

THIRTY-NINTH ANNUAL REPORT
OF THE
DEPARTMENT OF HEALTH
OF THE
STATE OF NEW JERSEY
1915



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STATE OF NEW JERSEY, 1915.

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CLYDE POTTS, C.E.....Morristown
HENRY SPENCE, M.D.....Jersey City

The offices of the Department are in the State House, Trenton.

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EXECUTIVE STAFF.

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R. B. Fitz-Randolph, Assistant Director.
Charles J. Merrell, Chief Clerk in Division of General Administration.
Sara D. Yard, Clerk.

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A. Clark Hunt, M.D., Chief of Bureau.

BUREAU OF LOCAL HEALTH ADMINISTRATION.

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D. C. Bowen, Chief of Bureau.
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DEPARTMENT OF HEALTH.

DIVISION OF MILK CONTROL.

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 S. S. Vandruff, Inspector.
 A. I. Goehriz, Inspector.
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 W. D. Goulding, Inspector.
 S. S. DeCou, Inspector.
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BUREAU OF VITAL STATISTICS.

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 David S. South, Chief of Bureau.
 Walter Scott, Clerk.
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BUREAU OF ENGINEERING.

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 Chester G. Wigley, Chief of Bureau.
 N. E. Frissell, Assistant Engineer.
 H. P. Croft, Assistant Engineer.
 P. N. Daniels, Assistant Engineer.
 Glenn M. Ebaugh, Assistant Engineer.
 Lynn Perry, Assistant Engineer.
 Isaac H. Riker, Assistant Engineer.
 Chas. A. MacDonald, Jr., Clerk.

BUREAU OF PUBLICITY AND EDUCATION.

J. Oliver McDonald, M.D., Supervising Member.
 Millard Knowlton, M.D., Chief of Bureau.
 W. Delos Smith, Assistant.
 Harry C. Shelby, Mechanician.
 Bertha E. Moore, Clerk.
 Division of Child Hygiene.

LABORATORY OF HYGIENE.

Clyde Potts, C.E., Supervising Member.
 R. B. Fitz-Randolph, Chief of Laboratory.
 J. V. Mulcahy, Bacteriologist.
 Cecil K. Blanchard, Bacteriologist.
 Henry W. Denny, Chemist.
 John E. Bacon, Chemist.
 F. Edw. Whitehead, Chemist.
 Edwin G. Applegate, Chemist.
 Arthur N. Hutchinson, Chemist.
 Joseph A. Moran, Laboratory Assistant.
 Antoinette Foy, Laboratory Assistant.
 Catherine Birt, Laboratory Assistant.
 Elizabeth Stackhouse, Clerk.

Letter of Transmittal

TRENTON, N. J., October 31, 1915.

To His Excellency, James F. Fielder, Governor of New Jersey:

SIR:—I have the honor to transmit herewith the Thirty-Ninth Annual Report of the Department of Health of the State of New Jersey.

Very respectfully,

J. C. PRICE,
Director.

Report of the Board

*To His Excellency, James F. Fielder, Governor,
 Trenton, New Jersey.*

SIR:—The annual report for the year ending October 31, 1915, deals with the activities of the former State Board of Health from the period October 31, 1914 to July 1, 1915, and of the State Department of Health from July 1, 1915 to October 31st of that year.

As the reorganization of the various Bureaus did not become effective until October 31, 1915, the reports of these Bureaus for the completed year are presented by the Chiefs of the Bureaus under the former organization.

Before presenting the plan of reorganization, which has been adopted by the Department of Health, a reference should be made to the important feature of the new law creating a State Department of Health.

The object of the new law (Chapter 288, Laws of 1915), as expressed in the title, is to increase the efficiency of public health protection in the State. In consideration of the wide scope of the new legislation, it is at once apparent that under the statute, the State Department of Health is now empowered to rigidly enforce health laws and promote the education of the public in matters pertaining to the preservation of health and the prevention of disease.

With this increased authority comes added responsibility which will require the exercise of wisdom, judgment and discretion in the administration of the new law.

The most important provisions of the Act of 1915 are:

1. That section which authorizes the enactment of a State Sanitary Code.
2. That section giving the State Department power to compel local health authorities to enforce the law.

The enactment of a State Sanitary Code is an undertaking of considerable magnitude, and the Department is making haste slowly in the preparation of this Code. The necessity, however, for a State Code has long been recognized, as heretofore the Codes adopted by various boards of health were, in many instances, incomplete and conflicting. There are in New Jersey today, 494 sanitary districts. These are classified as cities, boroughs, towns, villages and townships. It is a conservative estimate of the efficiency of these boards when it is stated that of the 494 districts, not more than 15 per cent attempt any really efficient local health control, while of the remainder, many have no local sanitary code or ordinances whatever. The New State Code, under the Act, will supersede as to those matters to which it relates, all local ordinances, rules and regulations, and must be observed throughout the State and must be enforced by all local authorities. It is evident therefore, that in forming this State Code, there must be taken very carefully into consideration the many excellent local codes that are already enforced. In brief, the State Code should not upset the good codes at present existing, yet, at the same time, it must be sufficiently elastic to apply with equal force to larger cities as well as to the small and sparsely populated townships which are now without any sanitary regulation. The Department is fortunate in this connection in having among its members some who have had wide experience in local health work, and their judgment will be relied upon mainly in the preparation of the Code.

The other section of the law referred to, i. e., that giving the State control over local boards of health is a tremendous power and will need to be used wisely. This is the power, however, that experience has shown should be vested in a State body.

The strongest feature of this section is that which enables the State authorities to take charge of a bad local situation, after fair notice, and collect the cost of correcting it from the community affected. That is a *real* power, but one which, we believe, the local authorities will, by their neglect of duty, rarely make it necessary for the State Department to invoke.

In other particulars, the new law covers substantially the same points as the laws already on the statute book. It was evidently the intention of the framers of the new act to centralize all the responsibility for the enforcement of the law upon the Director of Health, but in this they were not entirely successful. Much of this responsibility must be borne by the Department as a whole. This is not a serious defect in the measure, for under the plan of reorganization adopted by the Department it is believed that the work can be carried on in a way that will achieve highly efficient results.

ORGANIZATION.

During the months that have intervened since the present Department took office, various forms of organization have been discussed. Every suggestion was carefully considered and after several meetings a definite plan was adopted and put into effect on November 1st, the beginning of the State's fiscal year. A brief outline of this plan of organization is as follows:

The work of the Department is apportioned to six Bureaus, exclusive of the office of the Director and the Laboratory of Hygiene. The complete organization is as follows:

DEPARTMENT

Director and Assistant Director
 Division of General Administration
 Bureau of Medical Supervision
 Bureau of Local Health Administration
 Bureau of Food and Drugs
 Division of Milk Control
 Bureau of Vital Statistics
 Bureau of Engineering
 Bureau of Education and Publicity
 Division of Child Hygiene and Nursing
 Laboratory of Hygiene

In the organization above outlined it was the purpose of the Department so to arrange the work that each Bureau should report to the Director and through him, when necessary, to the Department itself. The Laboratory of Hygiene is kept separate from the Bureau organization and made the servant, so to speak, of every Bureau. In the light of experience it is believed that this plan will prove generally satisfactory.

A better understanding of the scheme of organization may be gained by a short reference to the duties of the various Bureaus.

The Bureau of Medical Supervision acts in a medical advisory capacity to the other Bureaus. All diagnostic work will be referred to this Bureau and the Chief is particularly instructed to keep in close touch with the medical societies of the State so that the greatest degree of cooperation may be secured among all who are working in the same field.

The Bureau of Local Health Administration will engage in all the field investigations and inspections concerning communicable diseases; will cooperate with the local health authorities, encourage them to a more active interest in the work and assist them in solving their problems; aid in the enactment and enforcement of the State Sanitary Code; and engage in the study of sanitary conditions throughout the State with a view to their improvement. This Bureau will also have control of all epidemics.

The Bureau of Food and Drugs will direct all work in any way relating to the enforcement of the Food and Drug acts; have supervision over slaughter-houses, cold storage warehouses, canning factories and

the shellfish industry. Through its Division of Milk Control, this Bureau is also charged with the supervision of milk supplies and the inspection of dairies and ice cream factories.

The Bureau of Vital Statistics, in addition to the recording of the returns of marriages, births and deaths, will have charge of the keeping and tabulating of all the morbidity records. This will bring all of the statistical work into one department.

The Bureau of Engineering will pass upon plans for water works and sewerage systems, supervise and direct the operation of all water and sewerage plants and conduct all the field inspection work relating to water supplies, stream pollution and sewage disposal that may be necessary.

The Bureau of Education and Publicity will maintain a news service, prepare the monthly bulletin, PUBLIC HEALTH NEWS, and arrange for and direct the Tuberculosis and Health Exhibit. Within this Bureau is the newly created Division of Child Hygiene and Nursing, the Chief of which has not, at this time, been selected. The work of this Division, the Department considers of the greatest importance. As a beginning, it will be conducted chiefly along educational lines.

In order to bring the work of each Bureau in direct touch with the Department, a Committee on Control will be in charge. Each committee is composed of the Director, the Chief of the Bureau and one member of the Department. In the entire scheme of organization the members of the Department have aimed to avoid all unnecessary duplication or overlapping.

A consideration of this outline is indicative of an earnest effort on the part of the Board to establish an efficient organization for the enforcement of our State health laws.

APPROPRIATIONS.

Your attention is directed to the allowance made by the Legislature to the Department for its work for the fiscal year beginning November 1, 1915. This sum totals \$128,000 which is approximately 4½¢ per capita on an estimated population of three millions. This can hardly be considered an adequate amount for the work that should be carried on in New Jersey, but with the money available an effort will be made to accomplish a fair measure of constructive work. This year, for the first time, the Legislature has taken a decided step forward by making its appropriation to the Department in a lump sum, instead of splitting it up into several sums for the specific enforcement of certain laws. A plan is now being prepared by which this money will be carefully apportioned and it is the intention of the Department to apply its funds to those phases of the work which promise the greatest results.

THE TUBERCULOSIS EXHIBIT.

The work with the Tuberculosis Exhibit for the fiscal year ending October 31, 1915, has proceeded along the usual lines, following the routine developed by past experience. The work consisted in advance

visits for the purpose of organizing committees to give local support to the Exhibit, and securing local pictures. The Exhibit itself was conducted on school days only so that the school children might attend in the afternoon.

The year's work has been carried on almost entirely in the southern part of the State, beginning at Hammonton the first week in November, 1914, and closing with an Exhibition at the Trenton Interstate Fair the following year. The territory covered included Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester and Ocean Counties. Salem County was not visited because the Exhibit had opened in Salem City in March, 1912, and arrangements could not be made for it at other towns in the county.

Notwithstanding the fact that most of the work was done in isolated towns that required cross-country moves, a show was given each week outside of the holidays and summer vacation, with the exception of one week in Camden. Here the Exhibit was put up in the Y. M. C. A. Building, and on Saturday before it was to open on Monday, the Camden Board of Health cancelled the engagement on account of the presence of small-pox in the city.

In this connection it is interesting to note that although the local authorities in Camden refused to assume any responsibility for expenses incurred in the Exhibit campaign, when a case of small-pox was discovered the city council met very promptly and appropriated \$5,000 to the Health Department for its work in combating the disease. There are no doubt hundreds of cases of tuberculosis in Camden, but there were only four or five cases of small-pox at this time. Some persons are disposed to deplore the fear aroused by the tuberculosis campaign. If people could be induced to fear tuberculosis as they fear small-pox, it is certain that speedy and effective measures would be taken for the control of the disease.

A total of 178,635 persons attended the Exhibit, the park shows and outside lectures given during the year, as compared with 166,310 for the preceding year. For the first seven months of the year, which were devoted to the regular Exhibit campaign, 70,135 persons, or nearly one-fourth of the 288,462 estimated population in the cities and towns visited, attended the Exhibit. More than half this population belongs to the principal cities, Camden and Atlantic City. If a larger population had been accessible the attendance at the Exhibit could be told in still larger figures.

At Burlington a local committee arranged a child welfare Exhibit in connection with the State Tuberculosis Exhibit and held a mothers' meeting one afternoon during the week. This meeting was largely attended by interested mothers who eagerly sought the information imparted to them concerning the care of babies. So successful was the meeting that the President of the New Jersey Mothers' Congress, who was present, has since written to request permission to hold a mothers' meeting one afternoon each week, if in the future the State should conduct an Exhibit on child hygiene.

A departure from the routine Exhibit campaign during the past year has been made possible by an additional full-time assistant to do the advance work and part of the lecturing at the Exhibit. The Director of tuberculosis work was thus allowed time to prepare articles for the press, and take up other educational and publicity activities.

The press service which was instituted covered the Health Officers' Conference held last winter so thoroughly that the new ideas presented at the Conference were made available for all persons in the State. A story was released each day during the week preceding the Conference and copies of all papers were secured and given to the press in advance of the Meeting for release as soon as read at the Conference. Thus, information concerning such subjects as child hygiene, publicity in health work, the cause of some of the contagious diseases, health problems in a rural community, value of the visiting nurse in public health work, and the Laboratory diagnosis of diphtheria was placed before the public.

Other articles furnished the press have dealt with the health bills pending before the Legislature, while still others have dealt with the reporting of communicable diseases, the pasteurization of milk, the results of Laboratory tests of foods and drugs, the training of attendants for sewage disposal plants, foodstuffs held in cold storage, measures for the control of tuberculosis in the home, the low typhoid death-rate, a new plan for the control of rabies, enforcement of the soft drink law, danger of vacation typhoid, a plea for saving the babies, the progress of public health work during recent years, and many other important health subjects.

Publication of a monthly bulletin in compliance with the requirements of the law reorganizing the department was begun in August. Three numbers for August, September and October, respectively, were issued before the close of the fiscal year.

The systematic Exhibit campaign extending over the entire State is now completed and the remainder of this report may well deal with the campaign as a whole. The Exhibit used consisted of enough photographs and mottoes to cover the wall space in a fairly large auditorium, a number of electrical flashers to present facts in a striking manner, some models of foodstuffs suitable for consumptives, sleeping-out appliances, and a complete motion picture equipment.

The care exercised in the construction of the Exhibit, which included taking most of the pictures in order to have original ones, a careful selection of the color scheme, a painstaking study of the mottoes and captions used to make them simple and direct while expressing accurately scientific facts, and the employment of a style of lettering that is very readable, has resulted in the New Jersey Exhibit being regarded as one of the best in the country. It has been visited by a number of persons from out of the State who were in search of ideas for exhibit construction.

The Exhibit has been on the road for nearly four years, with the exception of the summers, when it was usually stored and outdoor

shows were given in parks and playgrounds. During the summer of 1912, an Exhibit campaign was conducted in Monmouth County in cooperation with Monmouth County Branch of the State Charities' Aid Association, officials of which preferred to have it in the summer rather than wait until a winter schedule could be made.

Fifteen municipalities were visited during the first fiscal year, twenty-one the second, twenty-six the third, and twenty-six the fourth, making a total of eighty-eight different municipalities in which the Exhibit has been shown in 116 different locations for 520 days or 122 weeks. The Exhibit week has been made to correspond to the school week on account of the cooperation with the schools. At times, however, in the smaller towns the Exhibit has been open only three or four days of the week. The population of the municipalities visited is nearly two and a quarter millions. Of this number 574,630 persons attended the Exhibit, 209,750 the park shows and 2,450 the outside lectures, making a total of 782,839 people to whom the direct message has been carried. The number attending the Exhibit alone amounts to more than one-fourth of the total population of municipalities visited while the total number attending the exhibit, park shows and lectures amounts to more than one-third the population. The average daily attendance at the Exhibit has been 1,105, that at the park shows 1,729 and at the outside lectures 136. Few of the outside lectures have shown an attendance above 100. It is so difficult to get people to attend isolated lectures that this line of activity has not been encouraged.

For educational purposes it is believed that a few small carefully prepared circulars, widely distributed, will bring larger returns in the tuberculosis campaign than a more voluminous pamphlet, the distribution of which is necessarily limited on account of expense in printing. Two circulars, one entitled "How to Prevent Tuberculosis" which has been printed in six languages beside English, and the other entitled "Rules and Regulations for the Care of Tuberculosis Patients," printed in English and Italian, have been carefully prepared and distributed very widely. Of the former, which was prepared first, 694,803 have carried the message of tuberculosis prevention to the citizens of the State. The latter, which was a later production, has been distributed to the extent of 140,074, a total of 2,292 farmers' bulletins, dealing with bovine tuberculosis and printed by the United States Department of Agriculture, were obtained through the New Jersey State Board of Agriculture and distributed. Three thousand one hundred children's pamphlets reprinted and donated to the Exhibit were also distributed, making a total of 840,269 pieces of educational literature that have been given out. Not all of this, however, has gone out from the Exhibit directly, but 120,542 leaflets have been distributed through local boards of health, tuberculosis associations, tuberculosis clinics, other organizations and private individuals throughout the State. The total distribution of literature, both educational and advertising, has amounted to the total of 2,274,956, which is more than one circular for each individual in the population of the cities and towns visited. In addition to the literature

for popular distribution, a pamphlet entitled "How to use an Exhibit" has been prepared and printed for the use of local committees as a guide in forming an organization for the local work. Several hundred copies of Dr. S. Adolphus Knopf's prize essay on tuberculosis have been purchased and given to those who were to speak at the Exhibit.

The total expenditure for the Exhibit from November 1, 1912, to June 30, 1915 (exclusive of current unpaid obligations as of June 30, 1915, estimated at \$488) was approximately \$35,762.18. Careful tabulations and calculations show that 42.75 per cent of this amount has been expended for salaries and labor; 17.32 per cent for printing; 11.75 per cent for hotel bills; 6.24 per cent for transportation of Exhibit material, and 5.27 per cent for transportation of the men employed with the Exhibit, while 8.39 per cent has been expended for Exhibit material including the motion picture equipment.

Including \$488 estimated obligations the total expenditure for the Exhibit campaign to June 30, 1915, was \$36,250.18. Estimating the value of the tangible property on hand at \$1,250.18, which is a low estimate, leaves the balance of \$35,000 that was expended for that tangible something called an educational campaign for the prevention of tuberculosis.

The modern efficiency method of figuring unit cost cannot be applied by estimating the cost of a life saved or a case of illness prevented. Any estimates as to the unit cost must, therefore, be based on tangible entities that are after all external to and often aside from the real thing accomplished by such a campaign. The real results are subjective or mental and cannot be measured in material units. It is interesting, however, to note from the accompanying table that the cost of the campaign has been about $1\frac{1}{2}$ c per capita for the population of the cities visited or 5c per capita for all persons attending the Exhibit.

Now that the campaign throughout the State with the large Exhibit has been completed, the question is, what next?

More than half a million people living in the various small towns and rural communities in the State have not as yet had the Exhibit made accessible to them. For the benefit of these people, a small Exhibit has been constructed that can be carried with less expense into the smaller communities.

A motorcycle has been used in Wisconsin to conduct a tuberculosis campaign in rural sections of the State. Whether or not such a campaign would be successful in New Jersey seems open to doubt. Much depends upon the personality of the man in charge.

A light-weight motor truck was suggested for this purpose in a former report. Some inquiry has been made concerning the cost of purchasing and maintaining such an equipment, but not enough information is yet at hand concerning it to warrant definite recommendations for the purchase of a motor truck or delivery wagon.

These schemes not appearing practicable at present, an Exhibit has been constructed on the folding map plan, which permits it to be put up and taken down readily, for use in smaller communities. The

whole Exhibit, together with literature for distribution, can be packed in two or three trunks and transported easily without much expense. A stereopticon is used instead of motion pictures, because the motion picture booth is too heavy to be easily transported. This Exhibit was practically completed at the end of the fiscal year so that work could be begun with it at the beginning of the next year.

The results of work with the Tuberculosis Exhibit fully warrant the making of plans to keep a large Exhibit on the road. As a pedagogical device, the Exhibit is merely a means of teaching through the eye. As such, its usefulness may be extended to cover other fields of health work.

In planning an Exhibit campaign, due weight should be given to the advantages to be derived from centering the campaign around some particular idea. The gratifying results of the tuberculosis campaign, not only in New Jersey but throughout the country, have been due largely to the fact that a definite object has been kept constantly in view, namely, the prevention of the one disease, tuberculosis. It is believed that the next point to attack is child hygiene. The high death-rate among babies makes this an important health subject.

The central idea about which to build another large Exhibit may well be the protection of the health of the child.

Some material concerning several health subjects can be used in the Child Hygiene Exhibit. In general, it may be said that the emphasis upon the various subjects should be in proportion to their importance as reflected in the death-rate. The building of an Exhibit about the idea of child welfare would accomplish the double purpose of making it cover an important health field and giving it a theme of much driving force.

The cost of constructing and operating such an Exhibit will of necessity be greater than the cost of the Tuberculosis Exhibit. In addition to small leaflets for general distribution, it may be desirable to print a handbook for mothers. This will increase the cost of printing. A nurse or two with the Exhibit to deal with mothers will be almost a necessity. This will increase the salary expense. In order to induce local committees to establish nursing services and consultation stations for infants, some follow-up work must be done which will make the expense still greater. The experience of the New York State Department of Health in reducing the infant mortality rate fifteen points in 1914 by its state-wide child hygiene campaign, gives ample justification for conducting such a campaign in New Jersey.

The necessity for more publicity in public health work is receiving more attention than ever before. In recognition of this need, The Bureau of Education and Publicity, that is to develop this line of activity for the Department, will secure publicity through the Exhibit, the monthly bulletin, the public press, and the distribution of leaflets and pamphlets on health subjects.

One of the most important and at the same time least expensive of these methods of securing publicity is through an efficient press service.

Heretofore, stories have been prepared and given to the press representatives in Trenton. In this way the material prepared in the Department's office reaches all the leading papers in New Jersey and many of those in adjoining States and nearby cities, and some of it is sent to papers throughout the country by the large press agencies.

No steps have yet been taken to furnish material to the weekly papers in the smaller towns and communities in the State. Every word in these papers is read with diligence by the citizens of the community. The weekly paper often carries more weight with its small group of readers than the big daily carries with its large group of people. If material now given out by the Department's press service could be duplicated in sufficient numbers so that a copy might be sent to each weekly paper, the value of the service would be greatly increased. This, however, cannot be undertaken until the clerical force in the office is sufficient to keep up the service.

FINAL DECISION IN THE PHILLIPSBURG CASE.

In 1906 The State Sewerage Commission served a notice on the Mayor of Phillipsburg to the effect that the City should cease polluting the waters of the Delaware River by the discharge of sewage from the city sewers. The city was given a year to comply with the order of the Commission. In 1908 the Legislature combined the State Sewerage Commission with the State Board of Health. An application was made to the Court of Chancery for an injunction to restrain the City of Phillipsburg from continuing the pollution of the waters of the Delaware River. The case was heard by Chancellor Walker, then Vice-Chancellor, and his opinion was to the effect that "a mandatory injunction must issue in accordance with the prayer of the bill to compel the town of Phillipsburg to cease its unlawful act of polluting the waters of the Delaware River by permitting sewage and other polluting matter to flow therein from its sewerage systems and drains and to make such disposal thereof as should be approved by the State Board of Health."

The case was then taken to the Court of Errors and Appeals and on November 15, 1915, the decision of the Vice-Chancellor was affirmed. As the original decision on the case was given in full in the report of 1915 the final decision of the Court of Errors and Appeals is given herewith as it terminates long litigation which was of extreme importance in determining the legal relation of the State Board of Health to the prevention of the pollution of streams.

NEW JERSEY COURT OF ERRORS AND APPEALS.

JUNE TERM, 1915. No. 9.

BOARD OF HEALTH OF THE STATE OF
NEW JERSEY,

vs.

INHABITANTS OF THE TOWN OF PHIL-
LIPSBURG,

Argued June 18th, 1915; Decided November 1915.

1. The title of the Act of 1900 (P. L. 113, C. S. 5816) does not limit the scope of the legislation to the prevention of pollution of the State's water by means of a State Sewerage Commission.
2. The Act of 1908 (P. L. 605, C. S. 5830) vesting in the State Board of Health the powers of the State Sewerage Commission is constitutional.

JOHN W. WESCOTT, Attorney General, and HERBERT
Boggs, Assistant Attorney General,

For Complainant, Respondent.

GILBERT COLLINS, (J. I. Blair Reiley on the Brief),

For Defendant.

The opinion of the court was delivered by SWAYZE, J.

We should think it unnecessary to add to what the Chancellor said but for some suggestions in the brief in this court of counsel for the appellant, which seem to deserve remark.

1. We agree with the Chancellor that the object expressed in the title of the Act of 1900 is the prevention of pollution of the State's waters and that establishment of a State Sewerage Commission is only one of the means by which that object is to be accomplished. The title differs entirely from the one suggested by counsel "An act for the establishment of a State Sewerage Commission to prevent the pollution of the waters of this State," etc. It is true that the words of the title of 1900, "by the establishment of a State Sewerage Commission," might be read as words limiting the scope of the act. Whether words are to have that effect in any particular case depends on the legislative intent. That such was not the intent in the present case is shown by the words that follow in the title. It can hardly be that the Legislature meant to limit the prevention of pollution to the cases where the creation of sewerage districts was authorized, and where the powers and duties of the commission and the boards prescribed, defined and regulated. It would be going far to treat each clause as a limitation; yet the grammatical structure of the three clauses and the connection of each with the words "to prevent the pollution of the waters of this State" is the same. "Authorizing the creation of sewerage districts," "prescribing, defining and regulating the powers and duties," are connected with what precedes by the same particle "by" that connects the words "the establishment of a State Sewerage Commission." All three clauses were alike meant to show by the title certain means by which the object of the act was to be accomplished, an amplification rather than a limitation.

The contention of the appellant is that the object of the act cannot be accomplished by another agency than a State Sewerage Commission and that the State Board of Health is a different agency which cannot be called

a State Sewerage Commission. Even if we assented to counsel's major premise as we do not, we should dissent from his minor premise. The Act of 1900, as he says, is a revision. It takes the place of the Act of 1899. It undertakes to legislate on the subject *de novo*. The Legislature might provide that the State Sewerage Commission created by the act should be the State Board of Health. There is no magic in the mere name "State Sewerage Commission." The title does not point to a definite commission such as the one then existing under the Act of 1899. It points only to a sewerage commission. The words are satisfied by any commission however constituted. A commission does not necessarily mean a board of several gentlemen called by the name commission. It is surely a commission if composed of two or more and we see no reason why two or more men may not be a commission although collectively spoken of also as a board. To hold otherwise would in effect make the limitation in the title more than the appellant claims, for it would limit the execution of the legislative object not merely to a commission in fact but to a commission that was also so in name. The State Board of Health is not a body corporate or a distinct legal entity but a mere collective designation—a name and nothing more. A commission is none the less a commission though called a board. That such was the view of the Legislature in 1908, is shown by the enactment that the act should not render invalid any notice which might have been served prior thereto but that such notice should continue in full force and effect, and that any proceeding begun should be further advanced and prosecuted in the name of the Board of Health. But for this provision it might be most forcibly contended that the notice served in 1906 was not a notice of which the State Board of Health could avail itself as the foundation of the present suit. With this provision in the act, it is clear that the Legislature meant to make the Board of Health a State Sewerage Commission under the Act of 1900. In this way the declared intent to have proceedings, already begun, advanced and prosecuted, was made effective. The fact that in later legislation the title of the act was amended does not, as suggested, indicate that the Legislature doubted the constitutionality of the legislation under the former title. It indicates no more than a desire to make the title more explicit or perhaps the exercise of an abundant caution.

2. Under the Act of 1900 (C. S. 5818, pl. 86) the commission was authorized to act if they found that waters of the State were being polluted to the injury of any of the inhabitants of this State either in their health, comfort or property. The Chancellor found that the citizens of Trenton were suffering injury in their health, comfort and property in that they were compelled to expend large sums of money to purify the waters of the Delaware for potable purposes. This finding was not vitiated by his remark at the end of the opinion that if the Delaware at Trenton was not polluted by the sewage of Phillipsburg in such manner as to cause injury to the inhabitants of Trenton, such injury was threatened and the case was therefore within the terms of the Act of 1907. This remark was by way of indicating the equitable character of his result and not an abandonment of his previous finding which brought the case within the terms of the Act of 1900. The first finding was warranted by the evidence.

The decree is affirmed. Costs should follow the decree. The defendants instead of complying with the notice served in 1906, chose to litigate. We see no reason for making a distinction between a municipal corporation and an individual.

ENDORSED:

"FILED NOV. 15, 1915.

THOMAS F. MARTIN, Clerk."

THE CONTROL OF THE SALE OF NON-ALCOHOLIC BEVERAGES.

The original legislative act of 1907, having for its object the securing of the purity of foods and beverages, although broad in the powers conferred upon State and local boards of health, contained no specific regulation governing the manufacture and sale of non-alcoholic beverages. The increasing use of such beverages indicated that a special law was necessary. The Legislature, therefore, in 1915, enacted a supplement to the original act of 1907, having for its purpose the elimination of deleterious additions to non-alcoholic beverages and the general control of conditions under which such beverages are to be manufactured. Under this act the State Department of Health has adopted the following regulations:

1. All beverages must be sold under names which will not mislead the purchaser as to their flavor and composition.
2. The sale of any beverages under the name of a fruit juice, unless it is in fact the expressed juice of the fruit under whose name it is sold and contains no added ingredient other than sugar, is prohibited, and if sugar has been added such addition must be declared on the label.
3. The use of dulcin, glucin, saccharin or other synthetic sweetening agents in soft drinks is prohibited.
4. The use of saponin in soft drinks, except that which is derived from soap bark, is prohibited.
5. Any soft drink prepared wholly or in part with artificial flavor in such a manner as to counterfeit or imitate a soft drink made with natural flavor, will be regarded as an imitation within the meaning of Chapter 357 of the laws of 1915, and must be labeled with the word "Imitation" if sold under the name of the article which it imitates.
6. The use of vegetable colors and the certified colors now permitted by the United States Department of Agriculture, to wit: Amananth,ponceau R. Erythrosin, orange I, naphthol yellow S., light green S. F. yellowish, indigo disulfo acid, are permitted; provided, however, that the use of coloring matter in such a manner that inferiority is concealed, is prohibited.
7. Soft drinks prepared with natural flavors only and with the colors specified in Rule 6, will not be regarded as imitations and need not be so labeled. The presence of added color in soft drinks must be declared on the cap or label, except in such soft drinks as are sold under distinctive names or in which the added color is not one which simulates the color of the natural product.
8. The bottle or other container in which an artificial soft drink is contained must be plainly marked with the word "Imitation" or, "Artificial" on the label or cap thereof. The container will not be regarded as plainly marked if the type is less than "nine point" or if the color of the printing is not in marked contrast to the color of the ground upon which it is printed.
9. No person shall distribute or sell or have in possession with intent to distribute or sell any soft drinks at any place where false or fraudulent statements or designs are displayed concerning such soft drinks.
10. For the present, and without prejudice to further action, the Department of Health will not make objection to the sale of the soft drinks commonly known as sarsaparilla, birch-beer, root-beer and cream soda under the present designations which will be regarded as distinctive names.

11. Without prejudice to further action, the Department of Health will not require that the presence of capsicum be declared upon the label or cap when used in ginger ale.
12. A "distinctive name" is a trade, arbitrary, or fancy name which clearly distinguishes a food product, mixture, or compound from any other food product, mixture, or compound; which is not one representing any single constituent of a mixture or compound, which does not misrepresent any property or quality of a mixture or compound and which gives no false indication of origin, character, or place of manufacture, and does not lead the purchaser to suppose that it is any other food or drug product.
13. All rooms in which the business of preparing and bottling non-alcoholic drinks is carried on shall be provided with smooth, water-tight floors which can be readily cleansed, and such floors must be cleansed daily.
14. The sidewalls and ceilings of such rooms shall be of smooth material free from crevices and must be kept clean at all times.
15. Non-alcoholic beverages shall be prepared only in such rooms as are adequately lighted and ventilated.
16. The doors and windows and other openings of the rooms in which non-alcoholic beverages or ingredients of such beverages are prepared or bottled, shall be screened during the period from the first day of April to the first day of October, so as to exclude flies, and every room in which any non-alcoholic beverage is prepared or bottled shall be provided with at least one fly trap.
17. All benches and tables shall be constructed of hard, smooth material and shall be readily accessible for thorough cleansing.
18. Establishments shall be provided with an abundant supply of hot and cold water which shall be sufficiently pure to be safely used for potable purposes.
19. Sinks, tubs or washing machinery of sufficient size to enable all utensils to be thoroughly washed and connected by suitable piping to the sewer, shall be installed.
20. Bottles, jars, jugs, or other receptacles which are to be used as containers for non-alcoholic beverages, shall be cleansed by soaking not less than ten minutes in a 3 per cent solution of alkali at a temperature of not less than 125 degrees Fahrenheit. This solution shall not be permitted to become weaker than 3 per cent in alkali and shall be entirely renewed at least once each week. Bottles after removal from the alkali solution shall be rinsed with warm water and scrubbed inside and out with suitable brushes, after which they shall be thoroughly rinsed with cold water. The washing of bottles and containers by other methods will not be objected to, provided, that such methods result in the same degree of efficiency and thoroughness as the method defined.
21. The vessels, utensils, machinery and other articles necessary to the proper mixing and storage of syrups and other ingredients entering into finished products must be kept clean. All containers in which fruit juices or combinations or syrup, fruit juice, flavors or other extracts are stored, shall be constructed of such materials and in such manner that they can be readily cleansed and kept clean, and all such containers hereafter installed shall be of porcelain, glass, glaze line metal or metal lined with block tin.
22. Adequate drainage must be provided to lead all waste liquids outside the building and into a suitable sewer or to some point where they can be disposed of without creating a nuisance.
23. After Sept. 1, 1916, the use of the container, known as the "Hutchinson Plunger Bottle," or containers of similar type will be prohibited. The re-use of crown caps is forbidden.
24. The cases in which bottles containing non-alcoholic beverages are packed, shall, when stored, be raised above the floor, provided, however, that when storage rooms are provided separate and apart from rooms in which non-alcoholic beverages are prepared, this rule shall not apply.

25. No horses or other animals shall be stabled or kept in the building in which non-alcoholic beverages are prepared unless the stable is separated by a solid, impervious wall from the work-room or rooms.
26. No person shall be allowed to live or sleep in any room where non-alcoholic drinks are prepared.
27. The clothing worn by persons engaged in the preparation of non-alcoholic beverages shall be of material that may be readily cleansed and only clean garments shall be worn.
28. Adequate toilet facilities shall be provided for employees. If possible, these toilets should be provided with flush closets, and urinals. If running water cannot be had in the toilets, well constructed privies are recommended. If privy vaults are used, they must not be located in close proximity to buildings in which non-alcoholic beverages are prepared, and they must be thoroughly screened to prevent the entrance and exit of flies. Such toilets must be kept clean at all times. Water closets, toilet and dressing rooms shall be entirely separated from compartments in which non-alcoholic drinks are prepared, packed, distributed or sold. (See note*).
29. All factories shall be provided with suitable facilities where employees may wash their hands, and soap and towels shall be provided convenient to wash stands. Employees shall be required to wash their hands before beginning work and after visiting the toilet.
30. A suitable place shall be provided for the employees to change and store their clothing, and no wearing apparel, boots, shoes or other wearing effects not being worn, shall be kept or stored in any work room.
31. Waste materials must not be permitted to accumulate in or around building, but must be removed daily.
32. Persons afflicted with tuberculosis or other communicable diseases shall not be employed in any establishment where non-alcoholic beverages are manufactured. The owner of such establishment who has reason to believe that any employee is so affected, shall immediately report in writing the facts upon which such belief is based, together with the name and address of the person believed to be affected, to the State Department of Health.

THE LICENSING OF HEALTH OFFICERS.

In an organization of local boards of health for effective work it is essential that the supervision of matters affecting the health of communities be delegated to thoroughly trained health officers or inspectors. In the earlier history in the local health administration of the health laws of New Jersey, medical men were often selected as best fitted for these offices. Although the general training of the physician gives him some knowledge of the modes of transmission of communicable diseases, information on many important subjects embraced in disease prevention is meagre and indefinite. In many localities, the selection of health officers was based on political preference rather than upon the qualifications of the individuals. In the smaller sanitary districts, no health inspectors were appointed, and township physicians were directed to enforce the health laws for the local boards of health. With the exception of a few of the larger cities the organization of health boards throughout the State was unsatisfactory, and in most instances merely a matter of form.

* Note—A blue print showing the construction of a sanitary privy, approved by the State Department of Health will be furnished to any person when requested.

In 1895, a law was passed which required that local boards of health employ only licensed health officers and medical inspectors. An examining board was appointed by the State Department of Health, and since the date above mentioned, examinations have been held on the first Wednesday of June and December of each year.

The applicants for licenses in the earlier years were many of them persons without training in a knowledge of sanitary administrative work. With a general increasing knowledge of the importance of the application of scientific methods in the control of matters pertaining to health and to disease prevention the public demand was such that a better informed class of applicants for licenses took the examination.

In later years, many graduates of technical schools and colleges have obtained licenses and secured positions in our leading cities and towns. To these thoroughly trained health officers is due to a large degree, an improvement of the sanitary supervision in our large communities.

