article. There is no reason to suppose that the Connecticut farmer is any more indifferent to the quality of milk he sells than are his customers. The unprincipled or ignorant producer, who feels no responsibility in a matter of such importance, is a negligible factor in all legislative proceedings. At the same time, it is not unnatural for a farmer owning a valuable herd of cows, which may possibly represent a considerable portion of all his holdings, to object to their being killed by the State by reason of their reacting to tuberculin. There can be no question, in the light of recent investigation, as to the possibility of the occasional transmission of the bovine bacillus to the human being, as the actual presence of the bovine bacillus in the human being has been demonstrated. This most important question has been under investigation by a royal commission in Great Britain, and their reports have been characterized by conservatism and an unwillingness to publish definite conclusions. Their work is still incomplete, but in their second interim report, as quoted by Dr. Bulstrode, they make definite

statements bearing upon this question of transmission through milk that must be accepted as authoritative. They say: "There can be no doubt but that in a certain number of cases the tuberculosis occurring in the human subject, especially in children, is the distinct result of the introduction into the human body of the bacillus of bovine tuberculosis. And there can also be no doubt that in the majority at least of these cases the bacillus is introduced through cow's milk. Cow's milk containing bovine tubercle bacilli is clearly a cause of tuberculosis and fatal tuberculosis to man." "A very considerable amount of disease and loss of life, especially among the young, must be attributed to the consumption of cow's milk containing tubercle bacilli."

So eminent an authority as Theobald Smith says: "We have learned that in a selected number of cases of alimentary tuberculosis the bovine bacillus has been found. This is all we know and all the rest is uncertain and speculative." If bovine tuberculosis is a frequent cause of human tuberculosis, in fact, as some claim, the chief cause, then through its transmission the bovine must change into the human type. This is equivalent to the assertion, that the differences in characteristics noticeable in the two types are modifications caused by the host in which the bacillus is developed. Dr. Theobald Smith again says: "If the bovine and human cultures are indiscriminately transmissible to either species, why should two types have arisen?" "That the bovine type should be converted into the human type has no analogy in the domain of bacteriology." The nature of this report does not admit of a detailed discussion of this most important question, but the question as to the transmissibility of bovine tuberculosis to the human being is of the highest importance, and must be referred to, because of the radical announcement of Koch in 1891, that there was no serious danger to man from the use of milk that contained the bovine bacillus. The extent of the investigation that was developed the world over, through this announcement, is truly amazing, and it must be admitted that the result has been to disprove the accuracy of the statement of Koch. It cannot be denied, that human tuberculosis may be developed through the ingestion of infected milk. The discussion of this question of the transmissibility of bovine tuberculosis occupied much of the time of the late International Congress on Tuberculosis. The daily press has reported the matter so fully

that the difference of opinion between Dr. Koch on one side and, it may be said, almost the entire body of those who can justly be called experts on the other, is well understood by the public. The deliberations of this great congress have placed beyond question the possible transmission of bovine tuberculosis, especially in infancy and childhood. There is good reason for believing, that all intestinal and bone tuberculosis in childhood may be of bovine origin. It is apparent that the frequency of infection of the human being through milk is not known. The fact that it is surely a possible source of infection makes the effort to eradicate tuberculosis from the herds of the State an imperative duty. All efforts in this direction work not only for the good of the consumer of milk, but from the most selfish standpoint conceivable are of paramount importance to the owners of the stock. Men who scoff at remedial measures and claim, through some extraordinary insight, to know that the discoveries of modern science are unreliable, are blind to their own interests.