We are convinced that the requiring of State licenses for health officers and sanitary inspectors has had a beneficial effect in elevating the standards and that the time has come when the examination should be made more thorough, so that the very best equipped men may be selected for the places. With the enactment of the Civil Service Law, persons desiring to secure positions in localities that have adopted Civil Service regulations are required to pass the Civil Service examination. In the case of health officers and inspectors, the Civil Service Commission requires that persons who are applicants for employment by local boards of health shall not be eligible for examination unless their licenses have been secured from the State Department of Health. An opinion has been rendered by the Attorney General to the effect that as the law requiring employees of local boards of health to obtain a license from the State Department of Health preceded the Civil Service Law and was not repealed, therefore, the applicant for employment shall take both examinations.

It is evident that these examinations might readily be combined, without in any way lessening the effectiveness of the law. In one or two instances, by agreement between the examining boards, the examinations have been combined and this arrangement is satisfactory. It is suggested that a change be made in the Civil Service Law which shall place the examination of health officers and inspectors, in sections of the State under Civil Service regulations, entirely in the hands of the Commission, and that in such cases no licenses from the State Department of Health will be required.

The Department of Health after the recent reorganization appointed Edward Guion, M.D., Atlantic City; A. N. Sell, M.D., Rahway; Alex. Marcy, M.D., Riverton; B. H. Obert, H.O., Asbury Park, and A. Clark Hunt, M.D., Metuchen, as members of the examining board.

A list showing the successful candidates together with the names of all persons licensed since the enactment of the law will be found in the latter part of this report.

In concluding this report we believe that it is both the function and duty of the Board to suggest changes in existing health laws which experience in their enforcement has shown will add to their effectiveness.

We therefore, direct attention to the following:

RECOMMENDATIONS FOR LEGISLATION.

The work done by the Bacteriological Laboratory is, from a public health standpoint, one of the most important lines of work carried on by the Department. It is of direct assistance to physicians and local boards of health, enabling them to protect the public against infectious persons, and it should be extended sufficiently to bring it up to modern practice.

Provision should be made at an early date for carrying on complement fixation tests for syphilis, glanders and certain other diseases. This cannot be done until more room, an additional bacteriologist and one or two additional laboratory assistants are provided.

More room is urgently needed for the Bacteriological Laboratory. The diagnostic work in the present Laboratory has increased more than 100% in the last two years and the space available for carrying on this work is now totally inadequate. It is therefore recommended that a laboratory building be provided outside the State House.

It is recommended that the present law regulating cold storage, which is defective in many respects, be repealed and that an act be passed patterned very closely after the model cold storage bill which has now been adopted by several States, and undoubtedly will be adopted by others during the present year. The principal objections to our present law are its failure to require the dating of goods as they leave the warehouse, and the marking of goods when offered for sale at retail.

Experience with slaughter-houses and creameries extending over several years, has shown that the simplest and most effective way to control the operation of such places is to require that they be licensed. It is therefore, recommended that additional legislation be secured providing that the Department may require such food-producing establishments as canning factories and cold storage warehouses, soft drink bottlers, etc., to take out annual licenses, revocable for cause.

It is also recommended that a law be enacted requiring operators of water purification and sewage disposal plants to be examined and licensed by this Department, as this will result in getting better men to fill these very responsible positions.

The Law relating to Food and Drugs requires that packages containing preparations of which alcohol, morphine, opium, cocaine, and a number of other drugs mentioned in the section are a part shall have stated on the label the quantity or proportion of such drugs. In a proviso, it is stated, that this requirement shall not apply to preparations recognized by the U. S. Pharmacopœia or National Formulary "or to the compounding of family or domestic recipes." This last clause should be delated as it is evident that about this class of remedies special safeguards should be placed.

The experience gained last year in dealing with the extensive and expensive epidemic of foot and mouth disease in animals, proved conclusively that the existing laws relating to the control of contagious diseases of animals are inadequate and contradictory resulting in a division of responsibility and an overlapping of jurisdiction.

The Legislature of the State should at an early date enact a comprehensive law naming a commission or bureau to supervise all matters relating to communicable diseases of animals, providing ample appropriations not only for the usual cases of these diseases which occur each year, but making some special provision for an emergency appropriation which may be available when the State is called upon to deal with extensive epidemics. The Tuberculosis Commission as at present constituted has a number of veterinarians employed in different sections of the State and is apparently well equipped to supervise contagious diseases of animals. A transference to the Commission of such supervision would undoubtedly result in greater efficiency with the expenditure of only a small additional amount of money. We believe, therefore, that the existing laws relating to this subject should be carefully studied for the purpose of formulating a comprehensive law which would render impossible a recurrence of the complications which arose during the recent epidemic of foot and mouth disease and leave no doubt as to where the responsibility of protecting cattle owners from heavy money losses rests.

In the original act of 1887 creating the State Board of Health, there is a provision which requires the sending each year of a copy of the Annual Report to each physician in the State. The amount of money yearly expended in carrying out this provision of the law is between four and five hundred dollars. As the new law directs the issuance of a monthly bulletin, in which recent information of public health activities and conditions in the State will appear, thus rendering unnecessary the publication of the Annual Report in its present form, the mailing of the Annual Reports to all physicians should be no longer required by law. We would recommend therefore, that the section of the law of 1887, which makes mandatory the mailing of the Annual Report to physicians be repealed.

The Port of Perth Amboy is one of considerable importance from a health standpoint, as contagious diseases may, unless adequate protection is afforded, be introduced by infected crews or cargoes of ships coming from coastwise or foreign ports.

Several years ago, the Federal government placed an officer at this port, representing the Public Health Service of the Government. An effort was then made by the State Board of Health to have the Government take entire charge of maritime quarantine at this port. After considerable correspondence and discussion, a decision was reached that the maritime quarantine law of New Jersey required a local health officer at this port and that his duties could not be assumed by the Federal authority. The cost to the State for the maintenance of this service now amounts to from \$800 to \$1,000 per year, and this money

could be saved by a change in the present law relating to quarantine at this port. At the present time a vacancy exists in the position of health officer in the Port of New York and the Governor of that State is making a determined effort to transfer the control of maritime quarantine of that port to Federal supervision. As the Public Health Service of the Government is so thoroughly equipped and has given evidence in the past of extreme efficiency, in guarding the United States against the introduction of contagious diseases from foreign countries we believe there is justification both on the score of efficiency and economy in requesting that the present law relating to maritime quarantine in New Jersey be amended, and that the entire supervision at the Port of Perth Amboy be transferred to the U. S. Public Health Service.

SIGNED,

WILLIAM H. CHEW, *President.*

M. N. BAKER, C.E., *Vice President.*

E. A. AYERS, M.D.

JOHN M. EVERITT, V.S.

OLIVER KELLY.

J. OLIVER McDONALD, M.D.

CLYDE POTTS, C.E.

HENRY SPENCE, M.D.

Report of Director

VITAL STATISTICS

POPULATION.

The total estimated population of New Jersey for the year 1914 was 2,851,586, an increase of 78,605 over the estimated population of the previous year.

DEATHS.

The 1914 death-rate shows a slight decrease from the previous year, the rate per 1,000 inhabitants for the year 1913 being 14.22 and for 1914, 14.02. During the past thirty-six years of administrative health work in New Jersey the death-rate has been constantly diminishing and the public at last realizes that efficient sanitary administration is the means of promoting the health and longevity of our people, and with public opinion to back up the efforts of health officials a further reduction of the death-rate is sure to follow. The purification of the potable waters of the State, the regulation and control of the milk supply and the prompt reporting of communicable diseases are all important in public health work.

BIRTHS.

The birth-rate increased over the previous year, the rate being 22.94 per 1,000 for 1914 against 22.15 for 1913. The number of births increased from 61,432 to 65,403.

The reporting of births is a matter which has been given careful study by the Department of Health, with the result that the estimated percentage of births reported is 90%. This showing is remarkable when it is considered that only ten years ago about 70% were reported.

It is the intention of the Department to still further perfect the registration of births, and less conciliatory methods will be followed in the future where a physician or midwife habitually violates the law in this respect. The attention of local health officers is called to a recent act of the Legislature as follows:

CHAPTER 389.

"An act to amend an act entitled 'An act to secure in this State the certification of births and deaths, and of the vital facts relating thereto, and to provide for the record thereof (Revision of 1909).'

"BE IT ENACTED by the Senate and General Assembly of the State of New Jersey:

1. "Section fourteen of the act to which this act is amendatory be and the same is hereby amended to read as follows:

14. "Any penalty incurred under any of the provisions of this act shall be recovered, with costs, in an action of debt in the name of the local board of health of the municipality where the birth or death occurred. In case the local board of health fail to bring prosecution where violations of this act are brought to their attention, the State Board of Health shall have the power to compel the local board of health in the municipality where the birth or death occurred to prosecute such cases, and if after formal notice to the local board of health and to each of its members, from the State Board of Health, that such legal action shall be taken by the local board, the said local board fails to act, each and every member of the said local board of health shall be liable to a penalty of twenty-five dollars, to be recovered in an action of debt in the name of the Board of Health of the State of New Jersey, and all such penalties when so recovered shall be paid into the State Treasury of this State; provided, however, that the penalty shall not run against any member of the local board of health who shall vote to bring prosecution against the violator of this act, although the local board of health may vote against such prosecution.

2. "This act shall take effect immediately.

Approved, April 23, 1915."

In cases where direct violations of the law are brought to the attention of the State Department of Health, they will at once refer the case to the local board of health under the law above mentioned with recommendation that prosecution be ordered, and it is therefore hoped that every local health board in the State will see that all births occurring in their district are promptly reported.

COMPARATIVE DEATH-RATE OF WHITE AND COLORED INHABITANTS.

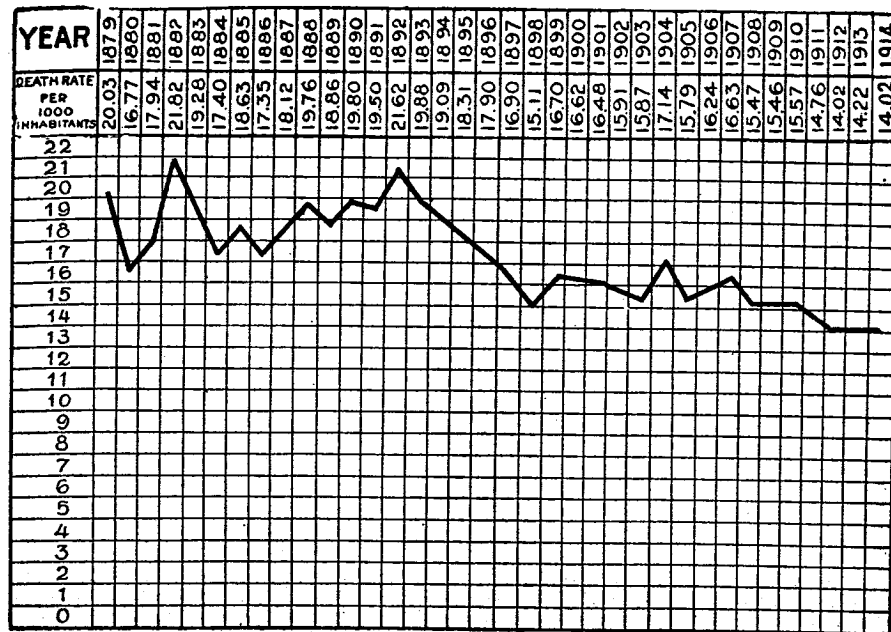
In 1914, the total estimated population of the State was 2,851,586, and the estimated colored population 97,980. The death-rate among the colored inhabitants was 21.20, while the death-rate among the white was 13.76, a difference of seven points.

MARRIAGES.

The number of marriages reported for the year 1913 was 27,697 and for 1914, 28,528, an increase of 831. The marriage-rate for 1914 was 20.01 and for 1913, 19.98.

After registration officials become familiar with the marriage license law there is less difficulty regarding the enforcement of the act, and a general satisfaction prevails regarding the success of this legislation, as, since the enactment of this law, New Jersey has been particularly free from runaway marriages. Certain justices of the peace who made strenuous efforts to defeat the object of the law have about given up in despair, and only occasionally is an effort made to perform a marriage ceremony without the proper license being procured.

CHART SHOWING TOTAL DEATHS PER 1,000 POPULATION FOR THIRTY-SIX YEARS.



DEATHS IN NEW JERSEY BY AGE PERIODS, FOR THE YEAR 1914.

Under 1 month.	Under 1 year, (exclusive of under 1 month.)	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 97	80 to 89	90 and over.	Not stated.	Total number of deaths.
2995	4436	2847	955	542	851	1295	1391	1594	1845	1877	2104	2381	2340	5024	4799	2348	342	1	39967

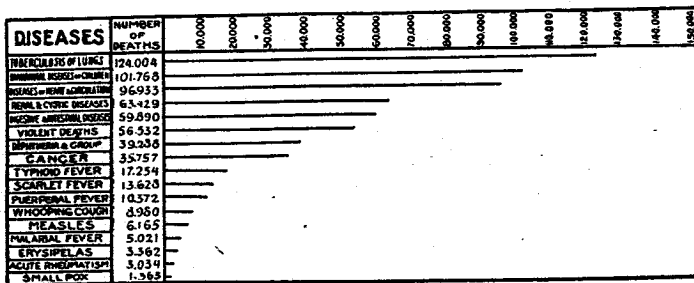
DEATHS FROM TEN SELECTED PREVENTABLE DISEASES IN NEW JERSEY FOR THE YEAR 1914 WITH THEIR PERCENTAGE OF THE TOTAL MORTALITY FROM ALL CAUSES.

NAMES OF DISEASES.	Deaths.	Percentage of mortality from all causes.
Tuberculosis of lungs	3,776	9.45
Pneumonia	3,018	7.55
Darrhoeal diseases of children	2,386	5.97
Diphtheria	611	1.53
Typhoid fever	223	.56
Whooping cough	299	.75
Measles	240	.60
Scarlet fever	242	.61
Malarial fever	10	.02
Smallpox	1	.....

THE INCREASE OR DECREASE IN DEATHS FROM CERTAIN SELECTED CAUSES,
FOR THE YEAR 1914, COMPARED WITH DEATHS FOR THE PREVIOUS YEAR.

SELECTED DISEASES.	1913.	1914.	Comparative mortality.
Tuberculosis of lungs.....	3,622	3,776	+ 154
Diseases of heart and circulation.....	5,556	6,296	+ 740
Renal and cystic diseases.....	3,414	3,454	+ 40
Digestive and intestinal diseases.....	2,589	2,394	- 175
Diarrhoeal diseases of children.....	2,440	2,386	- 54
Cancer.....	2,120	2,216	+ 96
Diphtheria.....	583	611	+ 28
Typhoid fever.....	278	223	- 55
Scarlet fever.....	218	242	+ 24
Puerperal.....	460	416	- 44
Whooping cough.....	386	299	- 87
Erysipelas.....	110	142	+ 32
Acute rheumatism.....	116	127	+ 11
Measles.....	216	230	+ 14
Malarial fever.....	11	10	- 1
Smallpox.....		1	+ 1

CHART SHOWING TOTAL DEATHS FROM CERTAIN SPECIFIED DISEASES, FOR THE
PAST THIRTY-SIX YEARS, ARRANGED IN ORDER OF GREATEST FREQUENCY.



NUMBER OF BIRTHS AND DEATHS UNDER ONE YEAR OF AGE IN NEW JERSEY
AND PERCENTAGE OF LIVING BIRTHS PER YEAR TO TOTAL BIRTHS.
(STILL BIRTHS EXCLUDED).

YEAR.	Births reported.	Deaths under 1 year of age.	Percentage of living births to total births.
1905.....	39,639	6,951	82.49
1906.....	42,677	7,773	81.79
1907.....	44,651	7,732	82.68
1908.....	47,405	7,823	83.50
1909.....	47,508	7,658	83.88
1910.....	53,942	8,352	84.52
1911.....	58,133	7,642	86.85
1912.....	60,073	7,457	87.59
1913.....	61,432	7,542	87.72
1914.....	65,403	7,431	88.64

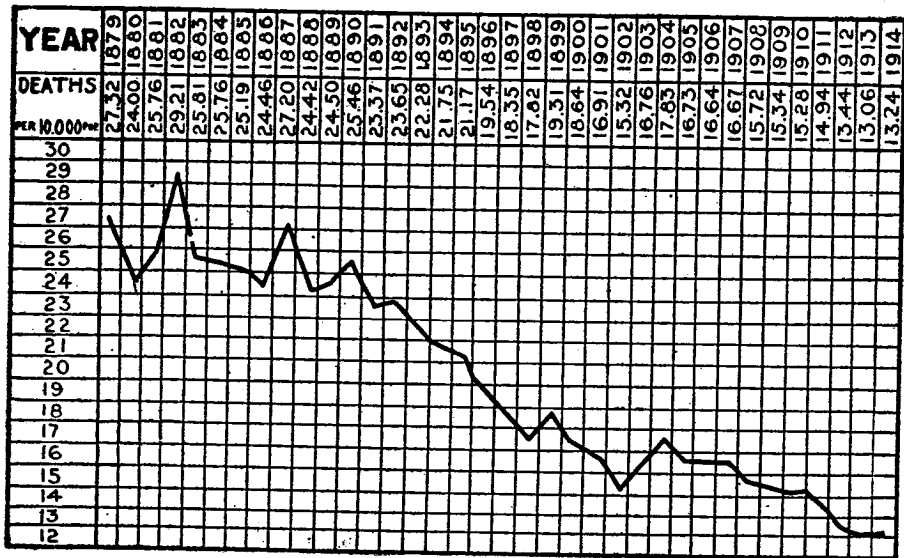
DEATHS FROM TUBERCULOSIS OF LUNGS BY AGE PERIODS FOR TEN YEARS.

	Under 1	1	10	20	30	40	50	60	70	80 and	Not stated.	Totals.
	year.	to 9	to 19	to 29	to 39	to 49	to 59	to 69	to 79	over.		
1905.....	40	89	309	972	915	606	335	197	100	23	1	3,587
1906.....	62	93	309	1,337	942	646	339	192	84	26	1	3,654
1907.....	56	61	256	978	967	682	407	229	90	25		3,751
1908.....	36	74	272	983	1,013	602	344	197	80	15		3,616
1909.....	53	68	253	917	976	657	349	230	86	24		3,608
1910.....	46	74	271	987	1,047	723	407	216	81	25		3,877
1911.....	43	76	294	1,012	1,077	661	423	211	98	11	1	3,907
1912.....	32	61	258	891	952	697	365	206	87	13		3,622
1913.....	24	59	268	923	953	719	411	197	55	8		3,776
1914.....	24	49	290	937	1,032	731	461	168	67	17		3,776

AVERAGE ANNUAL DEATH-RATES, PER 10,000 POPULATION, FROM ALL CAUSES
AND FROM TUBERCULOSIS OF LUNGS FOR THIRTY-SIX YEARS, COMPARED
WITH DEATH-RATES FROM ALL CAUSES AND FROM TUBERCULOSIS OF
LUNGS FOR 1914.

COUNTIES.	Average annual death-rate from all causes per 10,000 for 36 years.	Average annual death-rate from tuberculosis of lungs per 10,000 for 36 years.	Death-rate from all causes for year ending December 31, 1914.	Death-rate from tuberculosis of lungs for year ending Dec. 31, 1914.
Atlantic County.....	186.9	15.52	150.1	10.79
Bergen County.....	98.6	12.83	107.8	9.14
Burlington County.....	154.8	16.96	152.5	11.26
Camden County.....	181.5	20.89	182.9	8.67
Cape May County.....	137.8	12.92	162.7	7.86
Cumberland County.....	87.5	18.50	146.4	10.94
Essex County.....	181.1	23.75	138.6	15.98
Gloucester County.....	143.3	16.24	137.1	10.53
Hudson County.....	193.8	23.53	135.5	15.24
Hunterdon County.....	137.4	14.11	160.3	13.01
Mercer County.....	173.1	21.27	171.7	17.13
Middlesex County.....	159.0	15.70	148.1	10.52
Mounmouth County.....	152.5	15.68	162.9	10.38
Morris County.....	113.4	18.39	154.5	9.24
Ocean County.....	142.1	18.66	130.6	12.92
Passaic County.....	173.3	19.30	124.3	10.24
Salem County.....	139.7	17.84	143.6	7.93
Somerset County.....	140.9	14.31	124.3	6.35
Sussex County.....	126.8	13.85	8.2	8.12
Union County.....	135.4	14.88	136.3	12.93
Warren County.....	145.2	13.90	125.3	7.49
The State.....	168.8	19.50	140.2	13.24

CHART SHOWING DEATHS FROM TUBERCULOSIS OF LUNGS PER 10,000 POPULATION, FOR THIRTY-SIX YEARS.



TOTAL DEATHS FROM PNEUMONIA, BY AGE PERIODS FOR THE YEAR 1914.

Under 1 month.	Under 1 year, (exclusive of under 1 month.)	1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Total.
93	441	368	71	35	64	74	90	103	162	157	147	189	159	388	306	154	17	3,018

DEATHS AMONG CHILDREN.

The death-rate for children under five years per 10,000 population for the year 1914 was 36.04, the lowest in the history of this Department, and when this figure is compared with the death-rate of 77.49 in 1879, it will show that the infant mortality has been more than cut in half during the past thirty-six years. Important factors in the reduction of infant mortality are improvement of the milk supplies of the State, the introduction of anti-toxin, and last, but probably more important, the educational work carried on by health boards, welfare societies and others interested in imparting information regarding the care and health of new-born infants.

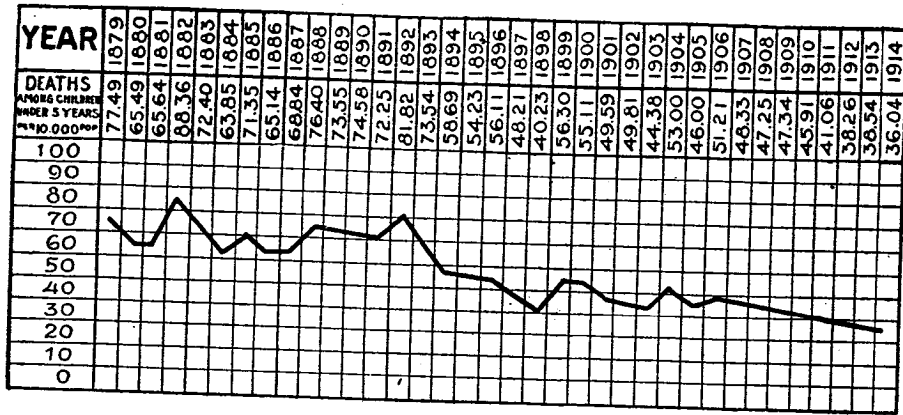
DEATHS FROM DIARRHOEAL DISEASES OF CHILDREN IN NEW JERSEY, 1914.

AGE PERIODS.	Deaths from diarrhoeal diseases.	Deaths from all causes among children under five years of age.
Under one month.	221	2,995
Over one month and under one year.	1,710	4,436
One to four years.	455	2,847
Total.	2,386	10,278

STATISTICS REGARDING TOTAL AND INFANT DEATHS IN CERTAIN NEW JERSEY CITIES DURING 1914.

NAME OF PLACE.	Total deaths.	Deaths under five years.	Percentage of deaths under five years to total deaths.	Deaths under five years per 10,000 population.
Atlantic City.	823	161	19.56	30.38
Bayonne.	522	301	36.19	45.49
Bloomfield.	190	47	24.74	26.42
Bridgeton.	242	40	17.36	28.62
Burlington.	148	40	27.03	46.65
Camden.	1,739	512	29.44	49.48
Dover.	68	14	20.59	16.74
East Orange.	373	69	18.50	16.54
Elizabeth.	1,187	366	30.83	43.71
Englewood.	152	32	21.05	27.76
Gloucester City.	156	36	23.08	34.00
Hackensack.	252	63	25.00	38.39
Harrison.	173	63	36.42	39.78
Hoboken.	1,196	268	22.41	36.11
Irvington.	196	38	19.39	24.30
Jersey City.	4,133	1,080	26.13	36.59
Kearny.	307	73	23.78	32.15
Long Branch.	312	41	13.14	28.89
Millville.	159	32	20.13	24.80
Montclair.	359	122	33.98	47.48
Morristown.	264	50	18.94	39.07
Newark.	5,830	1,706	29.26	42.77
New Brunswick.	492	160	32.52	67.82
North Plainfield.	63	9	14.29	13.81
Orange.	521	110	21.11	33.89
Passaic City.	863	403	46.70	58.99
Paterson.	1,814	389	21.44	28.42
Perth Amboy.	571	291	50.96	78.43
Phillipsburg.	186	54	29.03	37.65
Plainfield.	296	64	21.62	28.81
Rahway.	109	23	21.10	23.36
Red Bank.	117	13	11.11	15.65
Salem City.	115	24	20.87	35.55
South Amboy.	104	37	35.58	48.65
Summit.	133	31	23.31	38.63
Town of Union.	201	47	23.38	19.39
Trenton.	1,912	512	26.78	47.88
West Hoboken.	344	82	23.84	20.27
West New York.	203	61	30.05	32.71
West Orange.	89	17	19.10	12.62

CHART SHOWING DEATHS UNDER FIVE YEARS OF AGE PER 10,000 POPULATION FOR THIRTY-SIX YEARS.

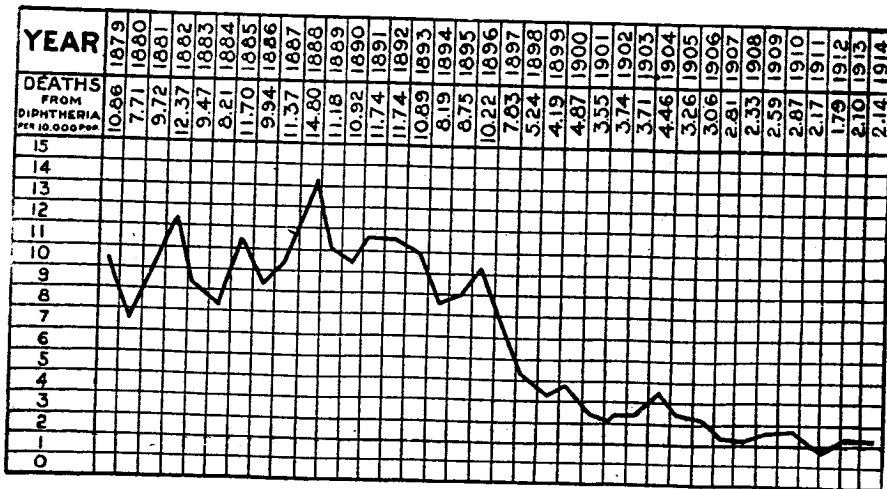


DIPHTHERIA.

The death-rate from diphtheria for the year 1914 was 2.14 per 10,000 inhabitants, a very slight difference from the rate of the preceding year. A glance at the chart showing deaths from diphtheria will show that just previous to the year 1895, when the use of anti-toxin was first introduced, a very high death-rate prevailed from this disease, but immediately thereafter a decided decrease was shown.

Deaths in New Jersey from diphtheria with ages of decedents, for year ending December 31, 1914, were: under 1 month, 2; under 1 year, 36; 1 to 4, 340; 5 to 9, 185; 10 to 14, 28; 15 to 19, 4; 20 to 24, 3; 25 to 29, 3; 30 to 34, 2; 35 to 39, 3; 40 to 44, 1; 50 to 54, 1; 60 to 69, 1; 70 to 79, 2. Total, 611.

CHART SHOWING DEATHS FROM DIPHTHERIA PER 10,000 POPULATION, FOR THIRTY-SIX YEARS.



TYPHOID FEVER.

The total number of deaths from typhoid fever in New Jersey for the year 1914 was 223, and the death-rate per 10,000 inhabitants was .78, the lowest in the history of this Department. A study of the chart published herewith showing typhoid fever in New Jersey for thirty-six years is an interesting testimonial as to efficient methods used by State and local health authorities to prevent the spread of typhoid fever. A long fight has been waged by the State health authorities to prevent pollution of the potable waters of the State, and to further safeguard the public health in this respect examinations of persons as to their fitness for sanitary inspectors, and health officers have been held. In addition to this, attention has been called to the importance of window and door screens, both in private homes and places where food is sold or distributed. In this manner it is hoped that the mortality from typhoid fever will be still further reduced, as there is no reason why deaths from this disease should not be reduced to the lowest possible minimum.

Deaths in New Jersey from typhoid fever by age periods for 1914 were: under 1 year, 1; 1 to 4, 5; 5 to 9, 14; 10 to 14, 19; 15 to 19, 25; 20 to 24, 39; 25 to 29, 29; 30 to 34, 18; 35 to 39, 21; 40 to 44, 12; 45 to 49, 20; 50 to 54, 5; 55 to 59, 5; 60 to 69, 4; 70 to 79, 6. Total 223.

Deaths from typhoid fever in the counties of New Jersey for the year ending December 31, 1914, were: Atlantic, 12; Bergen, 6; Burlington, 9; Camden, 19; Cape May, 2; Cumberland, 8; Essex, 33; Gloucester, 4; Hudson, 46; Hunterdon, 1; Mercer, 20; Middlesex, 14; Monmouth, 15; Morris, 9; Ocean, 1; Passaic, 13; Salem, 1; Somerset, 1; Sussex, 0; Union, 6; Warren, 3.

COMPARATIVE DEATH-RATES FROM TYPHOID FEVER, PER 10,000 INHABITANTS, IN THE REGISTRATION AREA OF THE UNITED STATES AND IN NEW JERSEY, FOR TEN YEARS.

	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	Average for ten years.
Registration area of United State	2.81	3.21	3.03	2.53	2.20	2.35	2.10	1.65	1.79	1.54	2.32
New Jersey	1.68	1.86	2.06	1.60	1.28	1.55	1.29	1.22	1.00	.78	1.43

DEATHS FROM TYPHOID FEVER, BY COUNTIES, PER 10,000 POPULATION, FOR TEN YEARS, WITH AVERAGES.

COUNTIES.	1905	1906	1907	1908	1909	1910	1911	1912	1913	1914	Averages for ten years.
Atlantic County.....	2.01	1.60	2.30	1.62	1.13	1.53	2.15	1.96	1.14	1.47	1.69
Bergen County.....	1.10	1.15	1.29	.71	.85	1.16	.69	.72	1.00	.36	.90
Burlington County.....	2.58	3.18	4.41	4.04	2.00	3.31	1.33	3.36	1.59	1.23	2.71
Camden County.....	1.81	2.98	2.99	2.00	1.28	1.97	1.23	1.46	1.88	1.20	1.88
Cape May County.....	1.73	1.65	2.62	.50	1.45	1.52	.49	.48	1.42	.92	1.28
Cumberland County.....	2.88	1.15	2.29	1.71	1.32	1.99	1.43	1.06	.86	1.39	1.61
Essex County.....	1.39	1.79	2.00	1.16	1.22	1.21	1.03	.81	.66	.55	1.18
Gloucester County.....	1.16	3.14	1.41	1.39	1.09	1.61	3.43	2.60	1.28	1.01	1.81
Hudson County.....	2.66	1.71	1.58	1.11	.78	.93	.97	.72	.83	.76	1.21
Hunterdon County.....	.90	1.80	2.44	.62	.62	1.49	.30	1.78	2.37	.30	1.26
Mercer County.....	2.35	3.26	6.69	4.43	3.10	4.14	3.89	3.26	1.86	1.45	3.44
Middlesex County.....	1.55	.70	1.92	1.68	1.17	.96	1.19	1.73	.96	1.09	1.30
Monmouth County.....	2.62	2.47	1.99	2.41	2.16	2.22	2.91	2.87	1.62	1.50	2.28
Morris County.....	2.21	1.75	1.01	.73	1.14	1.34	.92	.78	.25	1.12	1.12
Ocean County.....	3.35	.95	1.41	.....	.92	3.28	1.40	1.40	2.32	.46	1.55
Passaic County.....	1.14	1.33	1.19	1.06	.99	1.16	.76	.65	.63	.52	.94
Salem County.....	2.28	3.03	1.51	2.62	1.49	1.48	2.58	1.10	1.09	.36	1.75
Somerset County.....	2.48	1.35	.27	2.35	2.31	1.80	3.32	.25	.....	.34	1.44
Sussex County.....	.43	1.71	1.29	3.94	1.32	1.87	.73	.36	.....	.....	1.17
Union County.....	1.37	1.66	1.37	2.19	1.67	1.71	.83	1.61	1.36	.38	1.42
Warren County.....	1.73	1.95	1.43	.71	1.18	2.78	.69	.68	.89	.66	1.27
The State.....	1.68	1.86	2.06	1.60	1.28	1.55	1.29	1.22	1.00	.78	1.43

DEATHS FROM TYPHOID FEVER IN URBAN AND RURAL DISTRICTS OF NEW JERSEY FOR THE YEAR 1914.

	Aggregate population.	Deaths from typhoid fever.	Deaths from typhoid fever per 10,000 population.
State.....	2,851,586	223	.78
Cities.....	2,018,090	177	.88
Rural Districts.....	833,496	46	.55

CHART SHOWING DEATHS FROM TYPHOID FEVER PER 10,000 POPULATION FOR THIRTY-SIX YEARS.

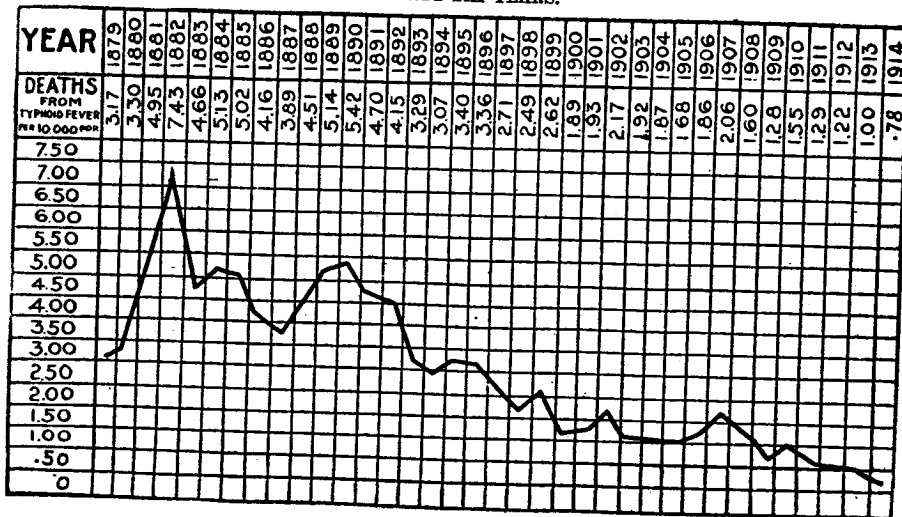
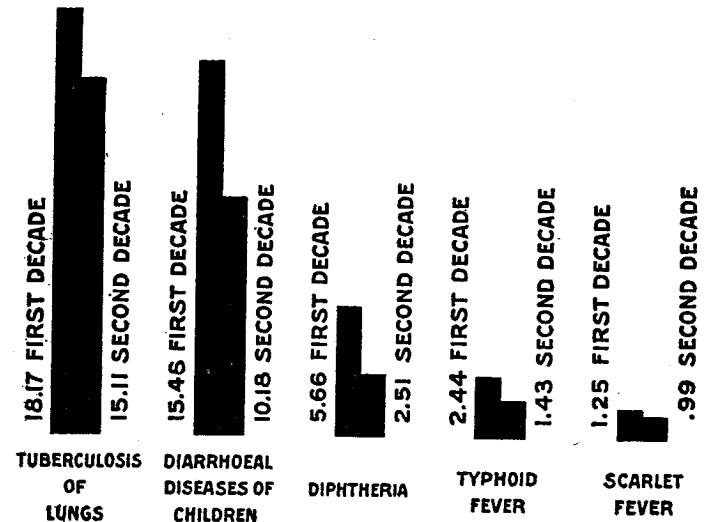


CHART SHOWING AVERAGE DEATHS PER YEAR FROM FIVE SELECTED DISEASES, PER 10,000 POPULATION FOR THE TWO DECADES ENDING WITH 1914.



WHOOPING COUGH.

The number of deaths from whooping cough in New Jersey for the year 1914 was 299, a decrease of 87 from the previous year, and the death-rate per 10,000 inhabitants for 1914 was 1.05 as against 1.39 for the previous year.

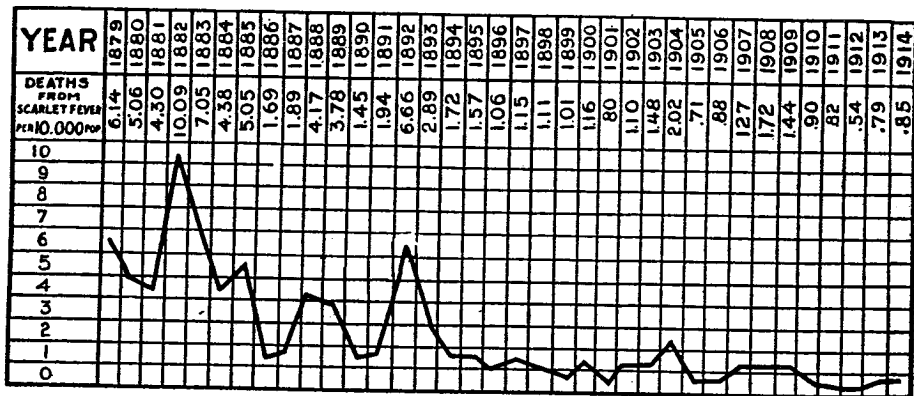
Deaths in New Jersey from whooping cough with ages of decedents, for the year ending December 31, 1914, were: under 1 month, 8; under 1 year, 182; 1 to 4, 97; 5 to 9, 11; 70 to 79, 1. Total, 299.

SCARLET FEVER.

The death-rate from scarlet fever for the year ending December 31, 1914, was .85 per 10,000 inhabitants, and the total number of deaths was 242, the largest number (110) occurring in children from one to four years of age.

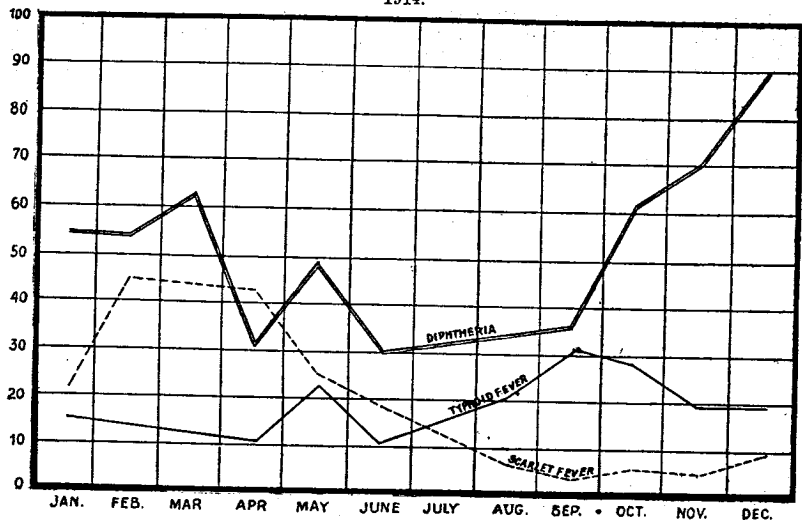
Deaths in New Jersey from scarlet fever with age at death, for year ending December 31, 1914, were: under 1 year, 13; 1 to 4, 110; 5 to 9, 68; 10 to 14, 23; 15 to 19, 11; 20 to 24, 7; 25 to 29, 2; 30 to 34, 5; 35 to 39, 1; 45 to 49, 1; 50 to 54, 1. Total, 242.

CHART SHOWING DEATHS FROM SCARLET FEVER PER 10,000 POPULATION, FOR THIRTY-SIX YEARS.



The following chart shows the comparative number of deaths from diphtheria, typhoid fever and scarlet fever by months for the calendar year 1914:

CHART SHOWING DEATHS FROM CERTAIN COMMUNICABLE DISEASES FOR YEAR 1914.



MEASLES.

The death-rate from measles per 10,000 inhabitants for the year was .84, and the total number of deaths was 240, a slight increase over the previous year.

Deaths in New Jersey from measles with age at death, for the year ending December 31, 1914, were: under 1 month, 2; under 1 year, 61; 1 to 4, 152; 5 to 9, 20; 10 to 14, 1; 20 to 24, 1; 25 to 29, 2; 30 to 34, 1. Total 240.

MALARIAL FEVER.

The number of deaths from malarial fever for the year ending December 31, 1914, was 10, and the death-rate per 10,000 inhabitants was .04, exactly the same rate shown the previous year, both of which are the lowest in the history of the State Department of Health.

Deaths in New Jersey from malarial fever for thirty-six years have been; 1879, 268; 1880, 293; 1881, 431; 1882, 379; 1883, 290; 1884, 230; 1885, 209; 1886, 243; 1887, 217; 1888, 264; 1889, 203; 1890, 195; 1891, 180; 1892, 198; 1893, 148, 1894, 162; 1895, 144; 1896, 119; 1897, 132; 1898, 82; 1899, 96; 1900, 84; 1901, 50; 1902, 36; 1903, 40; 1904, 47; 1905, 21; 1906, 33; 1907, 29; 1908, 30; 1909, 25; 1910, 25; 1911, 25; 1912, 29; 1913, 11; 1914, 10.

SMALL-POX.

New Jersey has been particularly free from small-pox during the past year, and only one death occurred from this disease during the year ending December 31, 1914. No serious epidemics of this disease have occurred during the past ten years. The State Department of Health again urges upon local health boards and parents the necessity and importance of vaccination, and re-vaccination is especially recommended when the disease appears in a community.

CANCER.

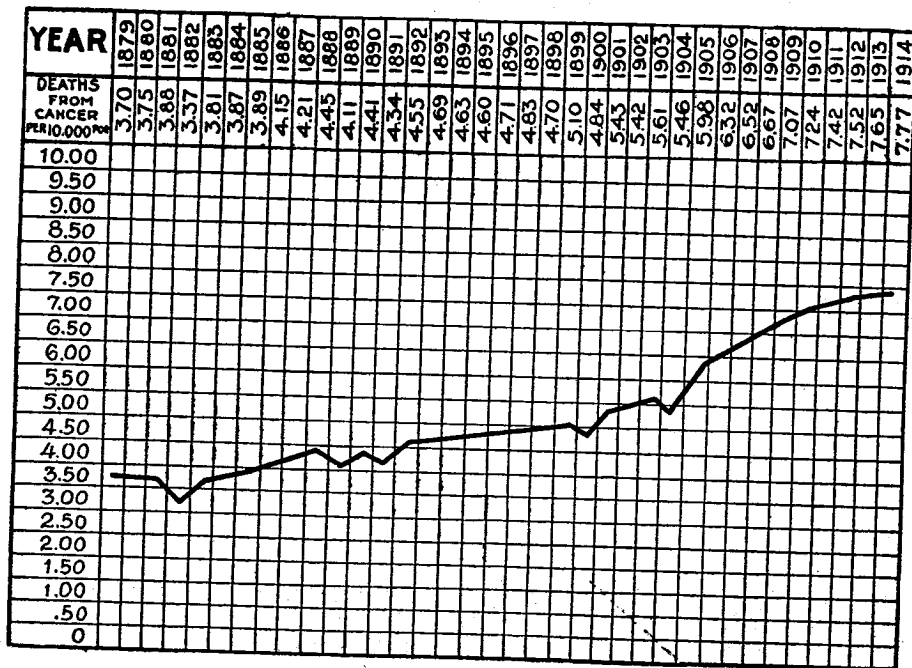
The total number of deaths from cancer for the year 1914 was 2216, an increase of 96 over the previous year. A glance at the chart showing the death-rate from cancer during the past thirty-six years shows a gradual increase; in fact, the death-rate from this disease has more than doubled during that time.

Various experiments for the cure of cancer are being made, but thus far no remedy is available for local or State health authorities to combat the disease.

TOTAL DEATHS FROM CANCER SHOWING ORGANS AFFECTED, FOR THE YEAR 1914.

CANCER.	Under 1 mo.	Under 1 year, (exclusive of under 1 mo.)	Age not stated.																	Totals
			1 to 4	5 to 9	10 to 14	15 to 19	20 to 24	25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.		
Of the mouth...	...	...	1	1	...	...	1	2	1	9	9	12	20	17	6	1	...	80
Of the stomach and liver...	3	...	1	...	1	5	10	19	50	62	106	106	281	154	57	3	...	858		
Of the intestines and rectum...	2	...	...	1	4	4	5	13	22	28	57	44	86	66	15	2	...	349
Of the female genital organs...	...	...	...	2	...	2	7	20	32	53	58	34	58	33	8	1	...	308
Of the breast...	...	...	...	1	...	5	13	15	23	22	22	44	25	10	...	...	...	180
Of the skin...	...	...	...	1	...	1	2	1	2	1	4	3	13	11	7	...	...	44
Others...	2	9	2	2	3	5	4	7	15	17	33	45	49	99	74	29	2	...	397	
Total...	5	11	4	5	10	15	35	83	139	209	301	270	601	380	132	11	...	2,216		

CHART SHOWING DEATHS FROM CANCER PER 10,000 POPULATION FOR THIRTY-SIX YEARS.



SUICIDE.

The total number of deaths from suicide for the year 1914 was 504, an increase of 60 over the previous year.

TOTAL DEATHS FROM SUICIDE, FOR THE YEAR 1914.

MODE OF DEATH.	1	5	10	15	20	25	30	35	40	45	50	55	60	70	80	90 and over.	Not stated.	Totals.
	to 4	to 9	to 14	to 19	to 24	to 29	to 34	to 39	to 44	to 49	to 54	to 59	to 69	to 79	to 89			
By poison.....			2	8	15	10	7	8	9	16	10	7	4	2				98
By asphyxia.....				2	6	6	5	7	14	13	12	12	19	5				82
By strangulation.....	1		1	3	2	6	5	4	14	12	7	12	13	7				82
By drowning.....				1	1	1	6	6	9	12	6	1	3	3				34
By firearms.....				1	18	13	12	18	19	19	9	15	2	2				135
By cutting instrument.....					1	2	1	4	5	1	8	3	2	2				30
By precipitation from height.....						1	2									1		
By crushing.....						1	1	1		3		4	1					11
Others.....										1								4
Totals.....	1		3	14	43	40	39	55	46	69	65	48	57	21	2	1		504

BRIGHT'S DISEASE.

For the year ending December 31, 1914, 3061 deaths from Bright's disease occurred in the State of New Jersey.

The total number of deaths from Bright's disease by years are: 1901, 1,246; 1902, 1,371; 1903, 1,686; 1904, 1,722; 1905, 1,840; 1906, 2,238; 1907, 2,518; 1908, 2,290; 1909, 2,486; 1910, 2,679; 1911, 2,772; 1912, 2,819; 1913, 3,015; 1914, 3,061.

CONTAGIOUS DISEASES OF ANIMALS.

When the report of the Department of Health for the year ending October 31, 1914, was submitted Foot-and-Mouth Disease which, in the form of a wide spread epidemic had already caused the destruction of many cattle in the West, was discovered in New Jersey. The earlier cases appeared in Hudson County, the origin of the infection being directly traced to the New York stock yards.

The Federal authorities immediately placed their representative of the Bureau of Animal Industry in Jersey City, giving him full power to adopt and enforce rigorous measures for the prevention of the spread of the disease. The methods which were adopted consisted in the strict quarantine of infected herds, the destruction of affected or exposed animals of these herds, together with the proper burial or disposal of carcasses and thorough disinfection of the premises.

The Federal authorities agreed to remunerate the owner of animals which were destroyed one-half of the value placed upon them, leaving the payment of the remaining amount to the State. As the appropriation made to the State Department of Health for the control of all contagious diseases in animals amounted to only \$2,000, the destruction of infected animals on three farms in Hudson County exhausted the total appropriation for the year.

Appropriation was at once made to the Governor for additional moneys and \$2,500 was appropriated from the emergency fund. This amount was entirely inadequate and for a time the situation was a very complicated one.

Finally, an arrangement was made by which the State Tuberculosis Commission assumed control of the epidemic and having a large appropriation, the Commission was able to share with the Government in the payments for animals destroyed. Before the termination of the epidemic, however, it became necessary for the Tuberculosis Commission to ask the Legislature for an additional appropriation which was granted and a small appropriation was also made to the State Department of Health, and this was used by the Department chiefly in the enforcement of adequate quarantine regulations.

As the existing laws did not give sufficient power to the State Department of Health to enable it to enforce the regulations, a law was passed which remedied this defect. While the disease existed in the State, the Tuberculosis Commission and the State Department of Health acted jointly in preventive measures, the activities of the Health Department being directed principally to the issuing of regulations governing general

quarantine; the movement of cattle; the establishment of restricted areas, and assisting in the maintenance of quarantine of infected premises.

The first cases were reported on November 8, 1914, and on March 23, 1915, the animals last infected were destroyed. The total number of cattle destroyed was 1314. The disease occurred in 50 herds. The total number of other animals destroyed including swine, sheep and goats, was 2146. The total appraisalment for these animals amounted to \$123,006.88. The total amount expended by the State for all purposes of the epidemic, amounted to approximately \$77,000.00. The total expenditure made by the Federal Government in the United States was over \$5,000,000.

The counties in New Jersey in which the disease appeared and the number of cattle destroyed were as follows: Bergen, 81; Camden, 134; Essex, 28; Hudson, 710; Morris, 72; Salem, 13; Somerset, 38; Union, 224.

The measures employed in the control of the epidemic were effective, and although the amount of money expended seemed large it is small in comparison with expenditures in many other States in which the disease appeared.

As stated in the report of last year, the existing laws relating to the control of contagious diseases of animals are inadequate and contradictory, leading to a division of responsibility and overlapping of jurisdiction.

RABIES.

This disease has been rapidly increasing in the United States, and in New Jersey the number of infected animals examined in the Laboratory of Hygiene, indicates that up to the present time the methods of control of this disease under existing laws have been ineffective. The original laws relating to rabies gave local governing bodies in the various divisions of the State, the power to issue proclamations requiring the muzzling of dogs and to cause the quarantine and destruction of rabid animals.

Several years ago, the Health Officers' Association of New Jersey appointed a committee to draft a law transferring the control of rabies to local boards of health. This committee made a final report and the bill which was prepared for legislative enactment received most careful consideration. It was passed with no opposition and although the law has not been in operation for a sufficient length of time to test its effectiveness, it is doubtless an improvement over former laws and should result in lessening the number of cases of rabies.

The principle of the quarantine of suspected animals replaces that of immediate and compulsory destruction, the decision as to which plan may be followed resting with the local board of health. This plan seems to meet with the approval of dog owners, permitting as it does the quarantining of the suspected animal for at least six months, thus eliminating the unnecessary destruction of uninfected dogs and at the same time giving ample protection to the public.

A circular on rabies prepared by the State Department of Health has been distributed to dog owners throughout the State. The main provisions of the new law are as follows:

ANY LOCAL BOARD OF HEALTH IS AUTHORIZED to furnish free Pasteur treatment for indigent persons residing in its district.

EACH LOCAL BOARD OF HEALTH IS REQUIRED:

1. "To serve a notice, in writing, upon the owner or other person having control over any dog, cat or other animal known or suspected to have been bitten by an animal known or suspected to be affected by rabies, requiring such owner or person having control of such animal either to kill such animal or securely confine such animal for a period of not less than six months."
2. To give certificate releasing animals from confinement after six months if danger of infection has passed.
3. To give notice in writing to all owners of dogs or other animals considered dangerous, to securely confine them until a permit has been issued in writing for their release, when there is reason to believe that rabies is liable to spread in the district.
4. To obey all orders issued under the law by the State Department of Health.
5. To furnish information to the State Department of Health concerning rabies in its district whenever requested to do so by the Department.

The State Department of Health is AUTHORIZED to issue an order to any local board of health requiring the local board to quarantine any or all animals in its district if rabies is present in the district, and if the Department thinks there is danger of the disease spreading to any adjoining sanitary district.

The State Department of Health is REQUIRED to prepare a circular of information concerning rabies and furnish sufficient copies thereof for distribution to dog owners by persons empowered to license dogs.

Persons empowered to license dogs are REQUIRED to apply to the State Department of Health for a sufficient number of circulars on rabies and to furnish a copy to each person who may register or obtain a license for a dog.

EVERYBODY IS REQUIRED:

1. To report immediately to the local board of health any dog, cat or other animal that has rabies, or is suspected of having rabies, or that has been bitten by an animal known or suspected to have rabies. Such report must be in writing, signed by the person making the same and must state where such animal may be found.
2. To obey all orders issued under the authority of the law by the local board of health for the destruction or quarantine of any or all animals included in such order.

The penalties for violation of the various sections of the act are from fifty to one hundred dollars.

ANTHRAX.

Fortunately, only a few cases of this disease were reported and there was no spread of the disease from the premises originally infected. A full report on the outbreak of anthrax in Salem County was made last year. The origin of the disease in that epidemic was either from infected offal placed on a farm for fertilizing or from creek water infected by

tanneries or diseased herds located along the Delaware River in the State of Delaware.

In June, 1915, a single case was found on a farm where the disease appeared in 1914. This animal grazed on the meadow upon which the former infected animals were kept. The use of this meadow for future grazing purposes was at once abandoned and all herds along the branch of Salem Creek were given protective vaccinations. In July, 1915, a single case of anthrax was reported in Gloucester County and all herds along Raccoon Creek were vaccinated. One additional case in Sussex County completes the list of cases of anthrax for the year 1915.

The recurrence of this disease is doubtless caused by the failure of cattle owners to have all animals, which graze on meadows, which have been or are liable to become infected, vaccinated before they are turned out to pasture. Although circulars have been distributed calling attention to this means of prevention and local newspapers have given timely warnings to cattle owners, for some unaccountable reason preventive measures are not adopted and the farmers are exposed to repeated losses and inconvenience while the State is required to spend moneys on account of unwarranted negligence on the part of cattle owners.

HOG CHOLERA.

The losses which result from this disease show an alarming increase each year, and in 1915 cases were reported from many counties throughout the State. No reliable statistics have been gathered as to the complete number of cases as owners of swine seldom report the number of animals dying of the disease. Special investigations were made in Cape May County and the data obtained showed that over 100 hogs died of cholera. In Burlington, Hunterdon, Mercer and Morris Counties many farmers lost almost their entire herds, the money loss on one farm in Mercer County amounting to over \$3,000. The disease is so often disseminated by the addition of new hogs to herds or the breeding of infected animals, that some means should be devised for placing in the hands of swine growers instructive literature as to methods of prevention and treatment. The State Agricultural Experiment Station is planning a campaign against this disease and preparing to furnish immunizing serum without expense to the farmers. The moneys available for this purpose are at present inadequate, and a further appropriation will be required.

INFECTIOUS CATARRHAL CONJUNCTIVITIS.

This disease, which is of a rather rare occurrence, was discovered in Salem County in 1914. The earlier cases were located on a farm in Pilesgrove Township and originated from infected animals brought to the premises in 1913. The disease spread through the herd and in some instances only one eye of the animal was infected while at times both eyes were affected causing temporary blindness. Some calves and cows were sold from these premises during the winter and thus the disease spread to several townships infecting eight separate herds.

The losses of animals incurred was principally of small calves. The Department of Health directed L. D. Horner, D.V.S., of Woodstown, to quarantine the infected herds and permit no movement of animals until all evidence of the disease had disappeared. These measures resulted in stamping out the disease and the service rendered the farmers of the section was highly appreciated.

GLANDERS.

In the report for the year ending October 31, 1914, attention was directed to a proclamation issued by the Department of Agriculture of the State of New York requiring the examination of all horses coming into the State for the purpose of excluding any animals which were affected with glanders. The owners of horses used in interstate traffic between New York and New Jersey were required to submit the animals to ophthalmic mallein test, and if the result of the examination was negative to secure a tag from the local board of health or the veterinarian. This identification tag was to be attached to the bridle or other part of the harness in order that the New York inspectors could identify the animals. The material for the test was furnished by the Bureau of Animal Industry and distributed to local boards of health by the State Department of Health. Several thousand doses were distributed during the past year.

Owners of horses were somewhat skeptical as to the reliability of the ophthalmic mallein test as in many instances, the horses responding to the test seemed to be in the best of physical condition. To overcome any criticism in this matter, an arrangement was entered into by which in cases of doubt as to diagnosis specimens were sent to the New York Laboratories for the purpose of having complement fixation tests applied. Animals giving a plus 3 or plus 4 reaction were destroyed or quarantined. When both examinations were positive, the owners were willing to have the horses destroyed and in every instance the post-mortem examination of reactors gave proof of the reliability of the tests applied. The statistics on glanders for the year ending October 31, 1915, show that the number of cases has markedly diminished and if similar methods of detecting cases were applied to all the horses in New Jersey, within a short time only sporadic cases would be discovered.

The total number of cases reported in the various sections of the State was 79. The cases were distributed as follows: Bergen County, 8; Cape May County, 1; Essex County, 39; Hudson County, 4; Middlesex County, 1; Morris County, 14; Somerset County, 1; Union County, 7; Passaic County, 14. The total number of animals destroyed was 73 and 46 premises were disinfected.

In addition to the diseases to which attention has been directed in this report several cases of cerebral meningitis, parasitic bronchitis, epidemic stomatitis, and infectious coronitis occurred in Sussex County.

MARITIME QUARANTINE PORT OF PERTH AMBOY.

This port of entry is one of increasing importance which is principally due to the rapid growth of various industries in the city requiring large quantities of raw material for manufacturing purposes and also the shipping of the products of the manufacturer by water to many domestic and foreign ports.

A representative of the Federal Public Health Service is detailed at the port and the State Maritime Law requires the appointment of a local health officer at the port. The moneys received in fees for the inspection of vessels are devoted to the payment of the salaries of the health officer and his assistant. As the amount received is insufficient (\$440.00 for the past fiscal year), the balance due on salaries is paid from the State Treasury.

J. V. Scull, M.D., is the present Health Officer of the Port, and his report for the year ending October 31, 1915, states that the number of vessels entering the port during the year was greatly diminished, on account of the unsettled conditions in Mexico and Europe. The total number of vessels examined for the purpose of ascertaining the condition of crews and cargoes was 104. Sixty-five of these vessels came from foreign ports and twenty-five were from coastwise ports. Fourteen sailing vessels were also examined. In the inspection of the sanitary condition of vessels entering the port, the crew and passengers are mustered on deck, examined, and counted. A comparison is then made with the crew and passenger lists. Any discrepancies in numbers are noted and investigated. Bills of health are examined and also the ship's articles and log when necessary.

Inspections are made above and below decks and a sworn statement of the master of the vessel is taken when it is deemed advisable. This double guarding of the port by State and Federal authorities gives reasonable assurance of protection against the introduction of communicable diseases through this port of entry.

Report of the Bureau of Contagious Diseases and Sanitary Inspection.

A. CLARK HUNT, M.D., Chief.

To the Department of Health of the State of New Jersey.

GENTLEMEN:—I have the honor to submit the following report of the Bureau of Contagious Diseases and Sanitary Inspection for the period from October 31, 1914 to October 31, 1915.

The Bureau during the period above mentioned, has been actively engaged in the pursuance of the various lines of work which are assigned it by the laws of the State and the Department. Some very interesting epidemiological investigations have been made, such as the outbreak of diphtheria at the State Village for Epilepsy located at Skillman; the epidemic of typhoid fever at Cranbury; the epidemic of typhoid fever in the State Hospital at Trenton, and the large epidemic of small-pox in Millville and surrounding counties in New Jersey.

No part of the work has given a better return for the time and money expended than the assistance which has been given not only in the epidemics above mentioned, but in many epidemics in which the number of cases are small, and yet the assistance of the Bureau resulted in limiting the spread of disease.

The Tuberculosis Exhibit has, we believe, been a means of direct education along lines of prevention which is invaluable. Although immediate lessening of the number of cases of tuberculosis may not be apparent, the instruction, especially of great numbers of school children, in methods of healthful living and preventative measures as applied to tuberculosis, will doubtless in years to come show the effect of the campaign which is being conducted by the Department.

In this report, no effort is made to elaborate on the various subjects which are discussed. Only concise statements are made. A summary of the work of the Bureau is given in the closing page of the report and also an outline of the work which is planned for the future.

Too much credit cannot be given the inspectors and the clerical assistance of the Bureau for the efficient service which has been rendered and we are also indebted to the Department of Health for its active cooperation and advice.

EPIDEMIOLOGICAL WORK.

The most valuable result which has been obtained through the investigations of the Bureau is in the rendering of aid to local boards of health

in the effort to ascertain the source or cause of outbreaks of preventable diseases.

Local boards of health throughout the State, in most instances, have not the available money to employ skilled investigators. Under these circumstances, an appeal is usually made to the State Department of Health and a prompt response is given by the Central Bureau to every such request for assistance and cooperation.

It was formerly the custom of local boards of health to endeavor to cope with an epidemic until the disease appeared to be getting beyond their control, and then appeals would be made to the State Department of Health. In recent years, however, this practice has changed, and now at the onset of an epidemic, local boards of health immediately ask for advice and assistance. It is the practice when such appeals are received, for a representative of the Bureau to at once arrange for a meeting with the local board of health and lay the foundation for thorough scientific investigation and the application of proper methods for prevention of the spread of disease.

One instance, reported last year is evidence of the results which follow prompt action in controlling epidemics. A number of cases of typhoid fever were reported in the City of Bridgeton. Fortunately, the boat which is owned by the State Board of Health and is used in the inspection of oysters, was lying in the creek at Bridgeton. On this boat there is a thoroughly equipped bacteriological laboratory.

Upon the arrival of the representative of the Bureau, blood samples were taken from all persons having to do with the handling of the milk on the route upon which every one of the cases of typhoid fever was reported. Within less than twenty-four hours, the bacterial examination showed that a typhoid carrier was handling the milk. With the exclusion of this individual from handling the milk supply, together with the pasteurization of the milk, the epidemic was placed under immediate control.

Beginning the latter part of 1914, and continuing through the earlier months of 1915, an epidemic of small-pox occurred in Millville, Cumberland County, and a few scattering cases were reported in nearby counties in New Jersey.

The disease had not been recognized as small-pox and it was found that a large number of cases had already occurred and the infection was extremely wide-spread. The situation was handled by two representatives of the Bureau. As a result of systematic vaccination, and the careful advising of the local board of health as to each step which should be taken for the curtailment of the epidemic, the disease was soon stamped out. From the beginning of this outbreak until its close, over 325 cases of the disease were investigated.

There can be no better illustration than this of the effectiveness of our work, and it is evident that in the future there would be no wiser expenditure of the moneys of the State than their use for increasing the force which is available for epidemiological investigations. The Millville epidemic is of such interest that other reports of epidemiological

work are omitted in order that the report on this outbreak may appear in full.

The following list indicates the epidemiological investigations by the Bureau during the year October 31, 1915:

CHICKEN-POX—Franklin Twp., Gloucester Co., Jan. 29, 1915.

DIPHTHERIA—Westwood Boro., Bergen Co., Nov. 2, 1914; Sea Isle City, Cape May Co., Nov. 12, 1914; Clinton Twp., Hunterdon Co., July 13, 1915; Wharton Boro., Morris Co., July 28, 1915; Union Twp., Ocean Co., Mar. 8, 1915; Garwood Boro., Union Co., May 5, 1915; Belvidere Town, Warren Co., Dec. 4, 1914; Washington Twp., Warren Co., Mar. 12, 1915.

SCARLET FEVER—Bogota Boro., Bergen Co., Oct., 1915; Englewood City, Bergen Co., Oct., 1915; Garfield Boro., Bergen Co., June 17, 1915; Hackensack Town, Bergen Co., Oct., 1915; Hasbrouck Heights Boro., Bergen Co., Oct., 1915; Hohokus Twp., Bergen Co., Oct. 20, 1915; Leonia Boro., Bergen Co., Oct., 1915; Maywood Boro., Bergen Co., Oct., 1915; Westwood Boro., Bergen Co., Nov. 2, 1915; Woodridge Boro., Bergen Co., Oct., 1915; North Bergen Twp., Hudson Co., Oct., 1915; Town of Union, Hudson Co., Oct., 1915; West Hoboken Town, Hudson Co., Oct., 1915; Hawthorne Boro., Passaic Co., Oct., 1915; Little Falls Twp., Passaic Co., Aug. 20, 1915; Paterson City, Passaic Co., Oct., 1915.

SMALLPOX—Pemberton Twp., Burlington Co., Mar., Apr., May, 1915; Camden City, Camden Co., Mar., Apr., May, 1915; Pensauken Twp., Camden Co., Apr., 23, 1915; Commercial Twp., Cumberland Co., Mar., Apr., May, 1915; Landis Twp., Cumberland Co., Mar., Apr., May, 1915; Millville City, Cumberland Co., Mar., Apr., May, 1915; Clayton Boro., Gloucester Co., Mar., Apr., May, 1915; Glassboro Twp., Gloucester Co., Mar., Apr., May, 1915; Mantua Twp., Gloucester Co., Mar., Apr., May, 1915; West Deptford Twp., Gloucester Co., Mar., Apr., May, 1915; Westville Boro., Gloucester Co., Mar., Apr., May, 1915; Clinton Twp., Hunterdon Co., Nov. 5, 1914; Elmer Boro., Salem Co., Mar., Apr., May, 1915; Mannington Twp., Salem Co., Nov. 19, 1914; Salem City, Salem Co., Mar., Apr., May, 1915.

TYPHOID FEVER—Union Twp., Bergen Co., Sept. 8, 1915; Riverton Boro., Burlington Co., Sept. 14, 1915; Maurice River Twp., Cumberland Co., Dec. 16, 1914; Harrison Twp., Gloucester Co., Sept. 22, 1915; So. Harrison Twp., Gloucester Co., Nov. 7, 1914; So. Harrison Twp., Gloucester Co., Sept. 22, 1915; Swedesboro Boro., Gloucester Co., Sept. 22, 1915; Woolwich Twp., Gloucester Co., Sept. 22, 1915; Kearny Town, Hudson Co., Nov., 1914; Clinton Twp., Hunterdon Co., Oct. 15, 18, 21, 1915; Cranbury Twp., Middlesex Co., Mar., Apr., 1915; Cranbury Twp., Middlesex Co., Aug., Oct., 1915; Atlantic Twp., Monmouth Co., Sept. 16, 1915; Freehold Town, Monmouth Co., Jan. 5, 1915; Keyport Boro., Monmouth Co., Sept. 16, 1915; Raritan Twp., Monmouth Co., Sept. 15, 1915; Chatham Boro., Morris Co., Nov. 4, 1914; Morristown, Morris Co., Oct. 20, 1915; Pilesgrove Twp., Salem Co., Sept. 22, 1915; Bedminster Twp., Somerset Co., July 16, 1915; Bound Brook Boro., Somerset Co., Sept., Oct., 1915; So. Bound Brook Boro., Somerset Co., Sept., Oct., 1915; Elizabeth City, Union Co., Oct. 21, 1915; Phillipsburg Town, Warren Co., Oct. 19, 1915.

MENTAL DEFICIENCY AND EPILEPSY.

Reports of cases of mental deficiency and epilepsy were received from ten sanitary districts, and the duplicate of these reports transmitted to the Commissioner of Charities and Corrections in accordance with the provisions of Chapter 182, Laws of 1912. The collection of the statistics in regard to these cases under a law which is almost identical in

its wording with that which requires the State Department of Health to collect statistics of industrial diseases. The Department has nothing whatever to do with any investigation of or supervision over such cases. Reports are merely received and filed and duplicates sent to the Commissioner of Charities and Corrections. The same statement made as to reports on industrial diseases applies to the reports of mental deficiency and epilepsy, namely, that the Department desiring such records should collect the statistics, and that the State Department of Health should not be required to waste time and money in the collection of data which is to be used entirely by another Department. The cases reported during the year ending October 31, 1915, were as follows:

MENTAL DEFICIENCY—Newark City, Essex Co., 62; South Orange Vil., Essex Co., 14; South Orange Twp., Essex Co., 7; Trenton City, Mercer Co., 7; total, 90.

EPILEPSY—Camden City, Camden Co., 1; East Orange City, Essex Co., 2; Newark City, Essex Co., 56; Orange City, Essex Co., 1; South Orange Twp., Essex Co., 1; Jersey City, Hudson Co., 1; Dover Town, Morris Co., 1; Elizabeth City, Union Co., 1; Rahway City, Union Co., 2; total, 66.

INDUSTRIAL DISEASES.

Under the provisions of Chapter 351, of Laws of 1912, physicians are required to report to the local board of health cases of certain industrial diseases which come under their personal supervision. This law is not enforced as rigidly as it should be, as the State Board of Health is placed in the position of collecting these reports, doing all the clerical work connected with the filing of the records, and the sending of duplicate copies of the report to the Commissioner of Labor.

When this law was originally contemplated persons who were interested in obtaining reports of industrial diseases examined the system for the collection of statistics relating to contagious diseases which is at present followed by this Department. Finding this system quite effective, they determined that use be made of the clerical force of the Department of Health in obtaining statistics for the use of another Department, namely, the Department of Labor.

This arrangement is entirely unsatisfactory as the State Department of Health has no supervision over the individuals affected with certain industrial diseases, or over the factories in which these diseases occur. The collection and filing of these statistics of industrial disease by law should be placed under the supervision of the Commission of Labor. During the year ending October 31, 1915, reports of industrial diseases were received by the State Department of Health and forwarded to the Commissioner of Labor as required by Section 3, Chapter 351, Laws of 1912, as follows:

Camden City, Camden Co., Anthrax, 5, Lean Poisoning, 3, Mercury Poisoning, 1; Pensauken Twp., Camden Co., Anthrax, 1; Irvington Town, Essex Co., Lean Poisoning, 1; Newark City, Essex Co., Arsenic Poisoning, 1, Lead Poisoning, 45; Mercury Poisoning, 1; Kearny Town, Hudson Co., Lead Poisoning, 1; North Bergen Twp., Hudson Co., Lead Poisoning, 1; Trenton City, Mercer Co., Lead Poisoning, 3; Perth Amboy City, Middlesex Co., Lead Poisoning, 1; Raritan Twp., Middlesex Co., Lead Poisoning, 1; totals, Anthrax, 6; Arsenic, 1; Lead, 57; Mercury, 2.

THE TUBERCULOSIS EXHIBIT.

The work with the Tuberculosis Exhibit for the fiscal year ending October 31, 1915, has proceeded along the usual lines, following the routine developed by past experience. The work consisted in advance visits for the purpose of organizing committees to give local support to the Exhibit, and securing local pictures. The Exhibit itself was conducted on school days only so that children at school might attend in the afternoon.

The year's work has been carried on almost entirely in the southern part of the State, beginning at Hammonton the first week in November, 1914, and closing with an exhibition at the Trenton Interstate Fair the following year. The territory covered includes Atlantic, Burlington, Camden, Cape May, Cumberland, Gloucester, and Ocean Counties. Salem County was not visited because the Exhibit had opened in Salem City in March, 1912, and arrangements could not be made for it at other towns in the county.

Notwithstanding the fact that most of the work was done in isolated towns that required cross-country moves, a show was given each week outside of the holidays and summer vacation, with the exception of one week in Camden. Here the Exhibit was put up in the Y. M. C. A. Building, and on Saturday before it was to open on Monday, the Camden Board of Health cancelled the engagement on account of the presence of small-pox in the city.

SMALL-POX AND TUBERCULOSIS: In this connection it is interesting to note that although the local authorities in Camden refused to assume any responsibility for expenses incurred in the Exhibit campaign, when a case of small-pox was discovered the city council met very promptly and appropriated \$5,000 to the Health Department for its work in combating the disease. There are no doubt hundreds of cases of tuberculosis in Camden, but there were only four or five cases of small-pox at this time. Some persons are disposed to deplore the fear aroused by the tuberculosis campaign. If people could be induced to fear tuberculosis as they fear small-pox, it is certain that speedy and effective measures would be taken for the control of the disease.

ATTENDANCE: A total of 178,635 persons attended the Exhibit, the park shows and outside lectures given during the year, as compared with 166,310 for the preceding year. For the first seven months of the year, which were devoted to the regular Exhibit campaign, 70,135 persons, or nearly one-fourth of the 288,462 estimated population in the cities and towns visited, attended the Exhibit. More than half this population belongs to the principal cities, Camden and Atlantic City. If a larger population had been accessible the attendance at the Exhibit could be told in still larger figures.

MOTHERS' MEETING: At Burlington a local committee arranged a Child Welfare Exhibit in connection with the State Tuberculosis Exhibit and held a Mothers' Meeting one afternoon during the week. This

meeting was largely attended by interested mothers who eagerly sought the information imparted to them concerning the care of babies. So successful was the meeting that the President of the New Jersey Mothers' Congress, who was present, has since written to request permission to hold a Mothers' Meeting one afternoon each week, if in the future the State should conduct an Exhibit on Child Hygiene.

PRESS SERVICE: A departure from the routine Exhibit campaign during the past year has been made possible by an additional full-time assistant to do the advance work and part of the lecturing at the Exhibit. The Director of tuberculosis work was thus allowed time to prepare articles for the press, and take up other educational and publicity activities.

The press service which was instituted covered the Health Officers' Conference held last winter so thoroughly that the new ideas presented at the Conference were made available for all persons in the State. A story was released each day during the week preceding the Conference and copies of all papers were secured and given to the press in advance of the Meeting for release as soon as read at the Conference. Thus, information concerning such subjects as child hygiene, publicity in health work, the cause of some of the contagious diseases, health problems in a rural community, value of the visiting nurse in public health work, and the Laboratory diagnosis of diphtheria was placed before the public.

Other articles furnished the press have dealt with the health bills pending before the Legislature, while still others have dealt with the reporting of communicable diseases, the pasteurization of milk, the results of Laboratory tests of foods and drugs, the training of attendants for sewage disposal plants, foodstuffs held in cold storage in the State, measures for the control of tuberculosis in the home, the low typhoid death-rate, a new plan for the control of rabies, enforcement of the soft drink law, danger of vacation typhoid, a plea for saving the babies, the progress of public health work during recent years, and many other important health subjects.

Publication of a monthly bulletin in compliance with the requirements of the law reorganizing the Department was begun in August. Three numbers for August, September and October, respectively, were issued before the close of the fiscal year.

A FOUR YEARS' CAMPAIGN.

As the systematic Exhibit campaign extending over the entire State is now completed and the remainder of this report may well deal with the campaign as a whole.

CHARACTER OF EXHIBIT: The Exhibit used consisted of enough photographs and mottoes to cover the wall space in a fairly large auditorium, a number of electrical flashers to present facts in a striking manner, some models of foodstuffs suitable for consumptives, sleeping-out appliances, and a complete motion picture equipment.

The care exercised in the construction of the Exhibit, which included taking most of the pictures in order to have original ones, a careful selection of the color scheme, a painstaking study of the mottoes and captions used to make them simple and direct while expressing accurately scientific facts, and the employment of a style of lettering that is very readable, has resulted in the New Jersey Exhibit being regarded as one of the best in the country. It has been visited by a number of persons from out of the State who were in search of ideas for exhibit construction.