It is unquestionably true, that no effective measures can be taken toward the cure of a disease without an accurate diagnosis. The first question for every dairyman to answer is, Have any of my herd tuberculosis? If he is fortunate enough to be able to say truthfully that they are free from it, then he has the comparatively simple task of keeping them free from infection. But how can a man say with certainty that he has no tuberculosis in his herd? Many will answer by physical examination. So bitter has been the experience of some farmers that it is difficult to discuss this question with them at all. It is, however, a fact, that tuberculosis may exist in a cow that presents every appearance of perfect health. It is further true, that in many of these cases the disease is not discoverable by physical diagnosis alone. Is it of importance, if this be true, that any other means for securing an accurate diagnosis should be resorted to? To the owner of the cow and for the future welfare of his whole business, it is highly important. One such apparently sound animal may infect a whole herd, before the disease has advanced to the point where it can be demonstrated by physical tests alone. It is further to be understood, that a very large number of those who consider themselves competent to make a thorough physical examination, are utterly unqualified for the work.

THE TUBERCULIN TEST.

So much has been written of a popular character upon the tuberculin test, and such prejudiced and unreliable statements have been widely published, that it is not easy to secure a fair hearing upon the subject. In some of the recent newspaper comments upon tuberculin, it has been stated, that no tuberculin should be injected into animals, because it had been found so highly destructive in its use upon human beings as to be discarded wholly by all reputable physicians, that no reputable physician would dare use it to-day. A full history of tuberculin is not called for in this report, but it is important some facts as to its use should be made clear. Immediately after its first introduction by Koch it was not fully understood, the doses used in the treatment of many cases were too large, and in some cases were followed by serious consequences. This resulted in a practical abandonment of the use of tuberculin for several years. Its use was not abandoned altogether. A more careful study as to the proper use removed all danger. It has been used more frequently and with better results from year to year, and so far from a reputable physician not daring to use it, there is probably not a specialist of any importance in the world to-day who is not using tuberculin, or some of its modified forms, in the treatment of some of his consumptive patients. A properly prepared tuberculin, intelligently administered, is harmless.

This statement answers the charge that it often produces tuberculosis. Such an occurrence is an impossibility. As well claim that sprinkling a field with cider might produce an apple orchard. If a cow develops tuberculosis a year after an injection of tuberculin, that fact certainly does not prove the charge that the tuberculin was responsible. The claim that the use of tuberculin might arouse into activity a latent tuberculosis, is not so unreasonable. Any animal with latent tuberculosis is liable to have an active process at any time, and it is not proven that the resultant fever

from tuberculin reaction, and the accompanying activity in the lesion itself, may not continue and produce the generalized disease. If so, it is rare, and such an occurrence, it must be borne in mind, is only possible where the disease already exists.

As to the influence upon the health of a herd free from tuberculosis, the tuberculin test is harmless. The many claims published by dairymen, that where there was no reaction from the test the herds have subsequently deteriorated, are not to be accepted and cannot be established. Most of such unwarranted statements are the result of animosity, aroused by the enforced test and the wholesale slaughter that has been going on in some states, for which there can be no justification.

It is for the interest of all dairymen to have their herds tuberculin tested at suitable intervals and to keep them free from tuberculosis. This testing should always be done by an experienced man and care should be observed to secure reliable tuberculin. Testing seems simple, and yet it calls for excellent judgment. The question of the temperature of cows is important. In perfect health cows show a temperature fluctuation that may amount to two or three degrees, which may be erroneously attributed to tuberculosis. The whole question involves so many points for discussion that a more detailed consideration is not possible in this report. Whenever the tuberculin test is asked for, it is to the State's interest to empower the cattle commissioner to employ an experienced operator and to give the test free of cost. Whenever a herd is known to the cattle commissioner to be free from tuberculosis, he should be authorized to issue to the owner a stamp indicating the fact, which may be placed upon all receptacles containing the milk, with the understanding that no new cattle are introduced into the herd, until they have been tested and accepted by the cattle commissioner. This testing of dairy cattle is destined to continue and those who accept it will receive a higher price for their dairy products. People will ultimately demand stamped milk. On small farms, where the owner does not feel called upon to test his cattle, the inspection of the dairy commissioner is the only safeguard.