The Exhibit has been on the road for nearly four years, with the exception of the summers, when it was usually stored and outdoor shows were given in parks and playgrounds. During the summer of 1912, an Exhibit campaign was conducted in Monmouth County in cooperation with the Monmouth County Branch of the State Charities' Aid Association, officials of which preferred to have it in the summer rather than wait until a winter schedule could be made.

Fifteen municipalities were visited during the first fiscal year, twenty-one the second, twenty-six the third, and twenty-six the fourth, making a total of eighty-eight different municipalities in which the Exhibit has been shown in 116 different locations for 520 days or 122 weeks. The Exhibit week has been made to correspond to the school week on account of the cooperation with the schools. At times, however, in the smaller towns the Exhibit has been open only three or four days of the week.

TOTAL ATTENDANCE: The population of the municipalities visited is nearly two and a quarter millions. Of this number 574,630 persons attended the Exhibit, 209,750 the park shows and 2,450 the outside lectures, making a total of 782,839 people to whom the direct message has been carried. The number attending the Exhibit alone amounts to more than one-fourth of the total population of municipalities visited while the total number attending the Exhibit, park shows and lectures amounts to more than one-third the population. The average daily attendance at the Exhibit has been 1,105, that at the park shows 1,729 and at the outside lectures 136. Few of the outside lectures have shown an attendance above 100. It is so difficult to get people to attend isolated lectures that this line of activity has not been encouraged.

LITERATURE: For educational purpose it is believed that a few small carefully prepared circulars, widely distributed, will bring larger returns in the tuberculosis campaign than a more voluminous pamphlet, the distribution of which is necessarily limited on account of expense in printing. Two circulars, one entitled "How to Prevent Tuberculosis," which has been printed in six languages beside English, and the other entitled "Rules and Regulations for the Care of Tuberculosis Patients," printed in English and Italian, have been carefully prepared and distributed very widely. Of the former, which was prepared first, 694,803 have carried the message of tuberculosis prevention to the citizens of the State. The latter, which was a later production, has been distributed to the extent of 140,074. Two thousand two hundred and

ninety-two farmers' bulletins, dealing with bovine tuberculosis and printed by the United States Department of Agriculture, were obtained through the New Jersey State Board of Agriculture and distributed. Three thousand one hundred children's pamphlets reprinted and donated to the exhibit were also distributed, making a total of 840,269 pieces of educational literature that have been given out. Not all of this, however, has gone out from the Exhibit directly, but 120,542 leaflets have been distributed through local boards of health, tuberculosis associations, tuberculosis clinics, other organizations and private individuals throughout the State. The total distribution of literature, both educational and advertising, has amounted to the sum of 2,274,956, which is more than one circular for each individual in the population of the cities and towns visited. In addition to the literature for popular distribution a pamphlet entitled "How to Use an Exhibit," has been prepared and printed for the use of local committees as a guide in forming an organization for the local work. Several hundred copies of Dr. S. Adolphus Knopf's prize essay on tuberculosis have been purchased and given to speakers who were to speak at the Exhibit.

PRESS PUBLICITY: Through the liberal space allotted by the press, the campaign has reached many more people than those who attended the Exhibit. In addition to news of the Exhibit, a considerable amount of "boiler plate" which was purchased in the beginning of the campaign has been used by the papers in the various cities.

PERCENTAGE EXPENDITURES: The total expenditure for the Exhibit from November 1, 1912, to June 30, 1915, (exclusive of current unpaid obligations as of June 30, 1915, estimated at \$488) was \$35,762.18.* Careful tabulations and calculations show that 42.75 per cent of this amount has been expended for salaries and labor, 17.32 per cent for printing, 11.75 per cent for hotel bills, 6.24 per cent for transportation of Exhibit material and 5.27 per cent for transportation of the men employed with the Exhibit, while 8.39 per cent has been expended for Exhibit material, including the motion picture equipment. Other expenditures are given in full in the accompanying table.

UNIT COST: Including \$488 estimated obligations the total expenditure for the Exhibit campaign to June 30, 1915, was \$36,250.18. Estimating the value of the tangible property on hand at \$1,250.18, which is a low estimate, leaves a balance of \$35,000 that was invested in that intangible something called an educational campaign for the prevention of tuberculosis.

The modern efficiency method of figuring unit cost cannot be applied by estimating the cost of a life saved or a case of illness prevented. Any estimates as to the unit cost must therefore, be based on tangible entities

*Revision to bring these figures down to the end of the fiscal year would add nearly four thousand dollars to the sum total, but would not materially change the percentage. To save time, therefore, the figures are given for the period covered by the original calculations.

that are after all external to and often aside from the real thing accomplished by such a campaign. The real results are subjective or mental and cannot be measured in material units. It is interesting, however, to note from the accompanying table that the cost of the campaign has been about 1½c per capita for the population of the cities visited or 5c per capita for all persons attending the Exhibit. Other figures relating to unit cost are contained in the above mentioned table.

FUTURE WORK.

Now that the campaign throughout the State with the large Exhibit has been completed, the question is, what next?

SMALL EXHIBIT: More than half a million people living in the various small towns and rural communities in the State have not as yet had the Exhibit made accessible to them. For the benefit of these people, a small Exhibit has been constructed that can be carried with less expense into the smaller communities.

A motorcycle has been used in Wisconsin to conduct a tuberculosis campaign in rural sections of the state. Whether or not such a campaign would be successful in New Jersey seems open to doubt. Much depends upon the personality of the man in charge.

A light-weight motor truck was suggested for this purpose in a former report. Some inquiry has been made concerning the cost of purchasing and maintaining such an equipment, but not enough information is yet at hand concerning it to warrant definite recommendations for the purchase of a motor truck or delivery wagon.

These schemes not appearing practicable at present, an Exhibit has been constructed on the folding map plan, which permits it to be put up and taken down readily, for use in smaller communities. The whole Exhibit, together with literature for distribution, can be packed in two or three trunks and transported easily without much expense. A stereopticon is used instead of motion pictures, because the motion picture booth is too heavy to be easily transported. This Exhibit was practically completed at the end of the fiscal year so that work could be begun with it at the beginning of the next year.

ANNUAL COST: From experience with the large Exhibit the following estimate was made as to the first year's cost of constructing and conducting a smaller one:

Original Cost of Exhibit	\$ 500 00
Salaries:	
Manager	\$1,500 00
Mechanician	1,200 00
Extra Labor	100 00
	2,800 00
Traveling Expenses of Two Men at \$75 per Month Each	1,800 00
Transportation of Exhibit	100 00
Printing	700 00
Incidentals	100 00
	Total
	\$6,000 00

With the completion of the Exhibit, it was found that the actual cost of construction was somewhat less than the amount estimated. It is believed that the expense of operation may also be somewhat less than the estimate.

BUREAU OF EDUCATION AND PUBLICITY: The success of the Tuberculosis Exhibit and the press service, together with the necessity for publishing a monthly bulletin in compliance with the new law, led to the creation of a separate bureau, The Bureau of Education and Publicity, to continue this work in the future. The new organization was made to take effect at the beginning of the fiscal year following the one for which this report is made. Within the Bureau of Education and Publicity there was created a Division of Child Hygiene and Nursing to take up a line of education activity that has not heretofore received attention by this Department.

CHILD HYGIENE EXHIBIT: The results of work with the Tuberculosis Exhibit fully warrant the making of plans to keep a large Exhibit on the road. As a pedagogical device, the Exhibit is merely a means of teaching through the eye. As such, its usefulness may be extended to cover other fields of health work.

In planning an Exhibit campaign, due weight should be given to the advantages to be derived from centering the campaign around some particular idea. The gratifying results of the tuberculosis campaign, not only in New Jersey but throughout the country, have been due largely to the fact that a definite object has been kept constantly in view, namely, the prevention of the one disease, tuberculosis. It is believed that the next point to attack is child hygiene. The high death-rate among babies makes this an important health subject. The central idea about which to build another large Exhibit may well be the protection of the health of the child.

Some material concerning several health subjects can be used in the Child Hygiene Exhibit. In general, it may be said that the emphasis upon the various subjects should be in proportion to their importance as reflected in the death-rate. The building of an Exhibit about the idea of child welfare would accomplish the double purpose of making it cover an important health field and giving it a theme of much driving force. Everybody loves a baby.

The cost of constructing and operating such an Exhibit will of necessity be greater than the cost of the Tuberculosis Exhibit. In addition to small leaflets for general distribution, it may be desirable to print a handbook for mothers. This will increase the cost of printing. A nurse or two with the Exhibit to deal with mothers will be almost a necessity. This will increase the salary expense. In order to induce local committees to establish nursing services and consultation stations for infants, some follow-up work must be done which will make the expense still greater. The experience of the New York State Department of Health in reducing the infant mortality rate fifteen points in

1914 by its state-wide child hygiene campaign, gives ample justification for conducting such a campaign in New Jersey.

PUBLICITY: The necessity for more publicity in public health work is receiving more attention than ever before. In recognition of this need, the Bureau of Education and Publicity, that is to develop this line of activity for the Department, will secure publicity through the Exhibit, the monthly bulletin, the public press, and the distribution of leaflets and pamphlets on health subjects. One of the most important and at the same time least expensive of these methods of securing publicity is through an efficient press service. Heretofore, stories have been prepared and given to the press representatives in Trenton. In this way the material prepared in the Department's office reaches all the leading papers in New Jersey and many of those in adjoining states and nearby cities, and some of it is sent to papers throughout the country by the large press agencies.

SPECIAL REPORT ON AN EPIDEMIC OF SMALL-POX IN MILLVILLE AND SURROUNDING SANITARY DISTRICTS.

On March 24, 1897, a request for assistance in handling an outbreak of small-pox was received from the local board of health of Millville.

From the related history of the outbreak it was shown that during the several weeks immediately preceding many persons in the city had been treated by local physicians for chicken-pox. Some of the cases were so severe that several consultations were held among physicians as early as the first part of January. These cases were reported, however, as chicken-pox, no case being reported as small-pox until March 14th.

Then followed a disagreement as to the diagnosis and an appeal to the State Department of Health on March 19th. Unfortunately this communication was sent by mail and in error addressed to the Department of Labor instead of to the State Board of Health, consequently, the communication did not reach the office of the State Department of Health until March 24th.

In the meantime conditions had been growing more unsettled and Dr. S. S. Woody, of the Philadelphia Municipal Hospital for Contagious Diseases, was sent for to make a diagnosis. He arrived in Millville on March 24th, and pronounced the cases seen by him to be small-pox. With this history, and from a study of the records of reportable diseases in possession of the local inspector, sufficient evidence was in hand to warrant a strong suspicion that small-pox had been prevalent in Millville for several months without the true nature of the disease being recognized and treated as such until within a few days prior to March 24th. Still the diagnosis of small-pox which had been made by a few local physicians and later confirmed by Dr. Woody was rejected by others. This division of opinion among the medical men coupled with the exceedingly mild type of

the disease gave rise to a strong belief in the minds of many citizens that the numerous cases of sickness then distributed about the city were merely chicken-pox or some other disease of an equally trivial nature, thus bolstering up the strong anti-vaccination sentiment which prevailed in the city of Millville.

A joint meeting of the City Commissioners and the local board of health was held during the evening of March 25th at which a number of local physicians and many citizens were present. A plan for aggressive work to restrict further spread of the disease was mapped out which embraced among the main features:

First: Strict quarantine of all cases of reported chicken-pox as well as small-pox, the first named disease being included on account of the persistent expressed belief of a few physicians and many citizens that small-pox infection was really not present in the city.

Second: Arrangements for the vaccination of indigent persons by the local board of health.

Third: The adoption of resolutions recommending the board of education to require all children and teachers attending the public schools to be vaccinated or excluded from school, and also requesting managers of all industrial plants in the city employing any considerable number of persons to require their employees to be vaccinated or refused admittance to their factories until the disease had been brought under control.

Fourth: The adoption of a motion requesting the managers of the chief places of amusement at which the general public gathered to close their establishments temporarily.

Fifth: Arrangements were made for prompt investigation of all reported cases of chicken-pox as well as small-pox for the purpose of verifying the diagnosis in doubtful cases and of establishing an effectual quarantine of actual cases of small-pox and to secure the vaccination or the quarantine of contact cases when deemed necessary.

Owing to the imminent danger of the disease further spreading to other parts of the State and in the absence of a trained health officer devoting his full time to the work of the local board of health it was desirable that an officer of the State Department of Health should direct the official work pertaining to control of the spread of infection, and this was in accordance with the expressed wishes of the City Commissioners and local health officials, who, collectively as public bodies and individually as citizens, zealously labored to repair the damage resulting from the unfortunate delay in the recognizing of the disease, and the establishment of timely restrictive measures against its spread.

Millville is an industrial city of about 13,000 inhabitants, of which number an exceedingly small proportion are foreigners or negroes. The chief industry is the manufacture of glass, one of the largest plants in the country being located here. There is also a woolen mill and bleachery in the city employing about 1,000 persons. The employees in the several manufactories in the city probably number 3,000 persons.

There are but few buildings in the city in which more than two families reside and a very considerable part of the population live in single family houses. This latter fact was taken into consideration in conjunction with the mildness of the infection and its wide-spread distribution about the

city, when domestic quarantine was determined upon instead of establishing a general hospital to which cases might be removed for detention and treatment.

It was recognized that the most important measure, and indeed the only effectual one, in checking the spread of the disease under existing conditions was to secure the vaccination of as many persons as possible as soon as practicable. Accordingly early on the day following his arrival in the city, the State Inspector, accompanied by the physician to the local board of health, called upon the managers of the leading industrial plants in Millville employing any considerable number of persons and urged their cooperation in this respect. Without a single exception, prompt assurance was given that the recommendations made would be adopted and orders were at once issued in nearly every establishment visited that no employee should return to work after a given date unless he had been recently vaccinated or presented a certificate setting forth a good reason why this operation should not be performed. In some of the larger plants a certificate exempting persons from vaccination was required either to be issued or countersigned by an official of the State or local board of health. This prompt action on the part of the larger employers of labor in the city was more effective than any other measure in the control of the epidemic.

With these preliminary matters settled the actual investigation of the cases was vigorously pursued. The home of every person reported to the local board of health as having small-pox or chicken-pox was visited and a history obtained of each case together with a list of persons exposed. As this work progressed the infection was found to be more wide-spread than it was first suspected. A number of cases of both small-pox and chicken-pox were discovered and investigated that had been treated by physicians as chicken-pox and never reported to the local board of health, while other families were found in which all members who had not been recently vaccinated had passed through an attack of the disease and recovered without having called in medical aid. The fact that a considerable number of cases of chicken-pox had evidently occurred in the city during the same period of time that small-pox infection was present only tended to complicate the work and render it much more difficult to trace the outbreak back to its inception.

The earliest case of which a record was obtained that gives reasonable assurance that the patient had small-pox occurred on December 4th. Other well authenticated cases occurred within the incubation period in persons who were exposed to this case. Three other cases were investigated, however, which occurred in two separate dwellings, gave dates of onset on December 11th, 14th, and 15th, thus showing that the case which occurred on December 4th was not the source of infection which gave rise to this epidemic.

In addition to the number of cases tabulated as small-pox in this report 66 cases were investigated which warranted the conclusion that they were cases of chicken-pox. Numerous other investigations were made in families that were reported by rumor to have been ill with an eruption in which no clear history was procured of either chicken-pox or small-pox.

The clinical symptoms were so mild in so large a per cent of the cases of small-pox that laymen were inclined to doubt the diagnosis and this attitude was openly encouraged by some of the local practitioners. This opposition was carried to a point that at one time seriously threatened to embarrass the work of stamping out the disease. One physician flatly declined to report cases coming under his observation as either small-pox or chicken-pox, although acknowledging his inability to make a diagnosis and admitting the disease to be of a communicable nature. In an effort to finally settle all disputes about the diagnosis in order that greater cooperation might be secured in our work, Dr. Jay F. Schamberg, of Philadelphia, was engaged to examine a number of cases under dispute. Dr. Schamberg unhesitatingly pronounced the disease to be small-pox, although of the non-virulent type that is so frequently mistaken for chicken-pox by physicians unfamiliar with this atypical form. This confirmation of the diagnosis did not, however, induce all unprotected persons to be vaccinated, for still many who were known to have been exposed to infection, and even a considerable number of persons residing in homes where cases were under treatment, preferred to take their chances with small-pox rather than suffer the inconvenience attending a successful vaccination. It must be admitted that there were cases of vaccination accompanied by more severe constitutional disturbance than were some of the milder attacks of the disease, and there were comparatively few cases of the disease accompanied with much physical discomfort after the prodromal symptoms and the irritation incident to the eruption had subsided. The period of time necessary for the patient to pass through the succeeding stages of the disease to the point of losing the scabs frequently did not exceed more than fifteen days. While there were some moderately severe cases there were no fatalities attending this outbreak.

With the disease prevalent in Millville and unrecognized for so long a period of time it is remarkable that it did not spread to a greater extent to neighboring communities. While cases directly traceable to infection in Millville are known to have developed in eleven other municipalities, in no instance did any extensive outbreak arise from these outside centers of infections. There can be no question but that the infectivity of this mild type of the disease is correspondingly slight. Exposed persons who were not protected by vaccination and who might with almost absolute certainty be expected to contract the infection if equally exposed to a virulent case of small-pox frequently escaped in this mild form of the disease.

UNAFFECTED PERSONS IN INFECTED HOMES.—Of the persons known to have resided for various periods of time in homes in which cases were under treatment without isolation of the patient, and who give no history of a recognized attack of the disease, eighteen claim never to have been vaccinated.

It cannot be positively asserted, however, that all of these unprotected persons escaped infection owing to the fact that this history was gathered in some cases a long time after the recovery of patients, and the degree of intelligence of the individuals comprising some of the infected families

was such that entirely dependable information could not be secured on all points. In some instances a history of an attack of what was at the time presumed to have been grippe with no clear history of an eruption was encountered, which, in fact, might have been a mild case of small-pox. That some of these unvaccinated persons did, however, pass through several weeks of daily exposure to the infection of small-pox without contracting the disease was proven by the fact that after such exposure they were successfully vaccinated. In others vaccinations were tried without success.

In the table which follows, twenty-four persons are tabulated as having been successfully vaccinated at periods ranging from eight to ninety days following the occurrence of the first case in the dwelling in which they resided, thus showing that these persons were susceptible to vaccination but had resisted the infection of small-pox in which they had been exposed. As a matter of fact the mildness of the infectivity of some of the cases, is shown in the peculiar coincidence that the primary case in some houses was followed by other cases within the incubation period, while still other unvaccinated members of the same family escaped contracting the disease from the first case but later succumbed when exposed to the second group of cases occurring in the same house. In some instances, persons deferring vaccination until after the onset of the second group of cases in the same house in which they lived developed an attack of the disease coincident with a successful vaccination.

Table showing the vaccinal status of persons residing in infected houses and who did not have small-pox.

Persons successfully vaccinated in previous years	157	
Persons successfully vaccinated shortly before the onset of primary cases	24	
Persons successfully vaccinated within eight days following the onset of the primary case	24	
Persons had small-pox in previous years	7	
		212
Persons successfully vaccinated between eighth and ninetieth day following the onset of primary case ..	24	
		24
Persons vaccinated shortly after the onset of primary case in which the results of vaccination were not ascertained	26	
Persons whose vaccinal status was not learned	2	
		28
Persons unsuccessfully vaccinated in previous years ..	4	
Persons unsuccessfully vaccinated shortly before onset of primary case	5	
Persons unsuccessfully vaccinated shortly after the onset of the primary case	5	
		14
Persons never vaccinated	18	
		18
		296

Of the 296 persons residing in infected houses who did not contract the disease, 157 had been successfully vaccinated in former years. The period

of time elapsing between the date of vaccination and the date of exposure is shown in the table which follows:

Table showing number of persons in infected houses who did not contract small-pox and who had been successfully vaccinated in former years.

Years Elapsing Since Vaccination.	Persons.
1-9	39
10-19	33
20-29	17
30-39	31
40-49	24
50 and over	13
Total	157

PERSONS CONTRACTING THE DISEASE.—In the epidemiological study of this outbreak 324 cases of small-pox were tabulated. Of this number, 291 cases, distributed among ninety-two houses, occurred in the city of Millville. As a result of direct or indirect contact to these cases in Millville thirty-three cases are known to have occurred in eleven other municipalities. The geographical distribution of the cases was:

Millville, 291; Glassboro, 2; Clayton, 11; Camden, 5; Landis Twp., 4; Commercial Twp., 3; Pemberton Twp., 1; Westville, 1; West Deptford Twp., 3; Mantua Twp., 1; Salem, 1; Elmer, 1; total, 324.

Among the 324 persons known to have contracted small-pox in this epidemic, 245 give no history of ever having been vaccinated either successfully or unsuccessfully previous to the date of the onset of the disease. There are seventeen in whom attempts at vaccination had proved unsuccessful.

During the course of the epidemic as vaccination became more general it was expected that some persons who had contracted infection would defer the operation until it was too late to prevent the development of the disease. This is known to have occurred in twenty-seven cases; the date of vaccination in these instances ranging from one to eleven days previous to the date of onset with the result that the course of the vaccination and the course of the disease ran concurrently.

Including one case in which the vaccinal status was not learned, 89.3 per cent of the persons known to have contracted the disease were never vaccinated before they became infected with small-pox. Of the thirty-four cases which occurred in persons who claim to have been vaccinated successfully at some time there was no instance in which a successful vaccination had been performed within a period of less than five years preceding the onset of the disease. The next shortest period of time elapsing between the date of successful vaccination and the date of onset of the disease was nine years, and the greatest sixty years.

Table showing vaccinal status of patients.

Never vaccinated before developing small-pox	245
Unsuccessfully vaccinated, previous years 8, recently 9..	17
Successfully vaccinated from one to eleven days previous to the day of onset	27
Vaccinal status unknown	1
	290
Successfully vaccinated in previous years	34
	324

Cases of small-pox in persons previously vaccinated, with years intervening between vaccination and onset—60 years, 1; 50 years, 1; 45 years, 1; 43 years, 1; 40 years, 1; 38 years, 1; 36 years, 1; 35 years, 7; 34 years, 1; 32 years, 1; 30 years, 3; 28 years, 1; 25 years, 1; 20 years, 2; 15 years, 2; 14 years, 2; 12 years, 1; 9 years, 2; 5 years, 1; total 34.

CHICKEN-POX HISTORY.—While it is customary to inquire if the patient has ever had chicken-pox in the investigation of cases of small-pox in which there is any doubt about the diagnosis, particular attention was given to this feature in the epidemiological study of this outbreak owing to the fact that the disease was so persistently declared to be chicken-pox. In the case of children it can usually be ascertained whether or not they have had chicken-pox but among adults accurate information on this point is obviously more difficult to secure. Among the 324 cases studied in this outbreak, 174 of the patients give a positive history of having had an attack of chicken-pox at some previous time, and a number of these persons had had chicken-pox within periods ranging from one to four months preceding an attack of small-pox.

Among the 296 persons residing in infected houses who did not contract the disease, 137 give a history of having had chicken-pox and fifty-seven do not, while 102 have no certain knowledge of having experienced an attack of this very common disease.

The fact that a second attack of chicken-pox is of such exceeding rarity, if indeed this disease is ever manifested the second time in the same individual, should have prevented the errors in diagnosis which led to such wide-spread infection of small-pox if this feature of the case had been considered in the early stages of the outbreak.

Chicken-pox history relating to those who had small-pox and those who did not contract the disease from exposure in infected houses.

	Previously had chicken-pox.	Never had chicken-pox.	Doubtful or unknown	Total
Persons who had small-pox	174	66	84	324
Persons in infected houses who did not have small-pox	137	57	102	296
	311	123	186	620

A number of vaccinations were subsequently performed among persons who had passed through attacks of the disease during the early days of

the epidemic or before the disease was pronounced small-pox, and without exceptions these vaccinations proved to be unsuccessful. There were thirty-eight primary vaccinations performed in such persons with unvarying unsuccessful results. At least eleven of these cases had been attended by physicians who pronounced the patients to be suffering from chicken-pox and three cases were diagnosed as grippe. Had vaccinations been resorted to earlier in some of these cases in which doubt arose on account of the unusual severity of the clinical symptoms for chicken-pox cases it would have contributed toward clearing up the diagnosis.

Results of attempts with unsuccessful results to vaccinate persons who had suffered from an attack of the disease, and the lapse of time between attack and vaccination were:

3-4 months, 3; 2-3 months, 1; 1-2 months, 10; 25 days, 2; 22 days, 2; 21 days, 2; 18 days, 2; 16 days, 1; 15 days, 1; 14 days, 2; 13 days, 1; 12 days, 3; 11 days, 1; 10 days, 1; 8 days, 1; 5 days, 2; 3 days, 1; 2 days, 1; 1 day, 1.

The age of the persons reported to the local board of health as having chicken-pox during the early stages of the epidemic is a feature that was doubtless overlooked by the authorities and might within itself have led to an earlier recognition of the presence of small-pox in the community had the reports been studied with greater care. Over 68 per cent of the 324 cases of small-pox were in persons over ten years of age. This could not have been the case in an outbreak of chicken-pox involving an equal number of cases.

VACCINATION.—As previously stated the sentiment in Millville was overwhelmingly opposed to vaccination on general principles. In view of the difficulty in securing accurate statistics concerning vaccination of the entire population of Millville the following deductions had to be made on information obtained through various channels.

The nearest to universal vaccination among any one class of people was secured among those who were employed in the larger industrial plants in the city. At the plants where fairly accurate statistics were gathered, and in which about 2,800 persons are employed, it was shown that over 87 per cent of the employees were quite recently vaccinated. The number remaining had been vaccinated within a period of a few years or had had an attack of small-pox.

The public school authorities deferred action requiring compulsory vaccination of school children until March 31st and then placed the date upon which unvaccinated scholars would be excluded from the public school as April 5th, twelve days subsequent to confirmation that small-pox was epidemic in the city.

A report made by the City Superintendent of Schools on May 5th gives the total number of pupils enrolled in the several public schools in Millville at 2,472. The report further states that "As far as I have been able to ascertain there are seventy unvaccinated pupils who have not yet returned to school."

Under the supervision of the Director of Public Safety a vaccinal census was made of the inmates of 785 houses, a majority of which were located

in the southern section of the city. Of the 3,430 persons residing in these houses the vaccinal status of 3,374 was procured. Of the latter number 78 per cent have been vaccinated at some time, the majority since general vaccination was begun as a result of the outbreak. In classifying the occupants of these houses in age periods it is shown that the lowest percentage of vaccinated persons were among those under five years of age, i.e., 14.07 per cent. Between the ages of five and ten years 73.46 per cent were vaccinated. The maximum number of vaccinations occurred in the group between the ages of ten and fifteen years, equalling 91.12 per cent.

Age periods and percentages were: 0-4, 14.07; 5-9, 73.46; 10-14, 91.12; 15-19, 88.91; 20-29, 81.18; 30-39, 82.85; 40-49, 88.77; 50 and over, 89.53.

Free vaccinations were performed at the expense of the owners of industrial plants, by the West Jersey and Seashore Railroad Company and by the Board of Health and the Board of Education amounting in all to about 1,908 vaccinations.

An effort was made to arrive at a fairly accurate knowledge of the number of vaccinations performed in the city by addressing an inquiry to each of the thirteen medical practitioners in Millville relative to the number of vaccinations performed by them. Up to the time of writing this report no reply had been received from three, hence this inquiry failed to accomplish the purpose.

Perhaps the most reliable figures bearing on the number of vaccinated persons in Millville can be arrived at by an estimate based on the vaccinal status gathered under the direction of the Director of Public Safety, which shows that among 3,374 persons over 78 per cent were vaccinated. Considering that this work was begun on March 30th and not completed until April 30th and that vaccination became more general as the work progressed, it is logical to presume that the actual figures are considerably in excess of 78 per cent. If it can be assumed that these figures gathered in a restricted area can be applied to the population of the city as a whole there would be less than 2,600 persons in the city who have never been vaccinated and at least 10 per cent of these have had small-pox.

COST OF THE EPIDEMIC.—Much undesirable publicity was given to the city through the Philadelphia papers and the local press because of the prolonged discussions which took place about the diagnosis of cases and the needless delay in introducing adequate precautionary measures against the spread of the disease.

It is a well recognized fact that newspaper publicity of the right kind pays, but that which Millville received through news items in the public press proved rather costly to local merchants. Much business that usually comes to Millville from the surrounding country under normal conditions was practically at a standstill for several weeks following the appearance of somewhat sensational newspaper articles that, while they did not present the full extent of the epidemic, made the condition appear much worse than it really was. Had the reporters been given full particulars at the beginning and had they been shown that decisive measures were being taken that would soon result in eliminating small-pox infec-

tion from the city, the newspaper publicity might have been advantageous rather than otherwise. As it was it probably assisted in creating a feeling among citizens that it was better to lend a hand and clean up than to obstruct the officials in their effort to stamp out the disease.

In addition to the falling off which took place in local trade, manufacturers received many telegrams from distant patrons countermanding orders or directing that shipment of goods be indefinitely deferred pending such time that assurance could be given that there was no danger of transmitting small-pox infection.

While there is no way to fix even approximately the financial loss to the business interests of the city as a result of the epidemic, there is no doubt that for a time it extended into many thousands of dollars daily. The amount spent from the city treasury in defraying expenses incurred by the various public officials in their work of handling the outbreak amounted to over \$3,500. The aggregate amount was small considering the large number of cases that were under supervision and the wide distribution of the infection. That this amount was not much greater is chiefly due to the fact that the cases were so mild that very little medical aid had to be furnished to indigent persons, and that all cases were cared for in their own homes thus saving the expense of providing and maintaining an isolation hospital.

Local physicians volunteered their services free to vaccinate all who applied at the City Hall for this protective remedy, thus reducing the expense to the city for this work to the bare cost of the materials.

The costs defrayed by private individuals for medical treatment of those who contracted the disease and the loss of time caused by quarantine regulations, together with the expense incurred by general vaccination, amounted to a considerable sum which must be taken into account in reckoning the total cost of the epidemic.

A number of municipalities to which the disease spread from Millville were put to a much greater expense in proportion to the number of cases dealt with than was Millville.

RESULT OF PREVENTIVE MEASURES.—The readiness with which the outbreak yielded to restrictive measures when these were once definitely applied is graphically shown in the chart which accompanies this report.

On March 26th, the day on which the State Inspectors began active operations against the spread of the disease, there were, as later shown, sixty-eight foci of infection in the city of Millville, and a history was obtained of 195 cases occurring since December 4th, the date of onset of the first case of which a history was obtained, the disease had then spread to five other municipalities in which eleven cases had already broken out.

During the fourteen days immediately following the introduction of general vaccination and the less effectual measures that go with the control of small-pox outbreaks, there occurred sixty-eight additional cases in Millville and twenty more infected houses were added to the list. These additional cases were a direct result of infection that had taken place before preventive measures were established. On the fourteenth day following the arrival of the State representatives in the city ten new cases

were recorded. The fifteenth day marked an abrupt break in the progress of the epidemic with but two cases recorded. At no time following this were there more than three cases recorded on any one day, and only twenty-eight additional cases occurred in Millville. A large majority of these twenty-eight cases occurred in dwellings in which others were under treatment for the disease and added only four new centers of infection. The new cases were all in persons who had neglected or refused to be vaccinated. This sudden drop in the number of cases offers a striking demonstration of what can be accomplished by vaccination in checking the spread of small-pox though infection be wide-spread under conditions where complete isolation and thorough disinfection cannot be obtained.

Seven weeks and five days following the introduction of preventative measures there was but one house in Millville under quarantine for small-pox, and had it been possible to have secured the vaccination of all persons, or at least of all persons who had had an exposure of the disease, the outbreak which extended over 166 days would have been shortened by several weeks.

COMMUNICABLE DISEASES ON DAIRY PREMISES.

The law under which the Bureau takes action to prevent the spread of disease from dairy premises was really the first one in the State giving the State Department of Health actual executive and administrative power in dealing with diseases. Under the provisions of this Act a physician is required not only to report cases to the local board of health, but also to report immediately and directly to the State Department of Health all cases of communicable diseases occurring upon dairy premises.

At first there was objection on the part of legislators and dairymen to the passage of this Act as it was feared there might be undue interference with the sale of milk by the dairymen, and thus a money loss would result and possibly the dairymen would be driven out of business. After the law was passed, however, as a result of the judicious handling of reported cases by the Department, all opposition to the Act disappeared and at the present time the dairymen cooperate with the State Department of Health fully in any restrictive measures which may be required.

When reports of this nature are received a representative of the Department is at once detailed to investigate the case and advise with the local board of health and the owner of the premises as to measures which should be adopted to prevent the spread of the disease to milk consumers.

It is the custom to lay down certain rules and regulations in regard to the conduct of the business and the isolation of the patient which if followed will permit the dairymen to continue the sale of milk and at the same time give protection to the milk consumer.

As a rule these suggestions consist in the isolation of the patient under the care of a nurse. All utensils which are used in the collection of milk are kept from the infected house and are washed on an adjacent

premise or in some building so far removed from the dwelling that there may be no danger of infection. All persons handling the milk are required either to live away from the house in which the disease occurs or to use such precautions as will prevent any danger of conveying the infection to the milk product.

As showing the readiness of dairymen to consent to the regulations of the Bureau, the table of the number and location of dairy premises upon which contagious diseases were reported between October 31, 1914, and October 31, 1915, indicates that only in ten instances out of fifty-three outbreaks of contagious diseases on such premises was it necessary to prohibit the sale of milk. Since this law went into operation there has only been one instance in which cases of contagious diseases have been traced to infection through milk sold from premises upon which cases of scarlet fever, typhoid fever and diphtheria have occurred subsequent to the exercise of supervision over the sale of milk by the State Department of Health.

NUMBER AND LOCATION OF DAIRY PREMISES ON WHICH CONTAGIOUS DISEASES WERE REPORTED AND INVESTIGATED DURING THE YEAR ENDING OCTOBER 31, 1915.

LOCATION OF DAIRIES.		County.	Diphtheria.	Scarlet Fever.	Typhoid Fever.	Tuberculosis.	Dysentery.	Amount of milk produced on premises daily.	Place to Which Milk Was Shipped.	Action Taken to Prevent Spread of Infection.
Sanitary District.										
Garfield Borough.....	Bergen.....	1					350 qts.	Passaic and Garfield.	Sale prohibited by local board.	
Midland Township.....	Bergen.....	1					1200	Faterson.	Isolation.	
Norwood Borough.....	Bergen.....	1					150	Closter and Nyack.	Isolation.	
Saddle River Township.....	Bergen.....	1					180	Faterson.	Sale prohibited by local board.	
Union Township.....	Bergen.....	1					30	Faterson.	Isolation.	
Chester Township.....	Burlington.....	1					110	Lynchhurst.	Sale discontinued.	
Easthampton Township.....	Burlington.....	1					400	Riverton.	Isolation.	
Southampton Township.....	Burlington.....	2					40	Merchandise.	Isolation.	
Delaware Township.....	Camden.....	2					450	Merchandise.	Sale prohibited.	
Deerfield Township.....	Camden.....	2					30	Camden.	Isolation.	
Deerfield Township.....	Cumberland.....	1					60	Haddonfield.	Isolation.	
Hopewell Township.....	Cumberland.....	1					60	Bridgeton.	Sale prohibited.	
Stow Creek Township.....	Cumberland.....	1					60	Darelown.	Isolation.	
Harrison Township.....	Cumberland.....	1					16	Bridgeton.	Patient removed.	
South Harrison Township.....	Gloucester.....	1					84	Bridgeton.	Patient removed.	
Washington Township.....	Gloucester.....	1					40	Camden.	Isolation.	
Bethlehem Township.....	Hunterdon.....	1					100	Woodstown.	Isolation.	
Clinton Township.....	Hunterdon.....	1					30	Blackwood.	Sale prohibited by local board.	
East Amwell Township.....	Hunterdon.....	1					80	Bloomsbury.	Isolation.	
Ewing Township.....	Hunterdon.....	1					58	Lebanon.	Isolation.	
Hopewell Borough.....	Mercer.....	1					75	Rings.	Isolation.	
Ewing Township.....	Mercer.....	1					20	Trenton.	Isolation.	
Piscataway Township.....	Middlesex.....	1					200	Hopewell.	Isolation.	
Woodbridge Township.....	Middlesex.....	1					300	Trenton.	Isolation.	
Atlantic Township.....	Monmouth.....	1					60	New Brunswick.	Isolation.	
Atlantic Township.....	Monmouth.....	1					35	Perth Amboy.	Isolation.	
								Colts Neck.	Isolation.	

NUMBER AND LOCATION OF DAIRY PREMISES ON WHICH CONTAGIOUS DISEASES WERE REPORTED AND INVESTIGATED DURING THE YEAR ENDING OCTOBER 31, 1915—Continued.

LOCATION OF DAIRIES.		County.	Diphtheria.	Scarlet Fever.	Typhoid Fever.	Tuberculosis.	Dysentery.	Amount of milk produced on premises daily.	Place to Which Milk Was Shipped.	Action Taken to Prevent Spread of Infection.
Sanitary District.										
Atlantic Township.....	Monmouth.....	1					60	Kearny.	Sale prohibited.	
Upper Freehold Township.....	Monmouth.....	1					46	New Egypt.	Sale prohibited.	
Upper Freehold Township.....	Monmouth.....	1					50	New Egypt.	Sale prohibited.	
Hanover Township.....	Morris.....	1					15	Mountain Lakes.	Sale discontinued.	
Monville Township.....	Morris.....	1					200	Boonton.	Isolation.	
Plumstead Township.....	Ocean.....	1					100	New Egypt.	Isolation.	
Hawthorne Borough.....	Passaic.....	1					200	Paterson.	Isolation.	
Paterson City.....	Passaic.....	1					40	Paterson.	Sale prohibited by local board.	
Totowa Borough.....	Passaic.....	2					90	Paterson.	Isolation.	
Wayne Township.....	Passaic.....	1					160	Paterson.	Isolation.	
Manning Township.....	Salem.....	1					120	Sharptown.	Isolation.	
Pilesgrove Township.....	Salem.....	1					80	Woodstown.	Isolation.	
Bedminster Township.....	Salem.....	1					300	Woodstown.	Isolation.	
Franklin Township.....	Somerset.....	1					40	Lamington.	Sale prohibited.	
Hillsboro Township.....	Somerset.....	1					40	New Brunswick, B. Brook.	Isolation.	
Green Township.....	Sussex.....	1					90	New Brunswick.	Isolation.	
Frankford Township.....	Sussex.....	1					220	Andover.	Isolation.	
Hampton Township.....	Sussex.....	1					160	Branchville.	Sale prohibited.	
Vernon Township.....	Sussex.....	1					200	Branchville.	Sale discontinued.	
Roselle Borough.....	Sussex.....	1					120	Vernon.	Isolation.	
Belvidere Township.....	Union.....	1					50	McAfee.	Isolation.	
Franklin Township.....	Warren.....	1					12	Elizabeth.	Patient removed.	
Franklin Township.....	Warren.....	2					45	West Portal.	Isolation.	
Greenwich Township.....	Warren.....	2					80	Bloomsbury.	Isolation.	
Totals 53 premises.....			25	16	19	2	1	6706		

NUISANCES.

Under the provisions of Chapter 68 of the Laws of 1887 local boards of health are given power to define what nuisances are in public and private places and also to pass ordinances for the abatement of certain classes of nuisances affecting health.

More and more of the theory is gaining ground that many of the nuisances of which private citizens make complaint to local boards of health are not of such a nature as to seriously affect inhabitants, but nevertheless the average citizen always applies to the local boards of health as the body to abate any nuisance which is a source of discomfort, even though it may have no direct bearing on the health of individuals.

Local boards of health when appealed to in cases of this kind frequently ask the State Department of Health to send a representative for the purpose of outlining the action which should be taken by local boards for the abatement of given nuisances. Private citizens who have appealed to local boards for the abatement of nuisances and fail to obtain relief address many communications to the State Department of Health asking that the Board take immediate action.

Under the present law the State Department of Health acts in these cases merely in an advisory capacity, and as a rule the complaints are referred directly to the local boards of health with a request that investigations be made and such action taken as is proper in the premises.

Although the State Department of Health has no power to abate nuisances affecting health unless a local board has failed to take action, nevertheless when a representative is sent to a given locality to investigate complaints of citizens an opportunity is given to meet with the local board of health and to learn whether the health administration of the locality is effective. Often one meeting with the board under these circumstances has led to improvement in the enforcement of health laws in the locality.

There are at times, however, certain classes of nuisances which are called to the attention of the local boards which have a direct bearing upon the health of citizens, such as extensive nuisances caused by large factories or by offensive trades. The State Department of Health, where evidence is obtained to show that the nuisance is of such a character as to affect the health of the citizens, may under the statute apply to the Court of Chancery for an injunction. Experience, however, has shown that when the effort is made to secure affidavits of citizens and physicians that a nuisance affects the health of people it is almost impossible to collect a sufficient amount of evidence to warrant an application to the Court for an injunction.

Under the provisions of the Act of 1914 reorganizing the State Board of Health a code may be adopted which will empower the Department of Health to bring suit for the violations of the code and thus deal directly with all complaints of nuisances which are forwarded to the Department by private individuals. When in future, therefore, a private

individual makes complaint that the local board of health of any given sanitary district in the State has failed to abate a nuisance affecting the health of citizens, a representative of the Department will be detailed to make an investigation of the complaint and report as to the exact conditions which exist. It may be that by correspondence these numerous complaints may be dealt with, and yet the evident intention of the law is that the Department of Health shall have direct supervision over the failure of local boards of health to comply with the State Code, and therefore an increase in the investigations of individual complaints is anticipated.

The following table indicates the various types of nuisances which the Bureau is called upon to investigate.

NUISANCES INVESTIGATED DURING YEAR ENDING OCT. 31, 1915.

Location Sanitary District.	County.	Date of Investigation.	Nature of Complaint.
1. Egg Harbor Twp.	Atlantic	Dec. 1, 1914	Rendering plant
2. Edgewater Boro.	Bergen	June 19, 1915	Overflowing cesspools
3. Ocean City Boro.	Cape May	June 9, 1915	Mosquito breeding
4. Glen Ridge Boro.	Essex	Feb. 9, 1915	Ashes, garbage dump
5. West Windsor Twp.	Mercer	Mar. 30, 1915	Unburied carcasses
6. Piscataway Twp.	Middlesex	Dec. 31, 1914	Unburied carcasses
7. Piscataway Twp.	Middlesex	Mar. 12, 1915	Rendering plant
8. Piscataway Twp.	Middlesex	May 25, 1915	Rendering plant
9. Piscataway Twp.	Middlesex	June 16, 1915	Mosquito breeding
10. Piscataway Twp.	Middlesex	Sept. 11, 1915	Rendering plant
11. Asbury Park City	Monmouth	June 26, 1915	Rubbish dump
12. Manasquan Boro.	Monmouth	June 7, 1915	Overflowing cesspool
13. Monmouth Beach Boro.	Monmouth	April 22, 1915	Disposal of garbage
14. Neptune Twp.	Monmouth	June 26, 1915	Rubbish dump
15. Passaic Twp.	Morris	July 8, 1915	Disposal of cesspool cleanings
16. Paterson City	Passaic	Mar. 12, 1915	Disposal of household waste
17. Paterson City	Passaic	April 10, 1915	Garbage dump
18. Penns Grove Boro.	Salem	June 10, 1915	Mosquito breeding
19. Franklin Twp.	Somerset	Dec. 4, 1914	Mosquito breeding
20. Fanwood Twp.	Union	June 3, 1915	Hog-pens

All were referred to local boards except No. 4, where no action was taken, and Nos. 5 and 13, in which no action was necessary.

FUTURE WORK.

Much of the work done by the Bureau of Contagious Diseases and Sanitary Inspection, such as the investigation and restriction of the spread of outbreaks of communicable diseases, and the investigations of nuisances, cannot be planned for in advance and conducted in a regular routine manner. This purely emergency work the Bureau is at all times in readiness to perform upon short notice.

The investigation of reported cases of communicable diseases occurring on dairy premises; the regulation or prohibition of the sale of dairy

products produced thereon; advising with local boards of health in the preparation and adoption of ordinances and the enforcement of local health regulations are likewise services which the Bureau is called upon to render at any time.

Investigations as to the undue prevalence of preventable diseases in localities, sanitary surveys, correspondence with local boards of health and local health officials failing to comply with the law in reporting diseases, and the inspection of institutions and public buildings, represent the different phases of routine work conducted by the Bureau when emergencies do not claim the attention of the inspection force.

Analysis and interpretation of the data contained in morbidity reports handled by the Bureau is a matter which has received too slight attention in the past. For the lack of time in which to properly study and apply the information contained in these records a greater part of their value is lost.

Investigations which are now in progress by the Bureau which will probably not be completed and reported upon prior to October 31, 1915, are:

1. Study of an extensive and prolonged outbreak of diphtheria in the New Jersey State Village for Epilepsy at Skillman.
2. Surveys in certain localities in which malaria is unduly prevalent.
3. Enforcement of Health Laws in Penns Grove.

MORBIDITY AND MORTALITY TABLE FOR BERGEN COUNTY. BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

Table with 11 columns: Sanitary Districts, Estimated population, Typhoid fever (Cases, Deaths), Diphtheria (Cases, Deaths), Scarlet fever (Cases, Deaths), Tuberculosis (Cases, Deaths), Chicken pox (Cases, Deaths), Malaria (Cases, Deaths), Anterior poliomyelitis (Cases, Deaths).

MORBIDITY AND MORTALITY TABLE FOR BERGEN COUNTY.—Continued. BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

Table with 11 columns: Sanitary Districts, Estimated population, Typhoid fever (Cases, Deaths), Diphtheria (Cases, Deaths), Scarlet fever (Cases, Deaths), Tuberculosis (Cases, Deaths), Chicken pox (Cases, Deaths), Malaria (Cases, Deaths), Anterior poliomyelitis (Cases, Deaths).

Totals. 171,596 98 18 320 29 355 9 266 176 346 15 1 1. One death from hydrophobia in Franklin Township. Two cases of ophthalmia, one in Garfield Borough; one in Glen Rock.

MORBIDITY AND MORTALITY TABLE FOR BURLINGTON COUNTY,
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANTARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Chicken pox.		Small-pox.		Hydrophobia.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Bass River Township.	735														
Beverly City.	2,450	1		4	1			4	4						
Bordertown City.	2,719	7		4	4	1		2	2						
Bordertown Township.	4,095	1		17	1	1		7	8						
Burlington City.	529			3					1						
Burlington Township.	9,044	17	2	30	2	4		16	17						
Chester Township.	1,424	2		6		1		2	2						
Chesterfield Township.	1,228	1		4	1	1		11	4						
Cinnaminson Township.	1,585	1		2	1	1		5	4						
Delran Township.	1,409	2		4		1		1	1						
Easthampton Township.	1,396			9	1	1		1	2						
Feldsboro Borough.	510	36		8	4	4		21	8						
Florence Township.	6,240	2		2	1	1		1	1						
Lamberton Township.	1,854														
Mansfield Township.	1,597			7											
Medford Township.	1,978														
Mount Laurel Township.	1,736	2		2		1		3	1						
New Hanover Township.	5,637	7		8	2	1		17	10						
Northampton Township.	5,692	1				10		4	4						
Pala, Township.	3,285			1											
Pemberton Borough.	1,865	2		2		2		2	1						
Pemberton Township.	5,465	2		13	3	5		26	11			1			
Riverside Township.	2,141	2		7				8	5						
Sharon Township.	300	4						2	1						
Southampton Township.	1,848					1									
Springfield Township.	1,329	1													
Tabernacle Township.	1,479	1													
Washington Township.	672	2		1				1							
Washington Township.	612	2													
Willingboro Township.	703	3		2											
Woodland Township.	678	3													
Totals.	74,737	99	10	141	13	31		137	80	90	1	1	1	1	1

One case of malaria in Mt. Laurel Township.

MORBIDITY AND MORTALITY TABLE FOR CAMDEN COUNTY,
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANTARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Chicken pox.		Malaria.		Anterior poliomyelitis.		Ophthalmia.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Audubon Borough.	3,009																
Berlin Township.	2,076																
Camden City.	102,215	55	10	34	3			10	5	4							
Centre Township.	3,710	9		8				331	140	115							
Chestnut Township.	314			3				6	6								
Clintons Township.	3,582	5		5	1	3		9	7								
Collingswood Borough.	6,600	6		6		3		2	3								
Delaware Township.	2,297	6		6		2		15	2								
Grover Township.	10,554	14	2	13	1	7		20	19	22							
Gloucester City.	2,784	9	1	1		1		14	5	6							
Gloucester Township.	5,077	3		2		1		3	3	1							
Haddon Township.	2,792	2		1		1		6	6	4							
Haddon Heights Borough.	2,907	1						3	3	3							
Laurel Springs Borough.	2,701	1		1		1		2	2	8							
Merchutville Borough.	2,792	1															
Oaklyn Borough.	2,792	1		1		1		1	1	6							
Pensauken Township.	5,793	2		8		4		8	7	7							
Voorhees Township.	1,543	1															
Waterford Township.	1,930	4		1		1		2	1	4							
Winslow Township.	3,831	4		3	1			1	1	1							
Woodlyne Borough.	878							8	9								
Totals.	163,221	113	13	266	42	56	3	455	236	200	3	1	1	1	1	1	1

Five cases of smallpox and three cases of anthrax, and one death in Camden.

MORBIDITY AND MORTALITY TABLE FOR CAPE MAY COUNTY.
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Chicken pox.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Avalon Borough.....	323										
Cape May City.....	2,513	1	1					1	1	1	1
Cape May Point Borough.....	170							4	1		
Dennis Township.....	1,804	1	3								
Lower Township.....	1,271	1	1								
Middle Township.....	3,383			2	1			3	4		
North Wildwood Borough.....	1,088										
Ocean City.....	3,721	1	1	3	1	8		6	5	1	26
Sea Isle City.....	955										
Stone Harbor Borough.....	459			5							
South Cape May Borough.....	19										
Upper Township.....	1,589	1	1					2	2		
West Cape May Borough.....	1,068							4	4		
Wildwood City.....	3,858			11	1	2		2	1		
Wildwood Crest Borough.....	317	1									
Woodbine Borough.....	1,869			14	1	1				2	6
Totals.....	24,407	7	1	40	4	11		23	20	36	

MORBIDITY AND MORTALITY TABLE FOR CUMBERLAND COUNTY.
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Chicken pox.		Small-pox.		Malaria.		Hydrophobia.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Bridgeton City.....	13,611	9	2	8		2		34	16	13							
Commercial Township.....	2,624			4				3	4	6							
Deerfield Township.....	3,621	3				8		1	1	1			4				1
Downe Township.....	1,570			3													
Fairfield Township.....	1,621					3		2	1	10							
Greenwich Township.....	1,147	2															
Hopewell Township.....	1,807					1		3	2	1							
Landis Township.....	8,658			8		6		9	11	34							
Lawrence Township.....	1,801	2		2				3	2	2			4				1
Maurice River Township.....	2,221																
Millville City.....	13,307	15	4	32	1	16		19	11	67							127
Stow Creek Township.....	962	1	1	8	1	1		1	1	1							1
Vineland Borough.....	6,531	1				1		13	14	1							
Totals.....	59,481	33	7	66	2	37		90	65	133			135				1

MORBIDITY AND MORTALITY TABLE FOR ESSEX COUNTY.
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tubercu-losis.		Chicken pox.		Malaria.		Anterior poliomye-litis.		Trachoma.		Ophthal-mia.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Belleville Town.	11,906	6	1	52	27	36	13	45	27	13	45	1	1	1	1	1	1	1	1
Bloomfield Town.	17,308	8	1	48	4	17	17	58	36	14	58	1	1	1	1	1	1	1	1
Caldwell Borough.	3,409			1		2			23	9									
Caldwell Township.	2,976								35	3									
Cedar Grove Township.	40,743	16	3	70	2	105	3	177	93	36	177	4	1	1	1	1	1	1	1
East Orange City.	4,358			1		11		4	6	4	36								
Essex Falls Borough.	4,153	4	1	74	2	56	3	42	42	34	115	1	1	1	1	1	1	1	1
Glen Ridge Borough.	20,342								3	2	12								
Irvington Town.	1,202			2	1	3	1	2	3	2	17								
Livingston Township.	4,372	9	2	51	1	35	3	128	71	30	128	10	1	1	1	1	1	1	1
Milburn Township.	25,029	107	13	1,239	56	618	11	821	1,921	821	1,573	51	1	3	1	59	27	1	1
Montclair Town.	366,721			3		21		8	8	1									
Newark City.	7,987	5	3	61	2	55	1	108	56	8	87	5	1	1	1	1	1	1	1
North Caldwell Borough.	29,805								1	1									
Orange City.	593								4	4									
Roseland Borough.	5,866			4		9		7	7	4	21								
South Orange Township.	4,676	2		7	1	6		7	7	3	52	2							
Verona Borough.	2,643			2		4		7	7	6									
West Caldwell Borough.	690								4	1	4								
West Orange Town.	13,610	2		33		36		19	46	19	55								
Totals.	566,324	172	23	1,675	74	1,013	20	2,435	1,065	2,376	74	2	10	3	61	29	1	1	1

One case of smallpox in East Orange City. One case of hydrophobia in Newark.

MORBIDITY AND MORTALITY TABLE FOR GLOUCESTER COUNTY.
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tubercu-losis.		Chicken pox.		Small-pox.		Anterior poliomye-litis.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Clayton Borough.	1,720														
Deptford Township.	2,130			1	2	1	1	3	7	4	5	2	2		
East Greenwich Township.	1,614			1		1		3	7	2	1	1	1		
Elk Township.	1,042			3		1		1	2	2	1	1	1		
Franklin Township.	3,008														
Glassboro Township.	3,030			3	1	5		12	8	1	1	1	1		
Greenwich Township.	1,155			1	1	1		3	3	8					
Harrison Township.	1,793			3		1		1	1	1	1	1	1		
Lagan Township.	1,521														
Mantua Township.	1,849			3		1		6	4	4	4	1	1		
Monroe Township.	3,490			2	1	1		4	4	4	1	2			
National Park Borough.	529			3		1		3	3	3					
Pauisboro Borough.	2,876			7		1		4	4	1	2				
Pitman Borough.	2,577			1		1		1	1	1	1				
South Harrison Township.	687			5		1		3	3	3					
Swedesboro Borough.	1,738			1	1	1		3	3	1	1	1	1		
Washington Township.	1,626			4		1		2	2	4	4				
Wenonah Borough.	821			1		1		2	2	4	4				
West Deptford Township.	1,728			2	1	4		4	4	3	3	1	1	1	1
Westville Borough.	2,036			3		2		1	1	8	4				
Woodbury City.	5,288			1		1		1	1	2	4				
Woodwich Township.	1,311														
Totals.	43,587	56	6	29	3	13		75	68	31	1	5	1	1	1

One case of ophthalmia in Monroe Township.

MORBIDITY AND MORTALITY TABLE FOR HUDSON COUNTY.
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Chicken pox.		Malaria.		Anterior poliomyelitis.		Trachoma.		Ophthalmia.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Bayonne City	64,461	14	...	198	20	111	1	206	110	23	4	1	2	...	...	...	...	...	...
East Newark Borough	2,873	3	...	5	1	11	...	6	3	...	...	...	...	...	...	...	...	...	...
Guttenberg Town	6,322	2	...	28	4	17	...	18	7	5	...	...	...	...	...	...	...	...	...
Harrison City	14,520	4	...	18	4	4	...	60	25	8	...	...	...	...	...	...	...	...	...
Hoboken City	67,611	42	9	575	52	134	1	392	156	125	1	1	1	1	1	1	1	1	1
Jersey City	270,903	51	23	1,111	77	801	18	1,140	574	280	1	4	1	1	1	1	1	2	1
Keany Town	22,150	3	2	70	4	104	1	75	28	108	...	...	...	...	...	...	...	...	...
North Bergen Township	20,679	3	...	44	10	42	1	55	28	2	...	...	...	...	...	...	...	...	...
Secaucus Borough	4,906	1	1	8	1	1	...	33	26	...	...	...	...	...	...	...	...	...	...
Town of Union	21,739	4	1	126	4	99	3	94	33	...	...	...	...	...	...	...	...	...	...
West Hoboken Township	13,488	15	2	63	4	33	4	43	22	7	...	...	...	...	...	...	...	...	...
West Hoboken Town	38,776	2	3	164	13	66	4	123	55	11	...	...	...	...	...	...	...	...	...
West New York Town	22,943	7	...	126	7	218	6	89	52	38	...	...	...	...	...	...	...	...	...
Totals	571,371	151	44	2,536	201	1,646	34	2,334	1,119	611	1	6	4	1	3	4	4	3	1

One case of smallpox in Jersey City.

MORBIDITY AND MORTALITY TABLE FOR HUNTERDON COUNTY.
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Chicken pox.		Small-pox.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alexander Township	1,093	...	...	1	...	5	1	1	1	...	...	...	...
Bethlehem Township	975	...	...	...	...	2	...	1	1	...	...	...	...
Bloomfield Borough	630	...	...	3	...	1	...	1	1	...	...	...	...
Clinton Borough	841	...	...	...	...	1	...	1	1	...	...	...	...
Clinton Township	2,157	4	1	7	1	6	1	3	3	1	1	1	1
DeLaware Township	1,941	...	...	...	...	1	...	1	1	...	...	...	...
East Amwell Township	1,351	1	...	...	...	1	...	1	1	...	...	...	...
Frankington Borough	2,635	1	...	8	...	1	...	4	4	...	...	...	...
Franklin Township	1,141	...	...	...	...	...	...	1	1	...	...	...	...
Frenchtown Borough	983	...	...	5	...	1	...	2	2	...	...	...	...
Hamilton Borough	843	...	...	...	...	1	...	1	1	...	...	...	...
High Bridge Borough	1,700	...	...	1	...	5	1	4	4	...	...	...	...
Holland Township	975	...	...	...	...	1	...	1	1	...	...	...	...
Kingwood Township	1,241	3	...	19	...	4	...	2	2	...	...	...	...
Lambertville City	2,211	4	...	3	...	2	...	11	5	...	...	...	...
Lebanon Township	4,600	2	...	1	...	1	...	4	4	...	...	...	...
Milford Borough	687	...	...	...	...	2	...	1	1	...	...	...	...
Readington Township	1,896	2	...	1	...	1	...	3	3	...	...	...	...
Stockton Borough	2,648	1	...	2	...	1	...	4	4	...	...	...	...
Tewksbury Township	613	...	...	...	...	1	...	1	1	...	...	...	...
Union Township	1,734	1	...	1	...	1	...	1	1	...	...	...	...
West Amwell Township	1,054	...	...	1	...	4	...	1	1	...	...	...	...
West Amwell Township	848	...	...	1	...	1	...	1	1	...	...	...	...
Totals	34,697	19	2	54	7	30	47	35	15	1	1	1	1

MORBIDITY AND MORTALITY TABLE FOR MERCER COUNTY,
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Chicken pox.		Malaria.		Anterior poliomyelitis.		Trachoma.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
East Windsor Township.	839	3	3			1	1	2	2	3	3						
Ewing Township.	3,261	5	1	17	1	7	1	30	17	2	2			1			
Hamilton Township.	11,143	5	1	4	3	2	2	4	3	2	2						
Hightstown Borough.	2,592	2	1	3	1	1	1	4	5	2	3						
Hopewell Borough.	1,341	5	2	6	6	3	3	2	2	2	17			1			
Hopewell Township.	3,430	2	1					8	7	2	2						
Lawrence Township.	3,339	1				3	3	8	2	2	2						
Pennington Borough.	944	14	1	16	1	14	5	17	8	35	66			1			
Princeton Borough.	5,678	1		2		5	2	2	2	2	15			9			
Princeton Township.	1,414	62	8	260	22	93	1	404	198	44	1			6			3
Trenton City.	103,190	1		3	1	2	2	1	2	1	1						
Washington Township.	1,215	1		1	1	2	2	2	1	2	2						
West Windsor Township.	1,426	1		1	1	1	1	2	1	1	2						
Totals.	139,812	95	10	312	24	130	2	484	244	111	1	81	1	5	2	4	

Three cases of ophthalmia in Trenton.

MORBIDITY AND MORTALITY TABLE FOR MIDDLESEX COUNTY,
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Chicken pox.		Malaria.		Anterior poliomyelitis.		Trachoma.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Cranbury Township.	1,533	4	3														
East Brunswick Township.	2,877			1		1											
Highland Park Borough.	1,865	1	1	1	1	1	1	2	2	3	3						
Highland Park Borough.	767																
Jamesburg Boro.	2,901			5	1	9	1	4	5	1	1						
Madison Township.	1,865					5	1	1	1	1	1						
Mettuchen Borough.	2,123			3	3	5	1	2	2	2	2						
Middlesex Borough.	2,692	1	1	3	3	3	3	3	2	2	1						
Milltown Borough.	1,310	3	3	3	3	1	1	2	2	1	1						
Monroe Township.	1,902	3	3	3	3	1	1	4	4	2	2						
New Brunswick City.	2,581	1	1	3	3	3	3	6	6	7	7						
New Brunswick Township.	30,019	20	5	28	2	13	1	68	56	7	7	4					
Perth Amboy City.	1,247	9	2	323	16	32	1	80	45	40	40			1			
Piscataway Township.	39,719	5	1	13	7	7	7	4	4	5	5						
Raritan Township.	3,624	2	2	7	1	7	1	9	8	2	2						
Rossvetl Borough.	3,412	7	7	15	6	6	6	4	4	5	5						
Sayreville Township.	8,049	2	1	15	3	9	1	1	1	1	1						
Sayreville City.	6,312	2	1	2	2	2	2	5	4	3	3						
South Amboy City.	7,482	1	1	4	4	9	1	1	1	1	1						
South Brunswick Township.	2,529	2	1	4	2	9	2	3	3	3	3						
South River Borough.	2,529	2	2	2	2	2	2	2	2	2	2						
Spotswood Borough.	6,691	2	2	3	3	3	3	22	8	8	8						
Woodbridge Township.	6,683	8	2	97	2	5	5	30	16	8	8			1			
Totals.	144,716	107	14	524	24	101	3	252	166	74	1	5	2	4			

One case of trachoma in Perth Amboy. Two deaths from ophthalmia in New Brunswick.

MORBIDITY AND MORTALITY TABLE FOR MONMOUTH COUNTY.
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tubercu- losis.		Chicken pox.		Malaria.		Anterior poliomye- litis.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Allenhurst Borough.....	203													
Allentown Borough.....	642	1	1		1		1							
Asbury Park City.....	10,910	7	5		6		16		10	78				
Atlantic Township.....	1,200				8									
Atlantic Highlands Borough.....	1,771	2	3		1		7		3					
Avon Borough.....	707				3		6		5	4				
Belmar Borough.....	2,553	1	2		3		6		5	29				
Bradley Beach Borough.....	2,236				1									
Deal Borough.....	2,164	2	6		2		1		1	1				
Easton Township.....	1,490	1	3		3		5		3					
Englishtown Borough.....	605				1		1		3					
Fair Haven Borough.....	1,490				3		1		1					
Farmingdale Borough.....	3,622	17	10		2		11		10					
Freehold Township.....	2,338	3	3		3		4		3					
Highland Borough.....	1,759	1	3		1		2		3					
Holland Township.....	1,315				3		4		2					
Howell Township.....	2,931				2		3		2					
Keypoint Borough.....	4,019	3	2		2		3		2					
Long Branch City.....	14,565	27	3		65		43		13	102				
Manalapan Township.....	1,467	2	2		3		1		1					
Mansquan Borough.....	1,817	1	2		2		1		2					
Marlboro Township.....	1,842	1	1		1		1		2					
Matawan Borough.....	1,771	1	1		5		2		3					
Matine Township.....	7,795	4	5		4		1		3	5				
Middletown Township.....	1,255	4	1		19		10		4	5				
Monmouth Beach Borough.....	6,774	2	1		1		1		1	1				
Neptune Township.....	614	1	2		1		5		2	5				
Neptune City Borough.....	1,405		2		2		2		1					
Ocean Grove.....	1,955	2	4		3		4		1	1				
Raritan Township.....	8,631	37	1		6		5		4					
Red Bank Borough.....	1,583				19		22		11	2				1
Sea Bright Borough.....	1,327	1	1		11		2		2	1				
Shrewsbury Township.....	2,315						2		2	1				
Spring Lake Borough.....	1,393	2	1						3	3				
Upper Freehold Township.....	2,064	3	2		2		1		5	4				
Wall Township.....	4,338	3	11		3		9		5	4				
West Long Branch Borough.....	1,069	2	1		2		3		4	1				
Totals.....	107,636	150	14	150	19	110	1	176	108	266	7	2	1	2

One case of orophthalmia in Belmar. Two cases of trachoma in Long Branch. One case of anthrax in Asbury Park.

MORBIDITY AND MORTALITY TABLE FOR MORRIS COUNTY.
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tubercu- losis.		Chicken pox.		Malaria.	
	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Boonton Town.....	5,207	1	16	1	3		2		7			
Bernton Township.....	527		1		1		6		1			
Butler Borough.....	2,534	2	1		3		3		2		1	
Chatham Borough.....	2,207		5		1		3		2			
Chatham Township.....	818				2		1		1			
Chestnut Township.....	1,357				11		1		3			
Denville Township.....	1,012				1		3		4			
Dover Town.....	8,971		16		1		21		6		6	
Florham Park Borough.....	970				1		98		11			
Harver Township.....	8,121	3	7		4		19		15			
Jefferson Township.....	1,186		3		1		11		2			
Madison Borough.....	5,628		3		10		19		2			
Mendham Borough.....	1,845				2		2		1			
Mendham Township.....	1,710				2		1		2			
Montville Township.....	13,006	16	1		27		22		19			
Morris Township.....	3,084		2		5		6		2			
Mt. Arlington Borough.....	397				1		1		1			
Mount Olive Township.....	1,084	2	1		1		2		1			
Mount Tabor Borough.....	1,680				3		2		2			
Passaic Township.....	2,457	1	1		8		3		3			
Peteanock Township.....	2,313				3		1		1			
Randolph Township.....	2,545				8		2		1			
Rockaway Borough.....	2,224				1		2		1			
Rockaway Township.....	3,264				14		4		4			
Roxbury Township.....	2,514	1	1		3		5		5		1	
Washington Township.....	2,055	2	4		5		2		1			
Wharton Borough.....	2,591				4		3		1			
Totals.....	81,514	28	4	102	8	88	198	92	26	10		

One death from anthrax in Madison Borough. Two cases of trachoma in Washington Township.

MORBIDITY AND MORTALITY TABLE FOR SALEM COUNTY.
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Chicken pox.		Small-pox.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Alloway Township.....	1,500												
Elmer Borough.....	1,183					3		4	2	1		1	
Elsinboro Township.....	432						1						
Lower Alloway Creek Township.....	1,289												
Lower Penna Neck Township.....	1,605			1	1			1	1				
Manninglet Township.....	1,653	2	3					1	2				
Oldmans Township.....	1,324	3	10					2	4				
Pennsauken Borough.....	4,412	10	3	2	1	1		3	8				
Pittsgrove Township.....	1,763	3	2										
Quinton Township.....	2,169												
Salem City.....	899												
Upper Penna Neck Township.....	6,953	3	1	12		16		20	13	4		1	
Upper Pittsgrove Township.....	1,559	2						3	3				
Woodstown Borough.....	1,984							6	3			6	
Totals.....	30,282	25	3	19	2	27	1	41	35	17		2	

One case of typhus fever and one case of malaria in Salem City.

MORBIDITY AND MORTALITY TABLE FOR SOMERSET COUNTY.
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Chicken pox.		Malaria.		Opht. malaria.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Bedminster Township.....	1,342	2				1	3	1		1					
Bernards Township.....	5,057	2		8	2	22	4	3	2	2					
Bound Brook Borough.....	5,152	10		6	1	4		22	1	33		14		1	
Branchburg Township.....	1,034														
Bridgewater Township.....	2,036			1	1	1		1	1						
Franklin Township.....	3,090	2		2	1	1		3	4						
Hillsboro Township.....	3,168	1		3	1	1		2	3						
Millstone Borough.....	1,154									7		2			
Montgomery Township.....	1,961														
North Plainfield Borough.....	6,037	1		30	1	11	4	11	4	4					
North Plainfield Township.....	1,985			8	4	4		14	14						
Peapack-Gladstone Borough.....	1,346			4		1		1							
Raritan Town.....	4,028					8				2					
Rocky Hill Borough.....	470														
Somerville Borough.....	6,038	11		5		2	16	4	1	4		3			
South Bound Brook Borough.....	1,108	6				6		2	2	10		11		2	
Warren Township.....	1,099			1											
Totals.....	44,123	35	1	84	5	51		80	40	54		31		3	

MORBIDITY AND MORTALITY TABLE FOR SUSSEX COUNTY.
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Chicken pox.		Malaria.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Andover Borough.	479												
Andover Township.	504												
Branchville Borough.	620												
Lyram Township.	437												
Frankford Township.	1,096												
Franklin Borough.	3,262												
Fredon Township.	448												
Green Township.	504												
Hampton Township.	700												
Hardynton Township.	2,030												
Hopatcong Borough.	234												
Lafayette Township.	687												
Montague Township.	630												
Newton Town.	4,433												
Ogdensburg Boro.	600												
Sandyton Township.	796												
Sparta Township.	1,170												
Stanhope Borough.	1,028												
Sidewater Township.	1,891												
Sussex Borough.	1,251												
Vernon Township.	1,604												
Walpack Township.	1,304												
Wantage Township.	12,269												
Totals.	25,977	21	1	20	2	20	18	27	45	154			

One case of trachoma in Franklin borough.

MORBIDITY AND MORTALITY TABLE FOR UNION COUNTY.
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Chicken pox.		Small pox.		Malaria.		Trachoma.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Clark Township.	541																
Cranford Township.	4,967																
Elizabeth City.	82,036																
Fanwood Borough.	699																
Garwood Township.	1,970																
Hillside Township.	1,642																
Kenilworth Borough.	997																
Linden Borough.	1,130																
Linden Township.	3,826																
Mountainside Borough.	1,421																
New Providence Borough.	847																
Plainfield City.	24,516																
Rahway City.	9,586																
Roselle Borough.	3,823																
Roselle Park Borough.	4,327																
Springfield Township.	1,619																
Summit City.	9,136																
Union Township.	3,167																
Westfield Town.	8,147																
Totals.	167,322	68	10	397	26	178	4	567	273	557	2	1	24	4			

One case of typhus fever in Elizabeth. One case of ophthalmia in Plainfield. One case of anterior poliomyelitis in Garwood Borough.

MORBIDITY AND MORTALITY TABLE FOR WARREN COUNTY,
BY SANITARY DISTRICTS FOR THE YEAR ENDING OCTOBER 31, 1915.

SANITARY DISTRICTS.	Estimated population.	Typhoid fever.		Diphtheria.		Scarlet fever.		Tuberculosis.		Malaria.		Hydrophobia.	
		Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.	Cases.	Deaths.
Allamuchy Township.....	866												
Alpha Borough.....	2,084	2		3	1					1			
Belvidere Town.....	1,823	1		11		12	2						
Blairstown Township.....	1,317	9											
Franklin Township.....	1,310					2							
Frelinghuysen Township.....	1,588												
Greenwich Township.....	1,076			5									
Hackettstown Town.....	2,976	1		13	4			2					
Hardwick Township.....	2,669												
Harmony Township.....	1,465			1		1		1					
Hope Township.....	1,074												
Independence Township.....	1,151			4	1								
Knowlton Township.....	1,195												
Lepacoing Township.....	1,938												
Mansfield Township.....	1,315			1	1			1					
Oxford Township.....	1,973			2	1			2					
Pahquarry Township.....	196												
Phillipsburg Town.....	15,430	15	2	19	4	18	2	22	16			1	1
Pohatcong Township.....	1,634	2	1						2				
Washington Borough.....	3,250	2		1		1		9	8				
Washington Township.....	1,078												
White Township.....	1,237												
Totals.....	44,314	32	5	62	12	36	4	44	43	5	1	1	1

One case of Chickentpox in Phillipsburg.

Report of the Bureau of Creamery and Dairy Inspection

GEORGE W. MCGUIRE, *Chief.*

To the Department of Health of the State of New Jersey:

GENTLEMEN:—I have the honor to submit the following report of the Bureau of Creamery and Dairy Inspection for the year ending October 31, 1915:

During the early part of November, 1914, the Board directed that the inspectors of this Bureau assist in the eradication of the foot and mouth disease, and during its prevalence one or more of our men were engaged in this work.

The outbreak lasted until May, which caused us to partially suspend the work of dairy inspection in order to allay the fears of cattle owners regarding the possibility of the inspectors carrying the infection into their free herds. These fears, however, were groundless inasmuch as the inspectors wore rubber over clothing during their stay on infected premises and thoroughly disinfected it at the end of each day's work. The work of dairy inspection was much curtailed, however, during the prevalence of the epidemic.

During the year there was a total of 4,640 inspections made by our inspectors as follows: Dairies, 2,992; milk depots, 163; creameries, 459; ice cream factories, 1,026.

Of the 3,155 places inspected during the year in which milk was produced, or handled, 170 of the proprietors were given a specified time to improve certain conditions on their premises. Of these, nineteen either failed or refused to comply with the Board's requirements and consequently the milk handled by them was prohibited from sale. In addition to these the milk of forty dairymen was prohibited from sale on account of the existence of extreme unsanitary conditions on their premises. Altogether there were fifty-nine persons prohibited from producing or handling milk for public distribution.

The following forty-seven local boards of health applied to the State Department during the year for an inspection of their milk supplies: Bayonne, Asbury Park, Atlantic City, Atlantic Highlands, Cliffside, Collingswood, Dover, East Rutherford, Elizabeth, Englewood, Fair Haven, Fairview, Franklin, Freehold, Gloucester, Haddonfield, Hightstown, Irvington, Lambertville, Lawrenceville, Little Falls, Long

Branch, Lyndhurst, Morristown, Newark, Newton, North Bergen, Oceanic, Passaic, Paterson, Perth Amboy, Plainfield, Princeton, Rahway, Roselle, Seaside Park, South River, Springfield, Teaneck, Trenton, Vineland, Westfield, West Hoboken, Woodbine, Woodbury, Ridge-wood, Ramsey.

The entire supply of thirty-four of the above municipalities was inspected, and the partial supply of the other thirteen.