Without the tuberculin test, it has been shown that the disease cannot be detected in many cows that are unquestionably seriously infected. Where tuberculosis is capable of detection upon a phys-

ical examination, the animal should be slaughtered. It is possible that from some cows clearly infected with tuberculosis, a calf may be secured before the mother is slaughtered, and if the mother is isolated and due precautions are taken against infecting other cattle, the time for killing such an animal shall be determined by the cattle commissioner. To sell milk from such a cow should be a serious offense before the law. The wholesale slaughter of all cattle, even when the disease has been detected by the tuberculin test, as has been done in some states, is not to be tolerated.

The chief effort for the State is to encourage voluntary measures to purify the herds of the State, by the most advanced scientific methods; to create as widespread a sentiment among the farmers of the State as is possible in favor of the better housing of cattle and handling of the milk, without which all efforts are in vain, and finally to educate the dairymen in the Bang system for the eradication of tuberculosis by isolation of the infected cattle—a system that has shown almost incredible results in the betterment of cattle conditions in Denmark, reducing the disease in the cattle of Denmark from thirty-five and five-tenths per cent. to four per cent. In this report the Bang system can only be referred to, in the hope that the public may be led to full exposition of the system.

Upon one point in the treatment of tuberculosis in cattle, all the citizens of the State should be of one accord. No cattle should be allowed to be brought into the State of Connecticut that have not been tuberculin tested. Such a law as to the importation of cattle exists in all the neighboring states. In Connecticut we have no law bearing upon the question. Connecticut is the dumping-ground of all our neighbors for tuberculous cattle. There are in our State some so foolish as to suppose, that because they have secured a cow below her apparent value, they can close their eyes to the fact that tuberculin has proved her to be diseased. These men are destined to ruin their herds, if they are not already ruined. More than that, they are imperiling the value of their neighbors' property. Public sentiment should uphold the State in measures of the utmost stringency to discover these miscreants. In the annual report of the Board of Agriculture of Massachusetts for 1907, the following is enumerated as among the duties of the Cattle Bureau:

"Second. Keeping up the quarantine work, to prevent tuberculous animals from being introduced into the dairy and breeding herds of this Commonwealth from adjoining states. This includes the testing of all neat cattle brought into the State except beeves for immediate slaughter, or calves under six months old; cattle returning from out-of-State pastures, or coming in for exhibition purposes or returning home from cattle shows in adjoining states, are also exempt from the test. All the cattle upon which a test is required shipped to the stock yards at Brighton, Watertown and Somerville, are tested by the agent of the Cattle Bureau in charge of these quarantine stations. Cattle upon which a test is required brought to points outside of these stock yards, which are considered to be quarantine stations, must be accompanied by satisfactory certificates of tuberculin test made by veterinarians in the states from which they come, approved by the Chief of the Cattle Bureau; or they are held upon arrival at destination and tested by an agent of the Cattle Bureau, free of expense to citizens of Massachusetts and at cost to citizens of other states, but at their risk. Cattle passing a satisfactory test are released from quarantine." Such restrictions upon the importation of cattle are in the interest of every honest farmer in the State.

Certainly no argument can be called for to sustain the claim that the importation of tuberculous cattle into our State should be immediately stopped. Those who are interested in defeating measures directed to the arrest of such an evil, are inimical to the interest of every honest farmer in the State. They should be made to feel that weight of public opinion that is the most powerful agent in securing all reforms.

The effort has been made to show, that in the dairy question, as related to the tuberculosis question, it is of the first importance for the State to secure adequate inspection of the care shown to cattle throughout the State; to secure, thereby, sanitary treatment for cattle, without which all effort to eliminate tuberculosis in the herds will be in vain.

Further, that the State should do all that may be proper to encourage the scientific test of all herds in the State and to educate the owners of cattle in the system of segregation that may enable the owners ultimately to clear their farms of a most destructive disease, and that, too, without serious pecuniary loss.

A further effort has been made to emphasize the fact, that aside from all consideration of the question of human tuberculosis, the State has reason to act, and act promptly, for the eradication of bovine tuberculosis, a disease that is tending to the ultimate destruction of the dairy business.

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