During the past summer numerous complaints were received from the residents of several seaside towns regarding the inferior quality of the milk received. The investigations which were made of the milk depots and of the sources of the supply showed that much of the milk produced for consumption in the towns below Manasquan, which had never before been inspected, was lower in quality than that going to the larger towns where the local health boards had long been active in cooperating with the State Department in their efforts to protect the product.

It is purposed to reinspect all these shore dairies before another season opens with a view to placing the results of the investigations before the several local health boards. But unless some active interest is shown by local officials in safeguarding their supplies, our efforts will probably be in vain.

All dealers of milk should be required to be licensed by the local board within whose jurisdiction the milk handled by them is distributed, and until such a statutory requirement is made no guarantee can be given for permanent improvement in the sanitation of the dairies in question.

The following is a summary of the work done in the inspection of dairies from November 1, 1914, to November 1, 1915:

Local boards of health at whose request dairy inspections have been made, 25; dairy inspections made, 2,992; dairies scoring above 60 per cent of the perfect mark, 1,468 (49.1 per cent); dairies scoring below 60 per cent of the perfect mark, 1,383 (46.2 per cent); dairies retiring from the business voluntarily, 141 (4.7 per cent); dairymen given a specified time to improve the sanitary condition of their premises, 170; dairymen complying with the requirements within the time-limit, 54; dairymen NOT complying with the requirements within the time-limit, and whose milk was excluded from sale, 19; dairymen given an extension of time to meet the Department's requirements, 19; dairymen retiring from the business rather than meet the Board's requirements, 14; time-limits pending, 83; dairymen prohibited from producing milk for sale, 59; dairymen whose milk had been prohibited from sale who later met the Board's requirements, 7.

VETERINARY INSPECTION.

In 1909 the Board adopted a form of certificate for the use of veterinarians in their examination of dairy cattle, and dairymen were strongly urged to have their herds examined and send the veterinary certificate to this office. They were offered as an inducement certain added points on the score records of their dairies. Like all official matters relating to dairy sanitation, it was found difficult to interest the

farmers immediately, but by constant urging they have shown a gradual increase of interest in this feature of dairy inspection as the table below will show:

The importance of possessing knowledge of the physical condition of the cattle contributing to the public milk supply has been emphasized by the reports received at this office, which show the presence of various diseases in dairy cattle and the information contained in them gives an opportunity to prevent the distribution of milk which might have a deleterious effect upon those partaking of it.

The enactment of a law in 1914, requiring all dairymen to have their cattle physically examined not less than once a year by a reputable veterinarian, and to send the report of such examination to the State Board of Health, has been productive of good results. As shown in the annexed table, the total number of certificates received this year (2,183) is greater than the entire number received in the five previous years that the rule of the Board has been operative.

The number of veterinary certificates received since 1909 is as follows:

Year	No. Cer- tificates	No. Animals Examined
1909	67	2,612
1910	91	1,974
1911	254	5,173
1912	150	4,352
1913	420	8,949
1914	680	13,235
1915	2,183	35,168

VETERINARY REPORTS SHOWING PHYSICAL CONDITION OF ANIMALS EXAMINED.

COUNTY.	Veterinary certificates received.	Animals examined.	Animals passing physical exam-ination.	Animals tuberculin-tested.	Animals reacting to the tubercu-lin-test.	Animals pronounced tubercular on physical examination only.	Mastitis (Garget).	Cow-pox.	Sore teats.	Other udder diseases.	Metritis.	Premature birth.	Retained after-birth.	Milk astutae.	Mammitis.	Nephritis.	Thinea tonsursans.	Enlarged glands.	Arthritis.	Actinomycosis.	Bronchitis.	Suppurating gland of throat.	Laryngitis.	Rheumatism.	Miscellaneous.	Total diseased animals.			
Bergen.....	19	355	326	79	24																							29	
Burlington.....	62	1,316	1,316	132																								1	
Camden.....	4	55	55																									55	
Cape May.....	10	92	91																									9	
Cumberland.....	2	12	12																									12	
Essex.....	56	1,208	1,046	1,096	151		1		8																			1162	
Gloucester.....	7	150	150	8																								8	
Hunterdon.....	307	3,513	3,458	90	10	10	5		12																			116	
Mercer.....	35	693	681	283	9																							9	
Middlesex.....	29	981	918	724	53	3																						63	
Monmouth.....	138	1,450	1,410	154	8		11		21																			40	
Morris.....	60	1,323	1,267	1,020	55				3																			56	
Ocean.....	11	159	155	12	6																							14	
Passaic.....	56	789	775	30	6																							4	
Salem.....	51	745	721	25	6																							24	
Somerset.....	163	1,777	1,742	294	11	103	2	7	4	2	1	1																35	
Sussex.....	46	865	810	362	46	1	7																					114	
Union.....	587	13,003	12,889	75	1																								118
Warren, N. Y.....	276	2,344	2,326	93	3	5		7	2	1	1																	18	
Warren, N. Y.....	31	594	591																									3	
Chenango, N. Y.....	48	724	721																										9
Delaware, N. Y.....	24	346	346																										24
Madison, N. Y.....	24	346	346																										24
Oneida, N. Y.....	76	1,253	1,253																										76
Oranida, N. Y.....	46	885	885	38	2																								46
Orange, N. Y.....	30	420	420																										30
Bucks, Pa.....	9	102	100	2																									9
Total.....	2,183	35,168	34,467	4,517	379	135	30	19	12	70	3	1	5	2	5	1	2	9	1	3	2	1	1	1	1	19	701		

For the past two years representatives of this Board have personally superintended the disinfection of stables wherein tuberculous animals had been housed. Last year 148 stables located in seventeen counties in the State were visited by the inspectors and the premises thoroughly cleaned and disinfected under their direct supervision. This work was undertaken in the year 1913 because our investigations into dairy conditions throughout the State had disclosed the fact that fresh cattle were being brought into these infected stables with no thought on the part of the owners regarding the cleansing of the quarters after reacting animals had been removed from them. It was found that in many instances the watering troughs and feeding mangers were never cleaned, and that accumulations from intestinal discharges under wooden floors and the cracks and crevices of the stables were seldom, if ever, removed, thus rendering the whole premises an extremely dangerous environment for the stabling of fresh stock.

In some instances as much as a full week's time of one inspector was spent in superintending the disinfection of a single premises, and in every case the work required at least a full day's time.

During the month of November, 1914, the Board directed that the premises occupied by a large dairy firm in Essex County be inspected, and that the barns and surroundings be thoroughly cleaned and disinfected under the direct supervision of our inspectors. This action was requested by the local board of health within whose jurisdiction the dairy is located, it being alleged at the time that 40 per cent of the 710 cattle on the premises were infected with tuberculosis. Inspectors Goehrig and Robertson were detailed to inspect the premises and to supervise the disinfection of the dairy. The first visit to the dairy was made by Dr. Robertson on November 2d, since which time either he or Mr. Goehrig was present on the following dates while the work was in progress: November 4th, 5th, 6th, 7th, 9th, and 12th.

On the arrival of the inspectors at the dairy it was learned that 190 cows, or 26.8 per cent of the whole herd, had been condemned for tuberculosis. All of these cows, with the exception of thirty-eight, were slaughtered. It was impossible to remove the remaining thirty-eight cows on account of the sudden outbreak of foot and mouth disease in the State, without violating the regulations of the Federal and State authorities regarding the movement of cattle. They were then placed in a quarantine barn about half a mile from the dairy buildings, but were subsequently destroyed and the quarantine barn disinfected.

The methods pursued in the disinfection of the premises were as follows:

On the arrival of our inspectors, the manure and bedding from the stables had all been removed to fields remote from the barns and was inaccessible to the cattle. The floors, side-walls, gutters, and all the interior surfaces of the barns were first scraped, and the scrapings disinfected and deposited in the manure. The woodwork, stanchions,

center aisle, feeding gutters, manure gutters, side-walls and ceilings were scrubbed with a strong warm solution of sal soda. An abundance of hot water was available for this purpose. In Barn 2, or the certified barn, the stanchions were made of iron, and in Barn 1, which is also a certified barn, part were made of wood and part of iron. In Barns 3 and 4 the stanchions were all wood, and they were all taken down, soaked and scrubbed with a sal soda solution. The wooden floor of Barns 1 and 3, wherever worn or leaky, was torn up and replaced by new boards. The entire wooden floor surface, except the center feeding aisle of Barns 1 and 3 was treated with a layer of hot pitch and ground limestone, which made the surface temporarily non-absorbent. The next step was to spray the side-walls, ceilings, windows, floors, bedding and watering troughs, center aisle, manure gutters and stanchions with a 6 per cent solution of Merke's (U. S. P.) No. 8 Phenol. A strong spray pump was used for this purpose and it worked well. The side-walls for a space of six inches from the floor, and the wooden framework below the stanchions were coated with pitch. Barn 2, which is constructed of cement, has had an interior coat of white-wash.

The method of removing the manure from Barns 1 and 3 was by pushing it through the cement gutters into large iron scuttles located in a tunnel at the end and center of the barn. When the scuttle was filled the contents were dumped into a cart.

The side-walls and ceilings of the tunnels under the barns where the manure wagons are placed were scraped and coated with lime-wash.

Before the disinfection was completed, our officers were withdrawn for the purpose of assisting in the investigation of the foot and mouth disease outbreak in Hudson County. In the meantime the following recommendations were made to the owners who had a force of men employed to carry out our instructions:

Turn over that portion of the land which constitutes the approaches to the stables in which the animals infected with tuberculosis were housed. Also turn over the surface of the earth floor in the tunnel where the manure wagons are located, after which cover the surfaces with slaked lime.

In Barns 1 and 3, thoroughly cleanse the top and bottom of the sides in the manure gutter and disinfect them.

Scrape the interior of the scuttles more frequently and disinfect them. Also, thoroughly scrape and disinfect the manure carts.

Thoroughly scrape the side-walls and all surfaces of the manure alley in Barn 4; then white-wash.

Saturate the manure pile in the vicinity of the dormitories with a solution of chloride of lime in the proportion of six ounces to one gallon of water.

After the remaining thirty-eight cows have been removed from the premises, thoroughly cleanse and disinfect the barn in which they had been temporarily housed.

The above recommendations were all carried out by the management of the dairy and the work was again inspected by our officers on November 18th, 20th and 23d. Owing to the large number of cattle which had reacted to the tuberculin test in this dairy, many articles, sensational

and otherwise in character, appeared in the newspapers in this and other states, criticising the management of the dairy as well as the Medical Milk Commission with whom it had a contract to fulfill certain requirements in return for the Commission's certificate.

The report of the Chief of this Bureau on the disinfection of the dairy was submitted by the Board to the Medical Milk Commission, in November, 1914, together with the following report of the general conditions of the dairy:

"The presence of our officers in this dairy afforded a good opportunity of observing the methods in handling milk, and gave us a clear idea of the degree of efficiency with which the dairy is managed.

"The methods used at the milking period were good. The bodies of the cows were thoroughly brushed; the flanks and rear quarters wiped with a piece of burlap, and afterward sprayed with a mild disinfectant. The udders were washed and wiped, a clean cloth being used for every eight cows. The hair from the hind quarters is frequently clipped. The milking is supervised by a herdsman who sees to it that each man wears a clean laundered suit and cap each day. Before proceeding with the milking, each man washes his hands, using liquid soap, and paper toweling for drying them, the galvanized stool of each milker being washed at the same time. The milkers then pass in review before the herdsman and proceed with their work. The small-mouth pail is used and the men milk with dry hands. This process seems to be entirely satisfactory.

"When the pail is filled it is covered and taken to a small room at the end of the stable and poured by an attendant into a regular forty-quart milk can. The covered can of milk is sent over a trolley to the receiving room on the second floor of the milk house.

This room is located at a distance of about 200 feet from the nearest barn. When the can arrives at the milk house, the milk is poured through a round cement conductor over the brine cooler, which is located on the floor below. The top of the cooler is covered with a cheese-cloth strainer. The milk flows directly over the cooler to the bottling machine, which is equipped with a capper, and after sealing, the bottles are at once placed in cold storage at a temperature below 50° F.

"During the time that the milk is being discharged from the cans through the cement conductor, it is protected by a muslin screen, thus preventing any dust or flies from getting into the milk.

"The practice at this dairy is to first milk the cows in the certified barns, 1 and 2, and bottle and cap the milk intended for certification. The milkers then proceed to Barns 3 and 4 and send milk over trolleys to the same dairy house where it is strained, bottled and capped by the same apparatus that is used in the handling of certified milk. In order to designate the certified milk from the ordinary milk, different style caps are used on the bottles.

"The dairy house is equipped with washing and sterilizing apparatus, and the work is evidently well done. All the cans, bottles, milk pails and utensils are first washed in a soda solution, and then the bottles are run through a hydraulic washing machine. All utensils of every description and containers are finally placed in a sterilizing chamber and retained there for twenty minutes at a steam pressure of about five pounds.

"The milk which is drawn from the thirty-eight reacting cows is mixed with the manure on the premises where they are kept.

"There are employed in this dairy about seventy men, who are housed on the premises near the horse barn. For their accommodation there are two dormitory buildings, one dining room, a kitchen, and toilet within an area of one acre. There are also a blacksmith shop, slaughtering

house, wagon shed, toilet and cesspool, horse barn and cow barn No. 4 on the same plot.

"The toilet room is equipped with two flush closets, a lavatory, a urinal, three shower baths and bath tub. This toilet room was constructed to take the place of the unsanitary privy which the Board condemned about a year ago. The bath tub and showers are seldom, if ever, used. At the time of making this inspection, the interior was found in a filthy condition. The closet bowls had been used, and were filled with the men's discharges and fecal matter was strewn upon the seats and floor. Everything pointed to the gross carelessness on the part of the employees, and a lack of proper oversight so far as their personal habits were concerned.

"This toilet room is connected with a cesspool located about 125 feet in the rear. The cesspool is 10x10x6 feet deep, covered with concrete, and has a screened vent. The effluent, however, flows into the surrounding marshes. The pig-pens which were formerly located near the kitchen have been removed to a considerable distance.

"Upon a former inspection the owners of this dairy were requested to have special receptacles for carrying milk to the kitchen for the use of the employees. Apparently, this request has never been complied with, as the ordinary milk cans were found in the kitchen, and empty milk bottles thrown upon the ground outside of the kitchen door. On account of the careless habits of these men, I would again suggest that special containers, marked in such a way that they can be identified should be provided, thus preventing the indiscriminate use of certified milk containers about the premises.

"In the rear of Barns 1 and 3, there are privies for the use of the men while employed about the barns. These privies, while in much better condition than the toilets above mentioned, should receive more care than is evidently given them. One of the receptacles was very full, and the door on one lacked a spring. Lime should be frequently used on the contents of these privies, and they should be kept fly-tight. After a visit to these privies, the men are required to wash their hands at the wash basin which is provided in the cow stables.

"I recommend that the owners of the dairy be requested to make the following improvements on their premises:

"Make a tight partition between the loft and receiving room of the milk house.

"Place tight spring on the door of the privy in the rear of Barn 3.

"Remove the contents of the privies in the rears of Barns 1 and 3 with greater frequency. Use frequent applications of lime on the contents of the receptacles.

"Provide special receptacles with some identifying mark for conveying milk to the employees of the kitchen.

"Thoroughly clean and disinfect the main toilet room.

"Construct a second cesspool in connection with the one recently built and disinfect the ground surrounding it with a solution of chloride of lime in the proportion of six ounces to one gallon of water.

"The common feeding and watering troughs in these stables are made of cement, and the edge of the trough is flush with the floor between two rows of cattle. While this is a common practice in the construction of these troughs in high class dairies, I think if a cement ridge three or four inches high were placed in front of the troughs it would be an improvement, and prevent the washings from the floor flowing into the feeding or watering troughs.

"The score of this dairy, herewith enclosed, will show that it is awarded 92 per cent. A rule of this Board requires all certified dairies to reach a score of 95 per cent before they can be approved. The reasons for making the cuts on the score-card are as follows:

"On Item 3, the perfect score is three points. No award is allowed because the veterinarian's report is not clear regarding the authenticity of the test, by whom it was made and when. The explanatory note in this report states that 468 of the cows were shipped to the dairy barn from New York and Ohio since October 1st, 1913, and that they were all tested before being shipped to New Jersey. This statement in the veterinarian's report is not clear as to whether or not the test was properly made. Our investigation shows that 190 of these cows subsequently reacted to the test and were disposed of by the owners of the dairy. Our inspection of this dairy also shows that there are forty-eight cows still in the dairy which have not been tested on the premises. It is our practice not to give credit under this item unless we have evidence that the cows have been properly tested on the premises by a regularly licensed veterinarian, and all reactors removed from the herd. There is no evidence that the forty-eight cows are tuberculous, as it is asserted that they were tuberculinized in New York State and that a sufficient time has not elapsed for a retest. When these cows are retested and the reactors removed, the full award will be given on the score-card.

"On Item 6, we cut .25 per cent, inasmuch as we do not consider the system of removing the manure as perfect as a carrier system.

"On Item 7, a cut of .50 per cent is made on account of the surroundings, in the matter of toilets, etc.

"Item 8 is cut .50 per cent because of the plank floor in Barns 1 and 3. While the floors of these barns have been partially treated with a coat of pitch, the entire floor has not been so treated.

"On Item 11, one point is deducted on account of having less than four square feet of light surface per cow in Barns 1 and 3.

"On Item 12, one point is cut on account of not having a controllable flue system of ventilation in Barns 1, 3 and 4.

"Item 13 is cut one point because the air space is less than 500 cubic feet per cow in Barns 1, 3 and 4.

"Item 14 is cut .25 per cent on account of no provision for controlling temperature in Barns 1, 3 and 4.

"Item 21 is cut .50 per cent on account of the rubbish contained in the loft in the receiving room in the milk house.

"When a revised veterinary certificate has been received, showing that all the cows have been tested with tuberculin on the premises, and the reactors removed, three points will be allowed on the score-card, and if changes are made in the dairy that will correct the deficiencies mentioned above, the dairy can readily score more than 95 per cent."

The Medical Milk Commission not being satisfied with the general test of the herd in October, determined upon a retest, and thereupon secured the services of three distinguished veterinary experts to retest the entire herd, which was begun January 28, 1915. The result of this test was that about fifty-seven animals reacted to the tuberculin test and were slaughtered. The Medical Milk Commission then requested this Board to supervise the disinfection of the dairy, and an inspector of this Bureau spent ten days superintending the work, pursuing the same methods that were adopted on the first inspection. A detailed report of this inspection was made to the Board and showed that all of the recommendations which had been made to the milk company had been carried out.

In consequence of the Board's action referred to in another place in this report no further visits were made to dairy premises for the purpose of disinfecting stables, owing to the continuance of foot and mouth disease among cattle.

After the State was free from foot and mouth disease we found that owing to the large accumulation of requests for dairy inspection that had been received during the prevalence of the disease, it would be a physical impossibility for us to devote as much time to this work as we had formerly done, and we therefore adopted the only method available, which was to prepare a circular letter and send a copy to the owners of premises where tuberculous animals had been housed, urging them to follow out the instructions contained in the circular and advise us when they had done so. For his own protection the dairyman should do this work, as he is the one most vitally affected. The neglect of such precautionary measures on his part may mean financial loss, but he does not seem to realize the importance of this work and it is usually very inadequately done, if attempted at all. A number of dairymen have responded to the circular, assuring us that the suggestions offered to them have been thoroughly carried out. From most of them, however, we have received no reply. Following is a copy of the circular sent to all owners of dairies in whose stables tubercular animals had been housed:

DEAR SIR:—Information has been furnished this Board by the Commission on Tuberculosis in Animals, that your herd of dairy cattle were recently tested with tuberculin, and that several animals reacted to the test and were condemned.

For the purpose of guarding your herd against further infection through the medium of germs secreted in or near the stable, we recommend the following methods of cleaning and disinfecting of these premises at once:

Thoroughly clean the interior surfaces of the stable and free them from all particles of manure, dirt, etc.

White-wash the walls of the stables.

Scrub the feeding mangers, watering troughs, stanchions, etc., with a strong solution of sal soda, preferably hot.

Disinfect feeding mangers, watering troughs, stanchions, etc., by spraying with a 3 per cent cresol solution. About four hours after the mangers and watering troughs have been disinfected, flush them out well with hot water before stabling the cows.

Remove all manure from the barn yard and spread lime on the surface. If not convenient to remove manure at present, at least spread lime and cresol in dark places where the sun does not strike.

After spraying permit free circulation of air.

Kindly inform us when you have finished this disinfection.

During the present fiscal year we have been furnished lists giving the number and location of stables in which 706 dairy animals afflicted with tuberculosis have been destroyed. In all there were 243 stables reported to us. For the reasons stated above we were unable to send an inspector to personally superintend the disinfection of all these stables, and in seventy-five instances we were obliged to rely upon the owners to do the work themselves.

The following shows the location, by counties, of infected stables, the first numbers being of stables and the second of animals slaughtered:

Bergen, 2, 11; Burlington, 11, 34; Camden, 1, 1; Cumberland, 4, 20; Essex, 3, 192; Gloucester, 5, 5; Hunterdon, 23, 34; Mercer, 15, 26; Middlesex, 10, 26; Monmouth, 4, 15; Morris, 20, 31; Passaic, 1, 1; Salem, 5, 5; Somerset, 13, 66; Sussex, 102, 181; Union, 10, 32; Warren, 14, 26.

PASTEURIZATION.

A line of work followed the present year has been an inquiry into the efficiency of the pasteurization of milk as carried on in the eighty-four establishments in the State.

It has been our purpose to inspect all these plants and to have the milk at the different stages of pasteurization bacteriologically examined from as many establishments as could be handled by the available laboratory force.

On account of the pressing work of the laboratory staff, we were unable to make definite arrangements for work of this character until January. Since then we have been accorded the services of an analyst for the examination of samples collected one day a week.

If an analyst were detailed by the Director of the Laboratory to work exclusively for this Bureau it is certain that most valuable results could be obtained from the data furnished by our inspectors in connection with pasteurization methods in the various plants in the State and I respectfully recommend that one be assigned to this work. We have this year collected 395 samples for chemical and bacteriological examinations. The outcome of our investigations into the pasteurizing methods of milk dealers fully justifies the wisdom of the enactment of a law by the last Legislature relative to licensing these establishments.

The investigation of the methods employed in pasteurizing milk in these establishments clearly shows the necessity for official control of the commercial pasteurization of milk, and to make it effective there should be at least two trained men constantly engaged in the inspection of these plants.

The object of pasteurization is to render milk which has been bacteriologically polluted safe for human consumption without depriving it of any of its valuable properties. In order to accomplish this the milk must be heated to the proper temperature just long enough to destroy the harmful bacteria without injury to it as a food. Our investigations show that in many plants where the work is carelessly done it is more through ignorance than wilfulness. Most of the operators respond readily to the instruction given them and frequently ask for assistance in correcting troubles which occur.

The method of collecting the milk for bacteriological examination is about as follows:

The inspector is provided with a small, insulated case which contains a number of sterile twenty cc. vials fitted with metal screwcaps with cork lining. About ten cc. of milk is drawn with a sterile pipette for each sample and this is immediately surrounded with bags filled with cracked ice.

The inspector visits the creamery early in the morning before the pasteurizing process begins, and collects from twelve to eighteen samples. As a rule three specimens are collected from the receiving vat while the milk is poured in from the farmers' cans; three more are collected when the pasteurizing process is completed and the same number from the outlet of cooler, from the cans and bottle-filler respectively. Occasionally, samples are collected from other receptacles, if any condition arises that

might possibly affect the bacteriological content of the milk. An effort is always made to reach the laboratory within three hours from the time of collecting the first sample.

To illustrate how methods in pasteurization may falsify the term, the following report of an inspection viewed in connection with the analytical results obtained by the examination of fifteen milk samples collected in the raw state and at various stages of the pasteurization process at one creamery is of interest.

During the inspection of this creamery there were fifteen samples of milk collected for bacteriological examination. The results of the analyses of these samples showed that the raw milk before being heated contained something over 1,000,000 bacteria per c.c. and over 5,000,000 bacteria per c.c. after it had been discharged from the pasteurizer and before cooling.

Our investigation of this plant showed that a laxity of the methods employed by the operator was responsible for the inferior quality of the milk after treatment. The defects noted in the pasteurization process were as follows:

Excessive length of time taken to heat the milk to 140 degrees F. (one hour, twenty-two minutes).

Holding milk less than the required time of twenty minutes at 140 degrees F.

Allowing milk to drip from leaky receiving vat and afterwards mixing it with the milk after pasteurization.

The pipes stuffed with rags to prevent leaking joints.

Non-sterile apparatus and utensils.

The following statements show the results of the bacteriological examinations of milk samples collected at creameries:

Gastanea Dairy Company, Trenton, January 27, 1915.

LOT I. (Belvidere Supply).

	Temp.	Bacteria per cc.
Samples of mixed raw milk from Belvidere creamery, a receiving station of this company	40° F.	200,000
Samples taken at outlet of retarder after heating for 30 minutes.	40 "	200,000
Samples taken from trough at bottom of cooler after pasteurization.	141 "	10,000
Samples from bottles just filled	138 "	10,000
	34 "	10,000
	36 "	10,000
	38 "	5,000
	42 "	10,000

LOT II. (Local Supply).

	Temp.	Bacteria per cc.
Samples of mixed raw milk from nearby farms	50° F.	150,000
Samples taken at outlet of retarder after heating for 30 minutes	48 "	100,000
Samples from trough at bottom of cooler after pasteurization.	100 "	5,000
Samples from bottles of milk just filled	144 "	5,000
	64 "	10,000
	32 "	5,000
	65 "	5,000
	53 "	5,000
Samples of pasteurized milk taken from delivery wagons and stores on the following day (January 28th)	60 "	5,000
	60 "	5,000
	60 "	20,000
	60 "	140,000

Chemical analysis: Solids 12.38 to 12.80% Fat, 4.00 to 4.20.

Halprin Brothers, Neshanic, March 3, 1915.

	Temp.	Bacteria per cc.
Samples of raw milk from farms, taken from receiving vat in creamery.	70° F.	4,300,000
	67 "	1,800,000
	70 "	500,000
	71 "	90,000
Samples from outlet of "holder" vat after pasteurizing and before cooling	140 "	10,000
	138 "	5,000
	142 "	5,000
Samples from outlet of cooler.	142 "	5,000
	54 "	1,500,000
	64 "	5,000
	66 "	5,000
	70 "	5,000
Samples from cans just filled	56 "	1,500,000
	64 "	5,000
	67 "	5,000
Samples from bottle.	67 "	5,000
	52 "	20,000

Perth Amboy Milk & Cream Company, Perth Amboy, March 10, 1915.

	Temp.	Bacteria per cc.
Samples of raw milk from receiving vat.	43° F.	1,000,000
	43 "	2,500,000
	43 "	800,000
Samples from outlet of retarder, having been held 20 minutes.	42 "	800,000
	141 "	5,000
	142 "	5,000
	141 "	15,000
Samples from outlet of cooler.	140 "	5,000
	38 "	5,000
	38 "	5,000
	36 "	5,000
	37 "	5,000
Samples from bottles just filled.	46 "	10,000
	46 "	10,000
	42 "	10,000
	42 "	5,000

J. Max, Flagtown, March 16, 1915.

	Temp.	Bacteria per cc.
Samples of raw milk from pasteurizing vat.	60° F.	500,000
	60 "	500,000
	60 "	1,100,000
Sample from pasteurizer, held 15 minutes.	140 "	5,100,000
Sample from pasteurizer, held 16 minutes.	140 "	2,900,000
Sample from pasteurizer, held 19 minutes.	140 "	3,300,000
Samples from cooler outlet.	38 "	1,500,000
	30 "	1,500,000
	48 "	1,500,000
Samples from cans just filled.	42 "	1,600,000
	50 "	1,300,000
	46 "	1,400,000
Samples from bottles just filled.	44 "	1,300,000
	46 "	1,400,000
	48 "	15,000

Samples of milk collected April 14, 1915.

LOT II

	Temp.	Bacteria per cc.
Sample of raw milk from pasteurizer	84° F.	2,100,000
Samples from pasteurizer, after being held 20 minutes.	145 "	45,000
	144 "	40,000
	142 "	10,000
Samples from cooler outlet.	45 "	50,000
	64 "	15,000
	50 "	15,000
Samples from can just filled.	45 "	45,000
	68 "	20,000
	50 "	15,000
Samples from bottle just filled.	59 "	15,000
	50 "	15,000
	60 "	20,000

S. Botkin, creamery, Clover Hill, March 30, 1915.

	Temp.	Bacteria per cc.
Samples from receiving vat	48° F.	30,000
	48 "	50,000
	46 "	30,000
Samples from outlet of holding tank	135 "	5,000
	135 "	5,000
	134 "	10,000
Samples from trough at bottom of cooler	64 "	10,000
	60 "	150,000
	66 "	20,000
Samples from cans of milk just filled	56 "	300,000
	64 "	5,000
	60 "	25,000

*George W. Fields, creamery, North Branch, April 7, 1915.***LOT I. (Raw Milk).**

	Temp.	Bacteria per cc.
Samples of raw milk from receiving vat	50° F.	400,000
	50 "	60,000
Samples of raw milk after being pumped over the cooler	38 "	70,000
	38 "	70,000
Samples of raw milk from cans filled from the cooler	38 "	70,000
	38 "	80,000
Samples of raw milk from bottles just filled	43 "	50,000
	44 "	50,000

The above samples are marketed in the raw state.

LOT II (Milk from pasteurization)

	Temp.	Bacteria per cc.
Samples of raw milk from receiving vat	62° F.	300,000
	63 "	350,000
Samples from last compartment of retarder, held 30 minutes	144 "	5,000
	144 "	10,000
Samples from cooler outlet after pasteurization	38 "	5,000
	38 "	5,000
Samples from cans just filled after pasteurization	40 "	5,000
	40 "	5,000
Samples of pasteurized milk from bottles just filled	45 "	5,000
	45 "	5,000

E. S. Perkins, creamery, Merchantville, April 22, 1915.

	Temp.	Bacteria per cc.
Sample of raw milk taken from the receiving vat	57° F.	8,000,000
Samples from the funnel just as the cream and skim milk were being mixed after separating for "clarification" and before entering pasteurizer	80 "	400,000
	123 "	3,900,000
	122 "	1,600,000
(These samples were collected at manager's suggestion, the milk being separated at a temperature of 123 F. This however, has not much bearing on the bacterial reduction.)		
Samples from pasteurizer, after the milk had been held 20 minutes	144° F.	20,000
	139 "	40,000
Samples from trough at bottom of cooler	52 "	30,000
	46 "	40,000
Samples from bottle just filled	49 "	35,000
	51 "	40,000

Chemical analysis: Solids, 12.20%. Fat, 3.70%.

New Jersey State Hospital, Trenton, May 5, 1915.

	Temp.	Bacteria per cc.
Sample of raw night's milk from Hospital dairy (old barn)	54° F.	30,000
Sample of raw morning's milk from Hospital dairy (old barn)	57 "	20,000
Sample of raw night's milk from Hospital dairy (old barn)	54 "	10,000
Sample of raw morning's milk from Hospital dairy (new barn)	58 "	35,000
Mixed raw milk of Hospital dairies taken from pasteurizing vat	56 "	25,000
Mixed raw milk from H. C. Scudder dairy	63 "	25,000
Morning's milk from H. C. Scudder dairy	58 "	15,000
Sample from pasteurizer, after the milk was held for 30 minutes	142 "	2,000
Sample from pasteurizing vat immediately after cooling	50 "	3,000
Sample from can just filled	50 "	2,000

Chemical analysis: Hospital dairy, 11.52% Fat, 3.10.
Scudder dairy, 12.15% Fat, 3.50.

Chas. W. Schmidt, creamery, Trenton, May 13, 1915.

	Temp.	Bacteria per cc.
Sample of mixed milk from eight farms taken before pasteurization	62° F.	1,400,000
Sample from pasteurizing vat after the milk had been held for 20 minutes	140 "	100,000
Sample taken during the pumping of pasteurized milk over the cooler and the filling of bottles. Retained in the pasteurizing vat 40 minutes	136 "	50,000
Samples from milk cooler outlet after pasteurization	52 "	150,000
	51 "	5,000
Samples from bottles immediately after filling	62 "	100,000
	58 "	10,000

Chemical analysis: Solids, 12.36%. Fat, 3.8%.

LOT II. June 2, 1915.

	Temp.	Bacteria per cc.
Samples of mixed milk from nine farms taken before pasteurization	60° F.	500,000
	62 "	500,000
Samples from pasteurizing vat, after the milk had been held for 20 minutes	140 "	800,000
	140 "	10,000
	140 "	5,000
Samples from milk cooler outlet after pasteurization	140 "	5,000
	50 "	30,000
	53 "	10,000
Samples from bottles immediately after filling	51 "	25,000
	54 "	70,000
	55 "	20,000
	55 "	10,000

C. W. Vannatta, creamery, West Portal, May 19, 1915.

	Temp.	Bacteria per cc.
Samples of raw milk from receiving vat	62° F.	2,800,000
	59 "	2,100,000
	59 "	3,400,000
	60 "	1,900,000
Samples from outlet of holder, held approximately 20 minutes	140 "	30,000
	147 "	30,000
	140 "	20,000
Samples from trough at bottom of cooler	140 "	25,000
	40 "	50,000
	40 "	10,000
	41 "	10,000
Samples from bottles just filled	42 "	35,000
	46 "	35,000
	45 "	15,000
Samples from can just filled	47 "	15,000
	42 "	25,000
	55 "	300,000
	55 "	700,000

Samples of "drip" milk that comes from bottles broken in the process of filling, as well as that which runs over iron cases. This is all caught in a 40 quart can and pasteurized the following day.

Chemical analysis: Solids, 11.71%. Fat, 3.30%.

Geo. N. Robinson, creamery, Jutland, May 26, 1915.

	Temp.	Bacteria per cc.
Samples of raw milk from receiving vat	60° F.	3,800,000
	59 "	4,400,000
	59 "	2,500,000
Samples from outlet of holder 27 minutes	143 "	70,000
	143 "	100,000
	143 "	250,000
Samples from outlet of cooler	45 "	80,000
	41 "	100,000
Samples from bottles just filled	51 "	50,000
	51 "	150,000
	53 "	50,000

Chemical analysis: Solids, 12.80%. Fat, 4.60%.

LOT II.

June 29, 1915.

	Temp.	Bacteria per cc.
Samples received from vat	66° F.	1,400,000
Sample of raw milk	66 "	1,500,000
Samples from holder after pasteurization	66 "	2,000,000
	138 "	70,000
	142 "	80,000
Samples from cooler outlet	141 "	60,000
	46 "	50,000
	48 "	80,000
	48 "	45,000
Sample from bottle just filled	62 "	125,000
	60 "	60,000
	56 "	60,000

Wm. E. Cramer, creamery, Camden, June 9, 1915.

	Temp.	Bacteria per cc.
Samples of raw milk from pasteurizing vat	64° F.	700,000
	64 "	600,000
	64 "	700,000
Samples from pasteurizer, after the milk had been held 30 minutes	140 "	5,000
	138 "	5,000
	134 "	5,000
Samples from trough at bottom of cooler	40 "	450,000
	42 "	400,000
	42 "	60,000
Samples from bottle just filled	50 "	500,000
	54 "	300,000
	50 "	200,000

LOT II.

June 16, 1915.

Samples of milk from pasteurizing vat	69° F.	3,600,000
	70 "	2,700,000
	70 "	3,700,000
Samples from pasteurizer after the milk had been held 30 minutes	141 "	5,000
	141 "	5,000
	140 "	5,000
Samples from trough at bottom of cooler	38 "	800,000
	41 "	250,000
	40 "	100,000
Samples from bottle just filled	48 "	1,000,000
	50 "	250,000
	54 "	100,000

Chemical analysis: Solids, 11.90%. Fat, 3.5%.

Fairfield Dairy Company, Montclair, July 8, 1915.

	Temp.	Bacteria per cc.
Milk all pasteurized in bottles.		
Sample taken of Henderson's milk	49° F.	2,400,000
Sample taken of Aldro's milk	54 "	40,000
Sample taken of Hill's milk	54 "	100,000
(Samples taken from receiving vat).		
Sample taken of Henderson's milk	50 "	4,100,000
Sample taken of Aldro's milk	54 "	250,000
Sample taken of Hill's milk	54 "	150,000
(Clarified).		
Samples taken from bottles filled (Raw)	61 "	1,000,000
	60 "	500,000
	61 "	800,000
Samples taken of milk after pasteurization (Pasteurized)	146 "	10,000
	146 "	10,000
	146 "	30,000
Samples of milk taken after cooling (Cooled)	65 "	10,000
	57 "	20,000
Sample taken from bottle of milk pasteurized the day before		15,000

Samuel A. Adler, Franklin Park, July 28, 1915.

	Temp.	Bacteria per cc.
Samples taken from receiving vat	72° F.	4,500,000
	72 "	2,500,000
	72 "	4,500,000
Sample from holder (20 minutes) tank emptied rapidly	136 "	15,000
Samples from cooler	51 "	75,000
	52 "	10,000
	53 "	5,000
Samples taken from bottle	57 "	100,000
	57 "	10,000
	60 "	10,000

Solids, 12.52%. Fat, 4.20%. 8.32

Hernig & Northrup, Hopewell, August 2, 1915.

	Temp.	Bacteria per cc.
Samples of milk taken from receiving vat	78° F.	28,000,000
	78 "	17,000,000
	78 "	9,000,000
Samples of milk taken from holder	142 "	60,000
	142 "	15,000
Samples of milk taken from cooler	142 "	5,000
	40 "	25,000
	49 "	10,000
Samples of milk taken from can	42 "	5,000
	46 "	40,000
	51 "	20,000
	42 "	10,000

Solids, 12.10%. Fat, 4.00%.

(Sample taken from 40 qt. can).

Henry Longacre, Trenton, August 9, 1915.

	Temp.	Bacteria per cc.
Samples of milk taken from receiving vat	67° F.	1,100,000
	70 "	900,000
	72 "	350,000
Samples of milk taken from holder	142 "	5,000
	142 "	10,000
	142 "	15,000
Samples of milk taken from cooler	48 "	40,000
	54 "	25,000
	48 "	15,000
Samples of milk taken from can	53 "	300,000
	59 "	25,000
	53 "	25,000
Samples of milk taken from bottle	66 "	80,000
	66 "	90,000
	63 "	20,000

Solids, 12.48%. Fat, 3.90%.

John Snyder, Trenton, August 16, 1915.

	Temp.	Bacteria per cc.
Samples of milk taken from pasteurizer (raw)	74° F.	1,300,000
	74 "	1,300,000
	74 "	1,200,000
Samples of milk taken after heating to 142 F. and holding 20 min ..	140 "	90,000
	140 "	90,000
Samples of milk taken from cooler	51 "	70,000
	43 "	70,000
	43 "	70,000
Samples of milk taken from bottle	61 "	70,000
	61 "	160,000
	51 "	80,000
	51 "	40,000
Sample of milk taken from can	58 "	150,000

Solids, 12.38%. Fat, 3.80%

Martin McCue, Long Branch, September 8, 1915.

	Temp.	Bacteria per cc.
Samples of milk taken from receiving vat.....	75° F.	4,500,000
	72 "	6,000,000
	70 "	7,000,000
Samples of milk taken from retarder.....	142 "	20,000
	144 "	25,000
	144 "	45,000
Samples of milk taken from cooler.....	39 "	20,000
	38 "	25,000
	41 "	60,000
Samples of milk taken from bottle.....	53 "	40,000
	53 "	40,000
	60 "	60,000
Drip milk from bottle filler caught in a can lid to be re-pasteurized.	...	200,000
Milk solids 12.74%. Fat, 4.10%.		

F. W. Janssen, Delaware, September 20, 1915.

	Temp.	Bacteria per cc.
Samples of raw milk.....	80° F.	200,000
	63 "	1,400,000
	80 "	700,000
Samples from pasteurizer.....	141.5° F.	5,000
	141 "	5,000
	141 "	5,000
Samples of milk taken from cooler.....	45 "	5,000
	45 "	5,000
	45 "	5,000
Samples of milk taken from bottle.....	60 "	50,000
	53 "	10,000
	58 "	5,000
Solids and Fat test, 12.68%. Fat, 3.90%.		

Hygienic Milk Company (A. T. Jordon), New Brunswick, October 4, 1915.

	Temp.	Bacteria per cc.
Sample taken from receiving tank (morning's milk).....	72° F.	250,000
Sample taken from receiving tank (night's milk).....	58 "	200,000
Sample taken from receiving tank (morning's milk).....	68 "	200,000
Sample taken from receiving tank (night's milk).....	58 "	200,000
Sample taken from pasteurizer (heating section).....	152 "	5,000
Sample taken from pasteurizer (heating section).....	155 "	5,000
Sample taken from pasteurizer (heating section).....	153 "	10,000
Sample taken from cooling section of pasteurizer.....	38 "	10,000
Sample from cooling section of pasteurizer.....	38 "	10,000
Sample from cooling section of pasteurizer.....	40 "	30,000
Sample taken from can filled from the bottle filler.....	46 "	10,000
Sample taken from can filled from the bottle filler.....	44 "	25,000
Sample from bottle just filled from machine.....	52 "	50,000
Sample taken from bottle just filled from machine.....	54 "	75,000
Solids. Fat.	60° F.	11.94% 3.80% 8.14%.

Standard Milk & Cream Co., White House, October 11, 1915.

	Temp.	Bacteria per cc.
Samples of milk taken from receiving vat.....	56° F.	60,000
	56 "	70,000
	59 "	100,000
Samples of milk taken from holder.....	150 "	5,000
	152 "	5,000
	151 "	5,000
Samples of milk taken from cooler.....	40 "	10,000
	42 "	5,000
	42 "	5,000
Samples of milk taken from can.....	43 "	10,000
	44 "	5,000
	44 "	10,000
Solids and Fat.	60° F.	11.80% 3.20% 8.60%.

Halprin Brothers, Neshanic, October 25, 1915.

	Temp.	Bacteria per cc.
Samples of milk taken from receiving vat.....	70° F.	50,000
	74 "	30,000
	70 "	60,000
Samples of milk taken from holder.....	129 "	5,000
	132 "	5,000
Samples of milk taken from cooler.....	137 "	5,000
	45 "	10,000
	45 "	10,000
Samples of milk taken from can.....	52 "	5,000
	45 "	Plates contaminated
	45 "	10,000
Samples of milk taken from bottle.....	52 "	5,000
	48 "	5,000
	45 "	5,000
	48 "	5,000
For chemical analysis	60° F.	12.34% 3.86% .84%.

CREAMERY INSPECTION.—In addition to the eighty-five establishments classified as Pasteurizing Creameries there are 119 creameries in which milk is not pasteurized. All of these come under the provisions of the law relative to the licensing of creameries.

In the non-pasteurizing plants milk is received in quantities ranging from 1,000 to 20,000 quarts a day. The milk is prepared for shipment to cities either in cans, bottles, in a condensed state, or manufactured into butter.

The following is a summary of the work done in creamery inspection during the year:

Number of inspections, 409; number of licenses recommended, 63; number of licenses revoked, 8; number of time-limits given for improvement in conditions, 11.

ICE CREAM FACTORY INSPECTION.—There are 685 ice cream factories in the State which have been under our supervision. Of these, 544 are licensed and 141 are still unlicensed. As has been stated before, there will probably always be a large number of factories unlicensed, since they come into existence suddenly and generally require time to adjust their methods and equipment to the rules and regulations of the Department. Unsanitary conditions found on the premises of twelve ice cream factories required prompt action to prevent the sale of a product which was very liable to cause sickness to the consumer.

The following is a summary of the work in ice cream inspection for the past year:

Number of ice cream factories, 685; number licensed, 584; number not licensed, 141; number of factories given a specified time in which to improve conditions, 8; number of operators complying within the time, 4; number whose time for improvement has not yet expired, 3; number of operators retiring from the business rather than meet the Board's requirements, 1; number of operators prohibited from manufacturing ice cream, 12.

Report of the Bureau of Food, Drugs, Water and Sewerage.

R. B. FITZ-RANDOLPH, *Chief.*

To the Department of Health of the State of New Jersey:

GENTLEMEN: I herewith present the report of the Bureau of Food, Drugs, Water and Sewerage, for the fiscal year ending October 31, 1915.

Attention has been directed in a number of previous reports to the crowded condition of the Laboratory of Hygiene and particularly that portion of it occupied by the Bacteriological Laboratory. When the Laboratory was moved to the State House seven years ago, it was pointed out by the writer that the space allotted for Laboratory purposes was then too small. Since that time the work of the Bacteriological Laboratory has considerably more than doubled, and the space available for bacteriological examinations is now utterly inadequate. It is with the greatest difficulty that the regular routine work of the Bacteriological Laboratory is carried on, and the special investigations, which are increasing in number and importance every year, makes the crowded condition still more burdensome.

There are a number of reasons why a Bacteriological Laboratory should not be located in a general office building like the State Capitol, particularly as the Capitol itself is in an overcrowded condition. It is necessary at all times to transport infectious material to and from the Laboratory. It is equally necessary to keep on hand a considerable stock of animals for experimental purposes, which under our present conditions cannot be properly housed and cared for, and at times the animal room becomes objectionable. The overcrowding has become so acute that at the present time the health of the Laboratory workers suffers. It is therefore recommended that an effort be made to secure a laboratory building outside of the State Capitol, and preferably outside of the State House grounds. It is believed that a building could be constructed which would provide ample space for the Laboratory for years to come, for a very reasonable cost, if a suitable site is selected upon which the Laboratory can be built after the style of a factory. There is no reason why a laboratory, which is essentially a workshop, should be housed in a monumental building.

A laboratory building with adequate space would enable the Department, at small additional cost, to undertake the examination of specimens of blood by Wasserman's method, and to make other tests for the physicians, the need for which has been realized for years. The demands for Wasserman reactions by physicians are now becoming so insistent that it is very difficult for us to explain to the medical profession the reason why we are unable to make these tests. It would also be possible to make certain vaccines, which are now commonly used for the immunization of persons who may be exposed to some of the infectious diseases.

Attention is directed in the report of the Chief Bacteriologist, which follows, to the amount of culture media which has been prepared and distributed to municipal laboratories, laboratories of water and sewerage works, and places of similar character throughout the State. The importance of this service is well shown by the manner in which the demand for these materials has increased during the past year. Requests for culture media are now coming to the Laboratory in such numbers that it is almost impossible, with our present facilities, to prepare media enough to supply the demand. The preparation of culture media is one of the most burdensome operations which the small diagnostic laboratory is called upon to perform, particularly when the bacteriologist is a part-time man, devoting an hour or two in the morning to the examination of specimens and attending to other duties during the rest of the day. The fact that reliable culture media can be secured at a reasonable cost by local laboratories, has already served as a stimulus for municipalities to establish such laboratories, and it is believed that others will follow within a very short time.

The establishment of laboratories for the diagnosis of specimens from suspected cases of communicable diseases, should be encouraged in every municipality, the population of which is sufficiently large to warrant the expense incurred. It is believed that this can be done in every municipality having 10,000 or more persons, in the State. Such a local laboratory can render much better service to the physicians in the municipality than can the State Laboratory, because one of the essential requirements of this work is speed, and the results of the examinations can be placed in the hands of physicians much earlier when examinations are made in the same town, than when specimens have to be sent by mail to Trenton, and the results transmitted back to the physicians by mail. If laboratories are to be operated in such small municipalities, however, they must be operated at a very small cost. There is usually little difficulty in persuading a physician who has had some experience in bacteriological work, to devote an hour or two of his time each day to the examination of specimens for the Board of Health. If he has to devote much more time than this to it, however, the work becomes burdensome, and it is difficult to find a man to do it. Here the State Laboratory can be of great service by supplying the local laboratories with culture media, stains, standard solutions, and other materials which the local bacteriologist has to use, and which he ordinarily has not time to make

up. As the number of local laboratories increases, the number of specimens sent to the State Laboratory will necessarily diminish somewhat. On the other hand, the number of specimens sent to the State Laboratory for special investigations, by local boards of health, will increase very materially, as the local laboratories will confine themselves, for the most part, to routine investigations, sending to the State Laboratory such specimens as are beyond their scope, or the examinations of which are too time-consuming to permit the local bacteriologist to satisfactorily handle them. This will result in the function of the State Laboratory changing somewhat. The routine work will diminish, but the special investigations will increase very much. It is believed that a scheme of cooperation can and should be worked out, between the State Laboratory and the local laboratories, whereby the State Laboratory will render to the local laboratories all the assistance which they need; the local laboratories, on the other hand, relieving the State Laboratory of much of the routine diagnostic work which can be done better locally than at Trenton. Such a plan when put into operation will result in greatly increased efficiency in the bacteriological diagnostic service throughout the State, and will impose but small additional cost upon the State Laboratory.

During the past year a good deal of the routine bacteriological work which has been done has been done at the instigation of the inspectors of the Bureau of Medical and Sanitary Inspection, for the purpose of assisting them in the control of outbreaks of communicable diseases. Under the reorganization which takes place in November, 1915, it is expected that the Bureau of Local Health Administration, which will handle communicable diseases after that date, will be in a position to devote much more attention to communicable diseases than has heretofore been possible, and this undoubtedly will result in increased demands upon the Laboratory for assistance. The Laboratory is making all the preparations possible to meet this demand, but we are met at every turn by difficulties, because of the lack of space in the Laboratory office.

FOOD AND DRUGS.—The work of the Division of Food and Drugs has followed, to a considerable extent, the work described in previous reports. The tendency is, however, to devote more and more time to those phases of the food and drug work which bear directly upon the public health. A good deal of time has been spent during the past year in the investigation of places where non-alcoholic beverages are manufactured. This work is described later in this report in considerable detail, and it is sufficient to say here that a very considerable improvement has already resulted in the bottling establishments in this State, as a direct result of the inspections which have been made of them, and that a continuation of this inspection work during the next summer may be expected to bring about much more marked improvements in the sanitary aspects of this business. The soda water business is one requiring constant supervision, because it is a business which can be engaged in by persons with small capital. This means that there are

many badly equipped, badly located, badly managed places in the State, manufacturing soft drinks, which are consumed for the most part by women and children, and if suitable conditions are to be maintained in such establishments, the operators of them must be constantly watched.

Because of the occurrence of foot and mouth disease in the State during the last fiscal year, it has been necessary to detail a number of our inspectors for service in the field in connection with this disease. This has made it impossible to carry on certain lines of work to the extent which has been desired. The inspection of meat was necessarily neglected, because our veterinarian was engaged, for a long period of time, in work connected with foot and mouth disease. It is obvious, however, that no adequate meat inspection work can be carried on by the State Department of Health under the present arrangement. It is suggested that a law patterned after the one now in force in Massachusetts, for local meat inspection, would probably be satisfactory in this State, and would result in great improvement in the quality of meat offered for sale.

A considerable increase in the efficiency of the food and drug work is to be expected under the reorganization to take effect November 1st. The Bureau of Food and Drugs, as it will be constituted at that time, will include the old Bureau of Creameries and Dairies as a Division of Milk Control. This brings the regulation of the two parts of the milk business, which were formerly separated, together, under the supervision of one chief. It is purposed, during the coming year, to make a number of radical changes in that portion of the work relating to dairy inspection, and to the control of creameries, ice cream factories, and establishments of similar character, and particular attention will be paid to the supervision of the operation of pasteurizing plants, which must be closely watched if they are to maintain their maximum efficiency.

WATER AND SEWERAGE.—During the year the work connected with the inspection of streams and the control of the operation of water and sewerage plants, has been materially hampered because of the resignation of two of our assistant sanitary engineers, whose places could not be immediately filled. Experience has shown that the work of stream inspection can better be carried on by men having an engineering training than by the untrained inspectors who have been used in the past. It is purposed in the near future to employ men with adequate training for this work, and so to change the character of the work assigned to them that much of the duplication of effort which has been so objectionable in the past will be avoided. It is also purposed to change somewhat the method of investigating the operation of water purification and sewage disposal plants. This Bureau has always been hampered by reason of the fact that the number of assistant sanitary engineers at its disposal was too small to enable a close watch to be kept upon plants of this character. If the best results are to be secured in the operation of a water purification plant, or a sewage disposal plant, the attendant

in charge of such plant must be thoroughly familiar with the proper methods of operation. From motives of economy, municipalities almost always employ cheap labor to operate these plants. This Bureau has endeavored in the past, by means of repeated visits on the part of our assistant sanitary engineers, to attempt to train these men in the principles of operation of the plants which they are supposed to supervise. It has been found, however, that this cannot satisfactorily be done until the Department has accumulated much more reliable data regarding the operation of some of these plants, than it now possesses. It is therefore purposed to send one or two men to a plant, and have them stay long enough to test out, by suitable laboratory methods, the operation of each step in the process; and at the same time, to be with the attendants long enough to instruct them thoroughly in the proper operation of the plant, and to prepare them, insofar as this is possible, to meet any emergency which may arise.

It will not be possible to carry out this program for anywhere near all the plants in the State during the present year, but a trial of this scheme will, it is believed, demonstrate its superiority over the one previously followed, which consisted in having the assistant engineers make visits at rather frequent intervals, to the plants in the State, spending but an hour or two at each plant.

It is also purposed, if time permits, to continue our study of the watersheds of the State, in the manner described in the report on the Raritan River contained in the report for 1914; the purpose of such study being to advise municipalities, factory operators and private individuals, regarding the degree of purification which will be required of their wastes, and the best way of bringing this purification about. The increase in manufacturing in the northeastern part of the State, with the attendant production of objectionable wastes, which must be disposed of in some manner, is creating a situation which should be studied very carefully and systematically at this time, in order that the proper remedial measures may be supplied, before gross nuisances arise.

Following will be found the reports of the work of the four Divisions of this Bureau:

BACTERIOLOGICAL DIAGNOSIS.—John V. Mulcahy, Chief Bacteriologist.—The Bacteriological Laboratory consists of three small rooms, one of these containing incubators, microscopes and other apparatus for the examination of specimens, another equipped with various kinds of sterilizers, a refrigerator and a large sink. This room is used for the preparation of culture media and outfits for the collection and transmission of bacteriological specimens and for the cleansing of glassware. The third room is a small animal room.

In previous reports comment has been made that these rooms are too small in which to carry on advantageously the constantly increasing work and this lack of space prevents the undertaking of new lines of investigations that have come into general use elsewhere within the last

few years. It is to be hoped that some provision can soon be made for increased space so that the usefulness of the Laboratory will not continue to be impaired.

It is highly desirable that the Laboratory be equipped to undertake as a routine procedure the examination of specimens of blood for syphilis by means of the Wasserman reaction. This test is constantly being requested by physicians all over the State. It is also important that facilities be provided for the examination of blood by cultural methods for typhoid fever in early and obscure cases, the examination of blood for glanders by means of the complement fixation and agglutination tests and the examination of material from septic infections requiring the use of surums and vaccines; this latter work involving the isolation of the invading organisms and the preparation of autogenous vaccines when desired by the physicians.

There is a growing demand on the part of the physicians throughout the State as indicated by the number of requests that we receive for the examination of specimens by these methods, and it is to be regretted that we have been unable on account of insufficient force and room to comply with these requests. This is peculiarly embarrassing as the laboratories of neighboring states, being more liberally provided with funds, make these examinations as a matter of routine and physicians expect the Laboratory of this Department to be able to render the same service.

If the Laboratory undertakes the examination of specimens for syphilis by means of the Wasserman reaction, a conservative estimate would place the number of specimens that we would be likely to receive during the first year at 10,000. The examination of this number of specimens, involving as it does duplicate and often triplicate tests on each sample of blood submitted, requires the use of a large quantity of glassware and sufficient room to handle the necessary apparatus advantageously. This would require at least one additional room, and undoubtedly would keep one bacteriologist and a helper busy doing this work alone.

An additional bacteriologist, assigned to the Diagnostic Laboratory the 20th of July, has made it possible to undertake more work of a special character, such as the examination of fæces and urine from suspected typhoid carriers and the determination of the virulency of the diphtheria bacillus from carriers and from persons convalescent from diphtheria when the bacillus persists for an unusually long time.

The adoption of rules by a number of local boards of health requiring two successive negative cultures from persons recovering from diphtheria, or proof that the diphtheria bacillus present is non-virulent, has resulted in an increasing demand on the Laboratory for tests for virulence. This examination requires considerable time, and physicians should understand that a report for virulence cannot be expected in less than a week after such request is made.

The Bacteriological Laboratory is open for the examination of specimens from 8:00 A. M. until 5:00 P. M. daily except Sundays and holidays, and is open on these days from 9:00 A. M. to 12:00 M.

The regular work of the Laboratory consists of the routine examination of specimens from suspected cases of diphtheria, tuberculosis, typhoid fever, malaria, gonorrhœa and rabies. It is also prepared to make examination of any infectious material the nature of which can be determined by bacteriological methods.

Most of these specimens are received by mail in outfits provided by the Laboratory, which conform to the requirements of the Post Office Department, and are obtainable by physicians at repositories maintained in hundreds of drug stores and offices of local boards of health in the towns and cities of the State.

Specimens from suspected cases of diphtheria are examined twice daily, at 8:00 A. M. and at 4:00 P. M. If the specimen reaches the Laboratory before 12:00 M. it is planted on blood serum and incubated until 4:00 P. M. at which time specimens showing the presence of the diphtheria bacillus are reported upon, the others being returned to the incubator. The following morning these specimens together with ones received up to 7:30 P. M. the preceding evening are examined and reported upon.

Reports on all specimens are sent by telegram, collect, when requested by the sender of the specimen. Many physicians do not ask for telegrams in these cases because of the expense involved and this part of the work could be improved if our appropriation was large enough to allow us to report all positive cases of diphtheria, for diagnosis, by a prepaid telegram. An early report in cases of this disease is of vital importance.

All other specimens requiring no incubation for their identification are examined and reported upon the day they are received.

The Laboratory is prepared at all times to cooperate with local health officials, Boards of Education and institutions in the control of epidemics of diphtheria, by providing large numbers of outfits for the collection and transmission of throat and nose specimens from persons exposed to this disease. In this way if the examinations are made with sufficient frequency most of the carriers can be discovered.

Another line of work that has shown a gratifying increase is the preparation and distribution of various kinds of media for the cultivation of bacteria. With the idea of securing uniformity in the work of the various municipal laboratories, some of which are insufficiently equipped with apparatus and supplies, and which were dependent on commercial houses for their culture media, an enabling act was passed by the Legislature of 1913 permitting the State Laboratory to prepare and dispose of such articles as culture media, stains, standard solutions, and the like at a reasonable cost. This has resulted in a large demand for these products by local boards of health and other persons engaged in public health work in this State.

Local boards of health especially have availed themselves of the opportunity afforded to procure culture media made up according to the

standard methods of the American Public Health Association, as it provides them with a uniform product and makes the results obtained by its use comparable with the results obtained in other laboratories throughout the State.

One of the following tables shows the amount of the various kinds of culture media furnished persons outside of the Laboratory.

During the past year there were examined in the Bacteriological Laboratory 25,297 specimens for diphtheria, 6,346 for tuberculosis, 4,426 for typhoid fever, 413 for malaria and 1,566 miscellaneous specimens. This latter number including specimens from suspected cases of gonorrhœa and all examinations of a special character.

A comparison of this total number of examinations, 38,048, the largest number examined in any one year, with the total number of examinations made the first year the Laboratory was established, amounting to 914, is noteworthy as showing the increasing use which is made by physicians throughout the State in the Laboratory to aid and confirm their diagnoses.

The following table shows a comparison of the work done each year since the Laboratory was organized:

NUMBER OF SPECIMENS EXAMINED SINCE LABORATORY WAS ORGANIZED.

	1896 and 1897	1898	1899	1900	1901	1902	1903	1904
Diphtheria.....	627	600	577	974	1,864	1,847	2,000	2,949
Tuberculosis.....	253	516	766	892	1,211	1,467	1,853	2,344
Typhoid fever.....	27	175	339	431	739	884	1,333	1,272
Malaria.....	4	*	53	113	196	151	98	
Miscellaneous.....	7	18	*	30	28	55	132	67
Totals.....	914	1,313	1,682	2,380	3,955	4,080	5,559	6,730

	1905	1906	1907	1908	1909	1910	1911	1912
Diphtheria.....	2,896	3,277	3,348	6,090	14,688	8,234	4,529	4,856
Tuberculosis.....	2,691	2,948	2,402	3,637*	4,208	4,520	4,938	5,427
Typhoid fever.....	1,263	1,556	1,975	2,543	2,261	3,028	3,342	3,899
Malaria.....	109	126	149	178	197	244	320	355
Miscellaneous.....	84	126	119	170	240	398	589	796
Totals.....	7,048	8,033	8,993	12,618	21,564	16,424	13,718	15,313

	1913	1914	1915
Diphtheria.....	7,083	10,802	25,297
Tuberculosis.....	6,136	6,589	6,346
Typhoid fever.....	3,582	3,205	4,426
Malaria.....	403	399	413
Miscellaneous.....	1,138	1,277	1,566
Totals.....	18,342	22,272	38,048

*The number of these specimens has not been recorded.

This table shows the steady increase in the work since the Laboratory was started and the remarkable increase during the past year.

The next table shows the number and kind of specimens examined during the year arranged by months.

NUMBER OF SPECIMENS EXAMINED FROM NOVEMBER 1, 1914, TO OCTOBER 31, 1915.

MONTHS.	DIPH- THERIA.		TUBERCU- LOSIS.		TYPHOID FEVER.		MALA- RIA.		MISCELLA- NEOUS.		Totals.
	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	Primary.	Secondary.	
November, 1914.....	1,928	5,795	386	61	306	44	17	3	77	24	8,641
December, 1914.....	623	4,056	390	93	144	38	17	1	98	23	5,483
January, 1915.....	605	2,246	472	88	212	17	12	1	108	22	3,776
February.....	445	1,552	476	84	161	19	22	12	94	25	2,580
March.....	768	1,001	613	109	175	26	27	1	95	16	2,771
April.....	340	883	528	80	313	31	25	1	108	24	2,333
May.....	322	246	471	81	185	31	48	1	110	34	1,528
June.....	248	338	460	95	207	29	31	1	92	20	1,523
July.....	228	285	387	74	291	33	44	1	107	29	1,481
August.....	312	721	400	70	1,011	109	51	1	116	28	2,823
September.....	686	338	389	88	582	83	66	5	123	34	2,394
October.....	752	944	372	79	336	49	32	1	118	38	2,715
Totals.....	7,168	18,096	5,344	1,002	3,917	509	392	21	1,249	317	38,048

The large number of examinations made for diphtheria, as shown by this table was chiefly due to an outbreak of diphtheria at the State Village for Epileptics at Skillman where between seven and eight hundred people were exposed to infection, making it necessary to take cultures from all persons at different times to control the spread of the disease. During this outbreak sixty-nine virulence tests were made to determine the virulency of the diphtheria bacillus found. These tests consumed considerable time and the use of a large number of guinea pigs but valuable information was obtained and is being worked up by the Bureau of Local Health Administration.

The following table shows the number and various kinds of miscellaneous specimens examined in the Laboratory from November 1, 1914, to October 31, 1915.

The number and various kinds of the 1,566 miscellaneous during the year:

Specimen for	Positive.	Negative.
Gonorrhœa	310	804
Rabies	38	60
Anthrax	1	1
B. tuberculosis (animals)		2
B. tuberculosis, fœces		2
B. tuberculosis, pleural fluid		1
B. tuberculosis, pus		17
B. tuberculosis, seminal fluid		1
B. tuberculosis, spinal fluid	5	2
B. tuberculosis, urine	3	43
B. typhosus, fœces	1	83
B. typhosus, milk		2
B. typhosus, urine	1	69
B. typhosus, water		15
B. para-typhosus		6
Blood for bacteria	1	1
Fœces for bacteria	1	
Glanders (animals)	2	1
Gonorrhœal Ophthalmia	1	9
Hog cholera (intestines)		2
Hook worm, fœces		2
Meningitis (animals)		1
Meningitis, spinal fluid	2	3
Pus for bacteria	45	6
Spinal fluid for Tetanus		1
Sputum for bacteria	1	
Treponema pallidum		2
Urine for bacteria	2	
Urine for Gonorrhœa	3	11
Vincent's Angina	1	1
	418	1,148

This table illustrates the kind of special examinations the Laboratory is called upon to make, any disease of a bacteriological nature being examined if received in a satisfactory condition.

The following table shows the number and species of animals examined for rabies from November 1, 1914, to October 31, 1915, inclusive:

The number and species of the ninety-eight animals examined from Nov. 1, 1914, to Oct. 31, 1915, were:

Dogs—positive, 38; negative, 48; unsatisfactory, 6.

Cats—negative, 2.

Cows—negative, 1; unsatisfactory, 2.

SQUIRRELS—negative, 1.

It will be noticed that all of the cases of rabies shown in this table occur in dogs and that there is a decrease in the number over last year, when fifty cases were found to be positive. It is to be hoped that the coming year will see a further decrease in the number of rabid animals throughout the State due to the passage of an act entitled "An Act for the Prevention and Control of Rabies," approved April 14, 1915, which prescribes certain regulations and penalties for failure to report all cases of rabies to the local board of health, and to the distribution of a com-

prehensive circular on rabies issued by the State Department of Health containing information regarding the cause, transmission, symptoms, treatment and prevention of this disease.

The following table shows that rabies is widespread throughout the State. Counties not included in this list may have had cases that did not reach this Laboratory for examination, as a number of heads are examined in the city laboratory of Newark, and others are sent to laboratories in Philadelphia and New York, while others are killed and no laboratory examination made.

Towns, by counties, from which brains found to be positive were received.

BERGEN—Oakland, 2.

BURLINGTON—Burlington, 2; Florence, 1; Medford, 1.

CAMDEN—Camden, 2; Delair, 1; Haddonfield, 2.

CUMBERLAND—Bridgeton, 1; Millville, 1; Vineland, 1.

GLOUCESTER—Clayton, 1; Paulsboro, 1.

HUDSON—Harrison, 1.

HUNTERDON—Lambertville, 2.

MERCER—Titusville, 1; Trenton, 3.

MORRIS—Morris Plains, 1; Towaco, 1.

PASSAIC—Clifton, 1; Passaic, 3; Paterson, 4.

SOMERSET—Bernardsville, 1.

UNION—Elizabeth, 1; Summit, 1; Westfield, 1.

WARREN—Phillipsburg, 1.

Total, 38.

The following table is intended to show that rabies is no more frequent in the warmer months than at other times, and the necessity for the continued muzzling of dogs if this disease is to be controlled:

Specimens for rabies examined from Nov. 1, 1914, to Oct. 31, 1915, by months:

Month.	Positive.	Negative.	Unsatis- factory.
November, 1914	5	4	
December, 1914	4	3	
January, 1915	2	4	
February	3	2	2
March	3	4	
April	3	7	
May		3	2
June	3	7	1
July	2	5	2
August	4	7	
September	4	5	
October	5	1	1
Totals	38	52	8

The following table shows the various kinds and the quantity of culture media furnished to persons engaged in public health work throughout the State. It is not the intention to profit by the sale of these products but to secure uniformity of methods and cooperation with the local boards of health.

Culture media and other laboratory supplies were furnished to persons engaged in public health work during the fiscal year ending Oct. 31, 1915, as follows:

Blood serum, 1,355 tubes; plain agar, 105,500 grams; plain broth, 9,500 grams; peptone bile, 29,000 grams; Endo media, 15,000 grams; Nessler's reagent, 1,000; N/50 sulphuric acid, 2,000 grams; lactose sulphite solution 1,000 grams. Miscellaneous—autogenous vaccine, 1.

DIVISION OF FOOD AND DRUGS.—William G. Tice, Chief Chemist, in charge.

SANITARY ACT.—The problem of how to secure clean and wholesome foodstuffs which enter into the composition of our diet has been engaging the attention of this Bureau since the passage of the Sanitary Act of 1909. It was thought when this law was passed that many of the obstacles which had previously prevented the securing of a clean food supply would have been removed. Unfortunately numerous difficulties relating to the enforcement of the act by the State Department of Health have presented themselves. The great difficulty in the way of State enforcement lies in the enormous amount of inspection work required.

It would seem scarcely possible that there are persons who would doubt the value of an act which tends to promote a more wholesome food supply and yet only recently has it been possible to interest either the consumer, the producer, or the local health authorities of many of the municipalities of the State.

During the year 2,813 grocery stores, 361 confectionery stores, 23 bakeries and 419 restaurants were inspected for the purpose of collecting samples and gathering information regarding the sanitary condition of such places.

In other years practically all the inspections relating to grocery stores and meat markets have been confined to the cities and more thickly populated centers. It was, therefore, believed advisable this year to devote most of our energies to the inspection of such places in the less thickly populated districts.

It was found as a result of this work that approximately 80 per cent of the places visited were in a satisfactory sanitary condition.

The investigation of those places where foodstuffs are displayed for sale in such a manner as to become contaminated by flies, dust and dirt also engaged the attention of this Bureau to a considerable extent.

Experience which has been gained in this work has led to a revision of the regulations which were previously enforced regarding the displaying of food products for sale.

The revised Rules and Regulations Governing the Exposure of Foodstuffs in this State read as follows:

RULES REGULATING THE EXPOSURE OF FOODS.

Under authority contained in Section 31, Chapter 217 of the Laws of 1907, and Section 11 of Chapter 231 of the Laws of 1909, the Department of Health at a regular meeting held September 7, 1915, has amended as follows the rules regulating the exposure of foodstuffs for sale:

Rule 1.—Fruits, vegetables, meats and other food products shall not be displayed or exposed on the sidewalk or outside of places of business unless such foods are securely protected from flies, dust and dirt, and so far as the same is possible by the use of all reasonable means, from all other foreign and injurious contamination. In the enforcement of this rule, the State Department of Health will hold that the foods enumerated in list No. 1, which follows, and other foods of the same general character,

must be securely covered at all times by cases of glass, wood or other metal, and that the foods enumerated in list No. 2 and others of like nature, may be displayed outside the store for sale without covering, if they are elevated at least eighteen inches above the sidewalk.

1. Foods which must be covered:

Meats	Apples	Plums
Fish	Pickles	Grapes
Oysters	Olives	Popcorn
Figs	Nuts, shelled	Bananas (with edible portion exposed)
Sauerkraut	Fruits, dried	Bakery Products (when not wrapped)
Dates	Currants	Melons (if cut)
Confectionery	Berries	
Peaches	Cherries	

2. Foods which need not necessarily be covered, but must be elevated at least eighteen inches above the sidewalk:

Pineapples	Turnips	Asparagus
Tomatoes	Nuts	Oranges
Radishes	Cabbage	Lemons
Sweet Potatoes	Green Peas (in pod)	Bananas
Melons (uncut)	Green Beans (in pod)	Beets
Onions	Cauliflower	Carrots
Grape Fruit	Cucumbers	Parsnips
	Potatoes	

Rule 2.—Prepared foodstuffs, such as bakers' goods, confectionery, shelled nuts, etc.; dried fruits, such as dates, figs, peaches, prunes, apricots, etc.; cereal products, such as tapioca, breakfast foods, etc.; pickled products, such as pickles, Chili sauce, etc.; fruit products, such as apple butter, jellies, jams, etc.; meat products, such as dried, salted, or smoked fish, veal loaf, pickled pigs' feet, chipped beef, boiled ham, mince-meat, or other foods prepared for eating, or subject to the attacks of worms or flies, shall not be displayed for sale unless protected from flies, dust and dirt and all other foreign and injurious contamination, by suitable coverings of glass, wood, or metal.

The annual Inter-State Fair held at Trenton the last week of September each year, attracts crowds of people ranging from 20,000 to 60,000 each day. These people must be provided with food and drink. The food is prepared in make-shift kitchens connected with restaurants or at open stands where it is exposed to clouds of dust raised by the people. Non-alcoholic beverages are prepared on the grounds and sold by the glass from open containers. For the purpose of facilitating the enforcement of the sanitary regulations governing the handling and sale of certain beverages and food products, an arrangement was entered into between the Department of Health of the State of New Jersey and the management of the Inter-State Fair Association whereby the permit issued by the Fair Association to the vendor would be revoked by that association, upon information furnished by inspectors of the Department of Health, that such sanitary regulations were being violated.

Three hundred and ten inspections were made of open stands where foods were sold and copies of the regulations governing the exposure of foods, together with verbal instructions were given to the operators of the stands to protect the foodstuffs from contamination by flies, dust

and dirt. Repeated inspections were made of the stands daily. As a result of this work the dealers provided glass cases, boxes and coverings of cloth for the foodstuffs, and covers of metal, wood or cardboard for the jars in which non-alcoholic beverages were stored. There was a disposition on the part of the vendors to protect the food and drink intended for consumption from contamination by flies, dust and dirt.

One hundred and ninety-nine inspections were made of stands at which non-alcoholic beverages were sold and copies of the Law and Regulations Governing the Distribution and Sale of Non-Alcoholic Beverages were given to the proprietors of these stands. An investigation was also made in regard to the ingredients used in these beverages. When it was found that the beverage was an imitation or artificial one, or contained added color, the vendor of such drinks was required to display in a prominent place, a notice that the beverages being offered for sale were imitations or that they contained added color. The admission was made at one stand that the beverages offered for sale contained added color. The proprietor of this stand refused to allow the signs informing the public of this fact to remain in a conspicuous place. This man was compelled to do this, however, through the cooperation of the Fair Association. At only one stand was it learned that saccharine was used as an artificial sweetener in soft drinks. Further sale of the beverage containing this substance was ordered discontinued and the vendor was required to prepare a new lot without the addition of the saccharine. So far as could be ascertained no substances were being used in non-alcoholic beverages that were injurious to the health, although, in many instances, the beverages were of inferior quality. The principal object of our work in this line was to protect the public against fraud.

For the purpose of obtaining information regarding the conditions under which foods are prepared and handled at restaurants, an investigation was conducted. It was found that many of the kitchens were not provided with equipment adequate to handle foods without contamination. In many instances no floors were provided, the sidewalls and ceilings were not tight and in some instances were not clean, foods were stored in rough wooden boxes or in shallow pans upon the ground, crude wooden vats were used in which to cleanse utensils, adequate facilities were not provided to enable employees to wash their hands and no systematic method for the storage, collection and disposal of garbage was provided.

The Inter-State Fair is held for one week only during each year and because of this fact it seems unreasonable to expect such equipment as is demanded where foods are prepared throughout the year, yet it seems to be desirable to have the necessary equipment to enable those persons leasing such restaurants to prepare and handle foods without contamination.

The following table shows the number and kinds of places visited by inspectors during the year for the purpose of gathering information relating to sanitary conditions:

Milk Wagons, 1,457; Milk Depots, 198; Grocery Stores, 2,541; Drug Stores, 374; Confectionery Stores, 318; Slaughter-Houses, 705; Meat Markets, 272; Ice Cream Factories, 12; Creameries, 24; Canning Factories, 159; Bottling Establishments, 276; Cold Storage Warehouses, 290; Egg Breaking Establishments, 102; Bakeries, 23; Restaurants, 419; Soft Drink Stands, 322; Butter Stores, 18; Miscellaneous Inspections, 5; Total, 7,515.

INSPECTION OF SLAUGHTER-HOUSES: In the last annual report it was shown, as a result of almost five years' systematic inspection of slaughter-houses, that practically every place wherein animals were slaughtered for human food was maintained in a clean condition and operated in substantial compliance with the Slaughter-house Act.

At the beginning of the present fiscal year, it was thought desirable to make inspections of as many of the rural slaughter-houses as possible. First, because experience has demonstrated the necessity of almost constant supervision in order to satisfactorily enforce the Slaughter-house Act, and second, in order to secure information regarding the slaughtering of small amounts of stock in places for which licenses have not been secured.

The following summary shows the results of inspections of slaughter-houses during the past year:

Slaughter-houses operating at this time, 274; inspections since Nov. 1, 1914, 705; licenses issued since Nov. 1, 1914, 45; licenses issued previous to this year, 224; slaughter-houses operating under licenses, 266; licenses revoked during the year, 3.

The above list does not include farmers who may slaughter animals raised by themselves. It also does not show small dealers who slaughter animals occasionally on farms where these animals are purchased.

It is of interest to observe that the rural slaughter-houses with which so much difficulty was experienced, at first, in the enforcement of the Slaughter-house Act were usually found to be in a satisfactory state of cleanliness.

MEAT INSPECTION: Investigations which have been made in other years have produced sufficient proof that a great many diseased animals, which are unfit for food, are slaughtered and sold for that purpose. Important as the work may be it has been impossible this year to make a systematic inspection of the meat offered for sale in this State, due to the fact that our slaughter-house inspector has been almost entirely engaged in the suppression of the foot and mouth epizootic, and other investigations relating to contagious diseases in animals.

COLD STORAGE: The cold storage industry of New Jersey preserves enormous quantities of perishable foodstuffs until a demand causes their removal from storage. Large public warehouses located in Jersey City

and Newark are engaged largely in preserving eggs, butter, poultry and meats generally produced in some distant section or country and intended for redistribution to points in this country or to points in foreign countries. The smaller cold storage plants located in the rural districts are used to preserve the products of those sections. Several of these plants are used for the storage of fruits produced on properties of owners of warehouses. Other warehouses are owned by fish companies and are used to freeze fish taken along the coast of New Jersey.

The following table shows the names and locations of the cold storage plants, the capacity of the warehouses and the condition of such places:

NAME.	Location.	Capacity.	Condition.
Marine Freezing Co.	Anglesea.	20,000 cu. ft.	Good.
Ocean Pier Fish Market Co.	Atlantic City.	15,000 "	Fair.
A. Salus & Sons.	Atlantic City.	2,000 "	Good.
Hotel Strand.	Atlantic City.	6,000 "	Good.
Arctic Ice & Milk Co.	Bridgeton.	25,000 "	Good.
Albert Hansell.	Burlington.	28,000 "	Good.
Joseph Campbell Co.	Camden.	27,000 "	Good.
Nevius & Connet.	Flemington.	8,000 "	Good.
John Reppe Ice & Cold Storage Co.	Glassboro.	3,000 "	Good.
Eastern States Refrigerating Co.	Jersey City.	700,000 "	Good.
Merchants' Refrigerating Co.	Jersey City.	3,000,000 "	Good.
Swift & Co.	Jersey City.	205,200 "	Good.
Union Terminal Cold Storage Co.	Jersey City.	1,500,000 "	Good.
Block Ice & Cold Storage Co.	Manasquan.	78,565 "	Good.
Monmouth Beach Fish Co.	Monmouth Beach.	25,000 "	Good.
Moorestown Ice & Storage Co.	Moorestown.	31,000 "	Good.
Merchants' Refrigerating Co.	Newark.	900,000 "	Good.
North Newark Ice & Refrigerating Co.	Newark.	100,000 "	Good.
Van Wagenen & Schickhaus Co.	Newark.	25,000 "	Good.
Wilkinson Gaddis Co.	Newark.	114,000 "	Fair.
Droste & Snyder.	Paterson.	3,000 "	Good.
Henry Muhs Co.	Paterson.	2,500 "	Good.
Joseph R. Shimer Co.	Phillipsburg.	27,000 "	Good.
Riverton Ice & Cold Storage Co.	Riverton.	150,000 "	Good.
J. Clark Helms.	Swedesboro.	2,800 "	Good.
D. P. Forst & Co.	Trenton.	9,000 "	Good.
Holcombe & Wilson.	Trenton.	5,000 "	Good.
Woodstown Ice & Cold Storage Co.	Woodstown.	25,000 "	Good.

The European War has continued to have a marked effect upon the business of the large warehouses in Jersey City and Newark, during the past year. Large quantities of meat have collected at the Port of New York. The failure to secure adequate shipping facilities for this meat necessitated the preservation of the food until suitable shipping arrangements could be made. The warehouses have preserved the enormous quantities of meat in excellent condition.

The following summary shows the amounts of foods held in cold storage warehouses in this State, as submitted by warehousemen in accordance with the Cold Storage Law, during the years 1914 and 1915.

COMPARISON OF AMOUNTS OF FOODS HELD IN COLD STORAGE.

ARTICLE.	Reported as	Jan 1, 1914	Jan. 1, 1915	April 1, 1914	April 1, 1915
Eggs	Dozens.	2,869,740	5,000,700	67,830	1,738,590
Eggs, broken	Pounds.	53,500	115,906	6,750	66,936
Butter	"	2,234,873	2,663,215	527,930	369,418
Cheese	"	117,540	405,376	92,311	107,169
Poultry	"	6,993,766	6,833,940	6,348,532	6,264,841
Meats, fresh	"	3,704,873	6,853,052	6,766,688	16,223,115
Meats, salt	"	96,076	17,851	158,443	614,636
Fish, fresh	"	1,573,943	1,233,541	65,755	258,589
Fish, smoked	"	506,400	274,014	304,060	198,400
Fruits, dried	"	55,230	35,555		20,195
Nuts	"	1,545	2,220	1,465	100
Fruits, green	Pkgs.	189,013	240,059	90,261	61,044
Vegetables	"	7,043	6,646	3,055	23,243
Miscellaneous	"	4,144	5,410	3,120	4,614

COMPARISON OF AMOUNTS OF FOODS HELD IN COLD STORAGE.—Continued.

ARTICLE.	Reported as	July 1, 1914	July 1, 1915	Oct. 1, 1914	Oct. 1, 1915
Eggs	Dozens	18,596,070	21,825,240	17,913,090	19,445,880
Eggs, broken	Pounds.	92,960	166,055	77,075	137,765
Butter	"	4,491,929	5,596,018	6,153,428	9,128,754
Cheese	"	327,439	126,180	588,736	857,728
Poultry	"	3,194,275	4,220,161	2,340,902	3,474,586
Meats, fresh	"	4,498,356	7,081,725	2,091,743	4,107,078
Meats, salt	"	158,370	1,734,213	37,567	1,097,372
Fish, fresh	"	1,533,383	840,643	2,000,991	903,666
Fish, smoked	"	328,621	11,470	305,696	114,220
Fruits, dried	"	170,482	307,153	55,443	229,275
Nuts	"	5,935	7,525	5,380	8,620
Fruits, green	Pkgs.	3,441	303	158,173	136,686
Vegetables	"	477	2,518	1,412	20,922
Miscellaneous	"	4,027	7,186	17,177	8,815

From the above table it can be seen that the amount of fresh meats in storage on April 1, 1915, was far in excess of the amount on hand on the corresponding date last year, when the amount stored was normal for the season. The increase in the amount of eggs in storage on April 1, 1915, over the corresponding date last year is attributed to the fact that the present season is in advance of the normal season in the production of eggs.

Because of the large amounts of fresh meats prepared for export, the space in the rooms properly equipped to maintain temperatures sufficiently low to preserve fresh meats was limited during the months of January, February and March, 1915. During these months most of the slaughtering of swine is carried on and the pork must be cured, or preserved in a fresh condition, to be cured at some future time. Last winter unusually large numbers of swine were killed and the packers were compelled to place much of the pork in cold storage. One warehouse accepted about 100,000 pounds of fresh pork and attempted to freeze and store it in a room equipped for the storage of eggs, although the temperature of this room could be lowered to 22° F. Because of the volume of pork which arrived at this place within a very short period of time and the lack of space in the warehouse, the pork was not spread in isolated pieces for freezing, but was placed in piles. After storage of

three months it was found that this pork was not in the best of condition. This pork was removed from storage and taken to an establishment under inspection by the Bureau of Animal Industry, United States Department of Agriculture. It has been found necessary to condemn but very few pounds of this pork.

The following table shows the kinds and amounts of foods found in cold storage warehouses in this State, in a condition unfit for food purposes and the disposition of such goods:

ARTICLE.	Quantity.	Condition.	Disposition.
Celery	30 crates	Partly decayed	Removed.
Celery	3 crates	Partly decayed	Removed.
Celery	128 crates	Partly decayed	Removed.
Celery	40 crates	Partly decayed	Removed.
Poultry	300 pounds	Decomposed	Destroyed.
Poultry	150 pounds	Decomposed	Destroyed.
Poultry	1,810 pounds	Decomposed	Destroyed.
Fish, fresh	300 pounds	Decomposed	Destroyed.
Fish, fresh	1,200 pounds	Decomposed	Destroyed.
Fish, fresh	600 pounds	Decomposed	Destroyed.
Lobsters	75 pounds	Decomposed	Destroyed.
Sauerkraut	2 barrels	Decomposed	Destroyed.

During the year 290 inspections have been made of cold storage warehouses in this State. In general it may be said that the cold storage warehouses of New Jersey have been kept in a sanitary condition. The preservation of enormous quantities of perishable foodstuffs with a very small percentage of loss has been accomplished by the cold storage industry of New Jersey with a corresponding benefit to the people.

Eggs: The Legislature of the State of New Jersey in 1914 passed an Act regulating the sale, handling and distribution of eggs and egg products. This law requires that no person shall operate an establishment where the business of breaking eggs is carried on unless a license has first been issued by the Board of Health of the State of New Jersey. Preliminary work was done in the summer of 1914 in making inspections of places for which applications for licenses had been made and a number of licenses were granted. This work has been continued during the past seven months. At the present time seven establishments hold licenses granted by the Board to conduct the business of breaking eggs.

The following table gives the names of owners, the address, the kind of business for which the license was granted and the condition of the establishment at the time of the last inspection:

OWNER.	Address.	License granted to break eggs for	Condition.
Great Atlantic & Pacific Tea Co.	Jersey City	Food purposes only	Good.
Louis Meyer	Jersey City	Food purposes only	Fair.
Philipp Weber	Jersey City	Manufacturing purposes	Good.
Droste & Snyder	Newark	Food purposes only	Good.
Swift & Co.	Newark	Food purposes only	Good.
Droste & Snyder	Paterson	Food purposes only	Good.
Holcombe & Wilson	Trenton	Food purposes only	Good.

Inspections have been made of these establishments during the year and it has been found that they have been conducted in a more careful manner than in the past. At the present time eggs are broken only in rooms especially equipped for that purpose. In case the product is to be used for food, the eggs are candled before they are taken to the rooms in which they are to be broken. A few eggs are broken into a cup in order that a musty egg may be detected before it comes in contact with the egg material in a large container. By using such methods in a room that is clean, well ventilated and well lighted, the "rots," "spots" and musty eggs are separated from the finished product.

The activities of the United States Department of Agriculture directed against interstate traffic in rotten eggs resulted in a conviction of a number of dealers in New York and New Jersey. The enforcement of the interstate law has discouraged the breaking of eggs for food by small dealers who are unable to give guarantees of their product to satisfy the bakers. At present five or six establishments holding licenses to break eggs for food purposes are large established concerns.

In the case of those establishments where eggs are broken for manufacturing purposes only, the approval of the site by the local board of health must be secured and submitted to the State Board of Health before the application for a license is considered. Only one such establishment is licensed in this State at the present time and this place is located away from the settled district and has been conducted in accordance with the Law, Rules and Regulations Governing Egg Breaking Establishments. Another establishment located in the settled district forwarded a written statement to this office, before a license was granted to them, that they desired to break eggs for manufacturing purposes for foreign export and that the purchasers insisted that nothing be added other than boric acid. This egg yolk was exported to Europe in cases which were marked with the words "For manufacturing purposes only." Upon information from London, received through the United States Department of Agriculture, that this egg yolk was being used for food purposes, the license granted to this firm to conduct a business of breaking eggs for manufacturing purposes only, was revoked by the Board of Health at a regular meeting on June 22, 1915. Some time after the revocation of this license this establishment was abandoned.

An attempt has been made to find a substance which may be added to egg yolk, said to be for manufacturing purposes only, which will render the egg yolk unfit for food purposes and yet not interfere with its use in manufacturing. The addition of coloring substances is objected to by the manufacturers. Experiments have been made with various fish oils, but these have been found unsatisfactory in rendering the material unfit for food. Certain manufacturers permit the addition of salt and this material is being used in the one establishment where egg substance is prepared for use in manufacturing.

CANNING FACTORIES: This is the second successive year that the canning industry has been seriously hampered by the quality of the stock produced. The crop of tomatoes were deficient in quantity and inferior in quality, due, it is claimed, to excessive rains through the growing season, and to a prolonged period of hot weather during the first part of September. The average pack of the entire State was about 40 per cent below normal.

One hundred and fifty-nine inspections have been made during the year at seventy-six canning factories. Of this number ten were new companies, which had not previously operated in this State. Despite the unfavorable conditions of the crop there has been a tendency on the part of the canners to improve their establishments. At three factories the floors have been much improved and at two factories new floors have been constructed. Improved toilets have been provided at seven factories and in two other establishments modern washers were in use.

The steam cooker to replace the open tank method of preserving is gradually being introduced. Last year there were three in use in this State, while this season five have been installed, making a total of eight now in use. It is claimed that the cookers are less costly to operate and tend to produce more efficient processing. While still in an experimental stage indications point to their rapid adoption.

There are two problems with which difficulty is experienced each year, in our inspections of canning houses. One relates to the toilet facilities and the other to the disposal of canning factory refuse. Undoubtedly it is troublesome to keep privies in a clean condition, yet this would seem to be perfectly possible and not an unreasonable requirement. With proper management their condition can be controlled by the factory operator. This year five so-called chemical toilets have been installed at various factories, which have apparently been satisfactory. The problem of disposing of the canning factory wastes is a more difficult one. It is still a mooted question as to how this problem can best be handled. In order to solve this problem a small experimental disposal plant for the treatment of these wastes is needed.

Summarized, we have in this State, ninety canning factories, of which seventy-six are operating this year. They may be classified as follows: Excellent, 15; Good, 32; Fair, 27; Poor, 2.

In the following table is shown the results of examinations of such samples of tomato pulp and similar products as were collected during the canning season:

BACTERIOLOGICAL EXAMINATION OF TOMATO PRODUCTS.

OWNER.	LOCATION.	Product Examined.	Sample Number.	Yeasts and spores per one sixteenth cubic centimeter	Average per cent. fields showing molds.	Bacteria per cubic centimeter.
Alart & McGuire.	Williamstown.	Catsup.	A 1313	4	4	28,000,000
Alart & McGuire.	Williamstown.	Catsup.	L 3014	4	4	16,800,000
Alart & McGuire.	Williamstown.	Catsup.	L 3015	4	2	19,200,000
Alloway Packing Co.	Alloway.	Paste.	A 1308	6	8	21,600,000
Alloway Packing Co.	Alloway.	Paste.	A 1309	4	8	19,600,000
C. B. Ayars Co.	Bridgeton.	Pulp.	A 1303	2	4	21,600,000
Walter Baker.	Bridgeton.	Pulp.	L 3023	10	18	21,600,000
Walter Baker.	Bridgeton.	Pulp.	L 1319	8	10	26,400,000
Walter Baker.	Bridgeton.	Pulp.	L 3024	15	15	21,600,000
Walter Baker.	Bridgeton.	Pulp.	L 3025	12	10	19,200,000
Garret Bergen Co.	Bridgeton.	Pulp.	L 1304	4	8	24,800,000
G. J. Biondi.	Cliffwood.	Sauce.	A 1239	8	12	24,000,000
G. J. Biondi.	Cliffwood.	Sauce.	A 1240	10	10	24,000,000
C. S. Bucklin.	Phalanx.	Pulp.	A 1237	6	4	21,600,000
Crine Packing Co.	Morganville.	Catsup.	A 1241	7	2	21,600,000
Crine Packing Co.	Morganville.	Catsup.	A 1242	4	4	38,400,000
Colonial Conserve Co.	Daretown.	Pulp.	A 1305	(Unfit for analysis when received at Laboratory)		
Edgar W. Davies.	Leesburg.	Pulp.	A 1316	1	2	12,200,000
Fort Stanwix Canning Co.	Glassboro.	Pulp.	A 1311	4	8	14,400,000
E. B. Huff.	Swedesboro.	Pulp.	A 1325	4	3	9,600,000
Samuel Kelly, Son.	Quinton.	Paste.	A 1307	15	10	28,800,000
Samuel Kelly, Son.	Quinton.	Paste.	A 1246	6	8	24,000,000
Samuel Kelly, Son.	Quinton.	Paste.	A 1247	10	8	26,400,000
Samuel Kelly, Son.	Quinton.	Paste.	A 1248	6	8	24,000,000
Samuel Kelly, Son.	Quinton.	Paste.	A 1249	10	8	26,400,000
Samuel Kelly, Son.	Quinton.	Paste.	A 1250	11	10	24,000,000
Leonard, Keough Co.	Iona.	Pulp.	A 1314	5	6	12,000,000
Francis Leggett Co.	Landisville.	Catsup.	A 1238	8	8	12,000,000
Morris Canning Co.	Lambertville.	Puree.	A 1310	6	10	16,800,000
Ed. Pritchard.	Winslow Junction.	Pulp.	A 1318	2	2	15,680,000
Chas. Raab.	Williamstown.	Pulp.	A 1312	4	6	16,800,000
Rio Grande Packing Co.	Rio Grande.	Pulp.	A 1317	12	8	21,600,000
T. Roncoroni.	Elmer.	Paste.	A 1320	6	6	24,000,000
T. Roncoroni.	Elmer.	Paste.	A 1321	5	5	26,400,000
T. Roncoroni.	Elmer.	Paste.	A 1322	4	6	24,000,000
T. Roncoroni.	Elmer.	Paste.	A 1323	7	4	24,000,000
T. Roncoroni.	Elmer.	Paste.	A 1324	4	6	26,400,000
T. Roncoroni.	Quinton.	Paste.	A 1226	8	6	26,400,000
T. Roncoroni.	Quinton.	Paste.	A 1227	7	4	24,000,000
T. Roncoroni.	Quinton.	Paste.	A 1228	6	6	28,800,000
T. Roncoroni.	Quinton.	Paste.	A 1229	6	4	21,600,000
T. Roncoroni.	Quinton.	Paste.	A 1230	8	4	24,000,000
T. Roncoroni.	Quinton.	Paste.	A 1231	5	4	24,000,000
T. Roncoroni.	Quinton.	Paste.	A 1232	10	6	28,800,000
T. Roncoroni.	Quinton.	Paste.	A 1233	5	4	31,200,000
T. Roncoroni.	Quinton.	Paste.	A 1234	4	8	28,800,000
T. Roncoroni.	Quinton.	Paste.	A 1235	6	6	24,000,000
Salem Canning Co.	Quinton.	Pulp.	A 1306	11	6	60,000,000
Salem Canning Co.	Quinton.	Puree.	L 3016	6	6	24,000,000
Salem Canning Co.	Quinton.	Puree.	L 3017	7	5	21,600,000
Salem Canning Co.	Quinton.	Puree.	L 3018	5	6	38,400,000
Salem Canning Co.	Quinton.	Puree.	L 3019	5	6	36,000,000
Salem Canning Co.	Quinton.	Puree.	L 3020	6	5	28,800,000
Salem Supply Co.	South Dennis.	Pulp.	A 1315	4	6	16,800,000
A. C. Soper Co.	Farmingdale.	Catsup.	A 1236	2	3	12,000,000
Luigi Vecchi.	Hazlett.	Paste.	A 1243	8	6	21,600,000
Luigi Vecchi.	Hazlett.	Paste.	A 1244	10	12	21,600,000
Luigi Vecchi.	Hazlett.	Pulp.	A 1301	18	4	33,600,000
Luigi Vecchi.	Hazlett.	Paste.	A 1302	8	6	24,800,000

NON-ALCOHOLIC BEVERAGES: The manufacture of non-alcoholic beverages is an industry which has grown rapidly in recent years. The market for this class of products is almost unlimited.

We have in this State two distinct classes of manufacturers: the bottler, who devotes his efforts to the production of clean, wholesome drinks, in bottling works which are built according to recognized sanitary principles; and the producer, who attempts to conduct his business in a cellar, badly lighted and ventilated, using bottles which are imperfectly washed and preparing his beverages from synthetic flavors, artificial coloring, saccharine and water. The condition just mentioned results in two things: an indiscriminating public purchases an inferior article for a lesser price, while the manufacturer of the good product, being unable to compete, finds his business slipping away from him.

For several years the Legislature has been asked to pass an act to regulate the sale of non-alcoholic beverages, but it was not until this year that a comprehensive law was enacted. It is known as Chapter 357 of the Laws of 1915, and became effective June 1st. Section 1 reads as follows:

1. No person shall distribute or sell, or manufacture for distribution or sale, or have in his possession with intent to distribute or sell, any beverage which is a non-alcoholic drink within the meaning of this act, which contains any boric acid or borate, salicylic acid or salicylate, formaldehyde, hydrofluoric acid, or fluoride, fluoborate, fluosilicate or other fluorine compound, dulcin, glucin, saccharine, beta-naphthol, hydronaphthol, abaristol, asaprol, compound of copper, pyroligneous acid, coal-tar dye (except the certified colors now permitted by the U. S. Department of Agriculture, to wit: Amaranth, ponceau 3R., erythrosin, orange 1, naphthol yellow S., light green S. F. yellowish, indigo disulfo acid), saponin, except derived from soap bark or other substance deleterious to health.

Freed of its legal verbage the gist of Section 1 is as follows:

PRESERVATIVES:—The commonly used preservatives, such as boric acid, sodium borate, salicylic acid, sodium salicylate, and formaldehyde, are prohibited. The use of sodium benzoate is, however, not prohibited.

SACCHARINE:—This chemical, generally known in commerce as saccharine, is, roughly speaking, 500 times as sweet as sugar. This means that one pound of saccharine will sweeten as much water as 500 pounds of sugar. In the bottled sodas so far examined, in which saccharine has been found, sometimes only a slight amount was used and nearly as much sugar occurs as is found in some of the cheaper soda waters which do not contain saccharine. In other instances, however, not more than half or perhaps a third as much sugar was used as would be required in making soda water sufficiently sweet, and the remainder was made up of saccharine. In still other instances saccharine has been found to have been the only sweetening substance used. Sugar is the only proper sweetener for syrups or bottled beverages. Glucose, because of its lower sweetening power, is unsuited for the purpose, while saccharine and other chemical sweeteners are objectionable, both because of their lack of nutritive properties and their possible injuriousness to health. Bottled

sodas are not primarily used for foods, nevertheless when sugar is used as a sweetener they do possess a definite food value and when saccharine is substituted for the sugar they possess none. The use of saccharine is prohibited by Section 1 of the Soft Drink Act.

COAL TAR DYES:—The use of coal tar dyes for the use of coloring non-alcoholic beverages is limited to the certified colors permitted by the United States Department of Agriculture; seven in number. Only these coal tar dyes, either alone or mixed, are permitted to be used in foods, and they must be made specifically for use in foods, and bear a guarantee from the manufacturer that they are free from subsidiary products and represent the actual compounds of the names they bear.

The Act does not prohibit the use of harmless vegetable colorings.

SAPONINS:—The saponins include a large number of glucoside-like bodies of wide spread occurrence in the vegetable kingdom, and having in common certain chemical, physical and especially physiological properties. Their aqueous solutions when shaken foam readily. Because of their foam producing properties, certain of the saponins, notably the Quillaja Saponaria, have been used by some bottlers to produce a "head" or froth on soda water. When the Soft Drink Act was introduced it was the intention to prohibit the use of added foam producers. However, the bill was amended in the Senate so as to prohibit the use of all saponins, except those derived from soap bark. Unfortunately, a comma was omitted after the word soap bark. Because of this fact it seems likely that this part of Section 1 would be held to be invalid.

Section 2 of the Act reads:

2. No person shall distribute or sell, or have in possession with intent to distribute or sell, any non-alcoholic drink within the meaning of this act which is an imitation of any other non-alcoholic drink, unless the bottle or other container in which the same is contained is plainly marked with the word "imitation" or "artificial" on the label or cap thereof, in letters of the same size and type as those of the name of such non-alcoholic drink under which the same is distributed or sold, or had in possession with intent to distribute or sell.

This section means of course that all non-alcoholic drinks that are imitated must be labelled.

The third section defines the term "non-alcoholic drink."

3. The term "non-alcoholic drink" as used in this act shall include carbonated beverages of all flavors, sarsaparilla, ginger ale, soda water of all flavors, lemonade, orangeade, root beer, grape juice, and all other beverages of any kind or character, whether similar or not to the beverages specifically mentioned, either containing no alcohol at all or containing not more than one per centum of alcohol.

The fourth section is as follows:

4. No person shall distribute or sell, or have in possession with intent to distribute or sell, any non-alcoholic drink at any place where false or fraudulent statements or designs are displayed concerning such non-alcoholic drink.

The purpose of this section is obvious. There are few of us who have not observed the claims of the extravagant virtue on many of the signs displayed at places where soft drinks are sold.

On June 1st, when the Soft Drink Act became effective, the problem almost immediately presented itself as how best it could be enforced. It was apparent that some rules to be used as a guide in the interpretation of the Act were necessary. Certain Rules were therefore adopted by the Board which may be found in the report of the Director.

The first of the rules provides that all beverages must be sold under names which will not mislead the purchaser as to their flavor and composition.

Rule 2 reads as follows:

2. The sale of any beverage under the name of a fruit juice, unless it is in fact the juice of the fruit under whose name it is sold and contains no added ingredient other than sugar, is prohibited and if sugar has been added such addition must be declared on the label.

It has been the general practice among many bottlers in the State to prepare non-alcoholic drinks using synthetic or imitation fruit flavors and labeling the same so as to indicate that the drink was prepared from true fruit juices. The beverages sold as strawberry soda, raspberry soda, etc., are in practically every case imitations, and are not entitled to these names without qualification. Practically all such drinks are made, not from fruits by expressing the juice, but by combining artificial flavoring substances, with color, sugar and water.

Rule 5 defines an imitation, and reads as follows:

5. Any soft drink prepared wholly, or in part with artificial flavor in such a manner as to counterfeit or imitate a soft drink made with natural flavor, will be regarded as an imitation within the meaning of Chapter 357 of the Laws of 1915, and must be labelled with the word "imitation" if sold under the name of the article which it imitates.

Rule 8 describes the manner in which bottles shall be labelled, and reads as follows:

8. The bottle or other container in which an artificial soft drink is contained must be plainly marked with the word "imitation" or "artificial" on the label or the cap thereof. The container will not be regarded as plainly marked if the type is less than "nine point" or if the color of the printing is not in marked contrast to the color of the ground upon which it is printed.

With respect to the use of artificial colors, the Department has held that the presence of added color must be declared upon the cap or label, except in such soft drinks as are sold under distinctive names or in which the added color is not one which simulates the color of the natural product.

Another important factor to be considered is the cleanliness of the establishment where non-alcoholic beverages are prepared. Under authority contained in the Sanitary Act a number of rules were prepared and adopted by the Board which relate to the sanitary conditions

of bottling establishments. These rules will be found in the report of the Director.

Since the passage of the act regulating the sale of non-alcoholic beverages, 167 establishments were visited and 97 reinspections were made. At 131 of these establishments the floors were cement and in 36 plants the floors were of wood. In 69 plants the floors were found to be unclean and in a number of instances were not tight. The sidewalls of 81 establishments were of wood, 69 of cement and 17 of plaster. The sidewalls in 67 plants were in an unclean condition. It seems scarcely possible that such an indispensable accessory as hot water was not available, yet in only 75 places was it provided.

The thorough washing of all bottles to be used as containers for non-alcoholic beverages, is a necessity. In numerous instances it was found that bottles were not thoroughly washed nor could they be by the methods in use. In many places it was the practice to soak containers in cold water or water to which had been added a weak alkali, for a short period of time, after which they were rinsed with cold water, inverted in wooden cases and permitted to dry. In only 70 of the 167 places inspected were bottles found to be efficiently cleansed. When it is considered that at 34 places the "Hutchinson Plunger Bottle" is in use the need of adequate facilities for washing bottles is at once apparent.

The mixing of flavors and the compounding of syrups in 93 instances was being carried on in the same room in which bottling is done, and in certain instances under conditions which rendered the contamination of these substances possible. The Department has therefore recommended separate rooms for the mixing of syrups.

It was found at 16 places that the drainage system was inadequate to care for waste liquids, 65 establishments were using dirty utensils, the outer clothing of employees at 44 places was unclean and only 27 establishments were provided with screens. Soap and towels were provided at 44 plants and in 16 instances stables were located adjacent to the bottling room, which were not separated by tight partitions.

Using the classification Good, Fair and Bad to broadly indicate the condition of these establishments, 34 were graded as Good, 53 as Fair and 80 as Bad.

Up to the present time it has only been possible to reinspect 97 factories for the purpose of ascertaining whether conditions had improved, as a result of recommendations made by this Department. Of these 97 places visited on first inspection 15 places were graded as Good, 27 Fair and 55 Bad. Upon reinspection these same places were classified as 36 Good, 29 Fair and 23 Bad. 9 places had discontinued business. It can be seen therefore that on first inspection 15.4 per cent were graded as Good, while upon reinspection 40 per cent were in this grade, and further that there were 26.1 per cent in the class known as Bad, as compared with 56.7 per cent which were included in this grade before reinspection.

During the year 4,836 samples of food and drugs were examined in the Laboratory, of which 13.2 per cent were found to be below the legal standard.

The following shows the number and kind of samples examined:

Milk and cream, above standard, 3,076; below standard, 256. Foods other than milk and cream, above standard, 758; below standard, 233. Drugs, above standard, 363; below standard, 150.

The number and kinds of foods other than milk and cream examined during the past year were:

Article	Above Standard.	Below Standard.
Allspice, ground	20	
Almond Extract	21	2
Anise Extract	1	
Asparagus, canned	1	
Baking Powder	1	
Baking Soda	1	
Beef, canned		1
Beef, cooked	1	
Butter	93	40
Candy	4	
Cider, sweet	1	1
Cinnamon, ground	16	
Cloves, ground	17	
Condensed Milk	1	
Eggs	7	2
Fish, canned	5	4
Flavors and Syrups used in preparation of soft drinks	27	7
Flour	2	
Ginger, ground	12	
Ginger Extract		1
Hamburg Steak	14	3
Honey	1	
Ice Cream Cones	4	
Jelly Powder	5	
Lard	1	
Lemon Extract	92	59
Mace, ground	13	
Mince Meat	1	
Mustard	16	
Nutmegs, ground	1	
Oleomargarine	14	
Olive Oil	5	1
Orange Extract	16	13
Peaches, canned	2	
Pickle (used to pickle meat)	2	1
Pepper, black	27	
Pepper, red	11	
Pepper, white	17	
Peppermint Extract	1	
Preservative	1	
Sausage	21	7
Seasoning (used in sausage)	1	
Soft Drinks	93	46
Tomatoes, canned	3	3
Tomatoes, pulp, paste	37	15
Tomatoes, catsup	7	2
Vanilla Extract	99	21
Vinegar, cider	7	4
Vinegar, distilled	2	
Gin	4	
Whiskey	5	
Wine	1	
Miscellaneous examinations	3	
Totals	758	233

The number and kinds of drugs examined during the year were:

Article	Above Standard.	Below Standard.
Acetanilid Tablets	34	7
Amygdalæ Expressum	31	2
Aqua Ammonia		1
Aqua Hammelidis	4	
Bateman's Drops	1	
Calax Chlorinata	2	
Calcium Lactate Powders	2	
Complexion Cream	1	
Consumption Cure		1
Cough Remedies	2	4
Cream of Tartar (substitute)	1	
Disinfectant	2	
Emulum Olei Morrhuæ	6	
Epsom Salt	1	
Ginger and Capsicum	1	
Hair Tonic	8	
Headache Remedies	1	1
Insecticides		1
Kendrick's Remedy	3	3
Liniment	2	2
Linimentum Camphoræ	2	
Liquor Calcis	1	1
Liquor Citratis Magnesii	2	
Lithiated Sorghum	1	
Liquor Iodii Compositus	3	4
Oleum Caryophylli	1	
Oleum Ricini	75	
Phenacitin Tablets		1
Quinina Bisulphas		1
Rheumatic Remedies		1
Spiritus Aetheris Nitrosi	1	
Spiritus Ammonia Aramaticus	1	2
Spiritus Anisi	1	
Spiritus Gaultheria	11	5
Spiritus Mentha Piperita	107	100
Spiritus Myrcia	17	
Strontii Bromidum	1	
Tinctura Arnica	23	
Tinctura Opil Camphorata	1	
Tinctura Iodii	5	6
Tinctura Opil		3
Tinctura Zingiberis	2	1
Toilet Waters	5	2
Miscellaneous examinations	1	1
Totals	363	150

MILK AND CREAM: Since the beginning of the fiscal year 3,332 samples of milk and cream have been examined, of which 256 were found to vary from the legal standard. The samples found to differ from the legal standard may be divided into the following classes:

Milk below the legal standard with respect to solids	168
Milk containing added water	79
Milk having been skimmed	3
Milk containing preservatives	1
Cream below the standard with respect to fat	5

Total 256

The examination of samples of milk and cream collected by our inspectors and of such samples as have been submitted by local boards of health, has consisted in the determination of solids and butter fat. The use of coloring matter and preservatives in milk appears to have been discontinued. The enforcement of the Food Law and the fact that a very large proportion of the market milk is now pasteurized, has practically caused the discontinuance of preservatives. Skimming and the pernicious custom of watering are still indulged in but to a much lesser extent than formerly.

It has been found in an extensive study of the milk supplies of the State, extending over several years, that many samples collected by the inspectors of this Department do not meet the requirements of the State Food Law with respect to total solids. The legal standard of 11.50 per cent total solids is an exceedingly liberal one, and there would seem to be but little excuse why milk producers cannot offer for sale a product which will meet with this standard.

During the past year 393 samples of milk have been examined bacteriologically for the purpose of assisting the Bureau of Creameries and Dairies in their work of controlling those places where various pasteurizers are in use.

FLAVORING EXTRACTS: Nearly all the brands of extract of lemon sold in the State have been collected during the past year and have been analyzed. One hundred and fifty-one samples were analyzed, of which fifty-nine were classed below the standard.

During our investigation it developed that considerable confusion existed in the trade with respect to the food standards relating to extracts, and also to certain terms as "essence" and "tincture."

Lemon extract must, according to the food standards adopted under authority contained in the Food Law of this State, be prepared from oil of lemon, from lemon peel, or both, and shall contain not less than 5 per cent by volume of oil of lemon. The standards also provide for a terpeneless extract of lemon, which is the flavoring extract prepared by shaking oil of lemon with diluted alcohol or by dissolving terpeneless oil of lemon in diluted alcohol and which contains not less than 0.2 per cent by weight of citral derived from oil of lemon.

Preparations prepared according to these standards must not be compounded with the tincture of lemon peel, a preparation recognized by the eighth revision of the United States Pharmacopœia and prepared from the thin shavings of lemon peel macerated in alcohol. It has been found that many of the druggists make a practice of selling this preparation in response to demands for lemon extract. It is believed that this is caused by the unfamiliarity on the part of the average pharmacist with the Food and Drug Act, and the standards for lemon extract as previously defined.

It has been further ascertained that a considerable number of preparations sold as lemon extract are labelled with the words "Essence of Lemon." The term "Essence of Lemon" is not recognized either by the

United States Pharmacopœia or by the food standards. In the National Formulary, however, directions are to be found for the compounding of a preparation known as "Essence of Lemon." This finished product substantially conforms to the standards for Lemon Extract. Inasmuch as lemon extract is distinctly a food product, this preparation should be prepared so as to conform with the food standards for that article.

In order to hold 5 per cent of lemon in solution, the extract must contain not less than 80 per cent of alcohol by volume. This makes the total alcohol the principal item in the cost of the extract, and hence the majority of the illegal extracts on the market are due to the fact that the manufacturer tries to cut down the cost of production by using less alcohol. This results in an extract containing less than 5 per cent of oil; quite frequently only a trace being present. It has also been found that certain persons in their efforts to remove turbidity caused by the use of insufficient alcohol, have shaken their extract with magnesium carbonate or some similar substance, after which they have filtered the preparation. This procedure, of course, results in the loss of oil of lemon, and results in a very inferior preparation being placed upon the market.

Terpeneless extracts contain none of the terpene or oily constituents of lemon oil. Such preparations may, however, be sold when distinctly marked "Terpeneless."

A considerable number of lemon extracts have been found to be below the standard, because they contain less oil of lemon than the 5 per cent required by the standard. Many others, however, were found to contain but traces of oil of lemon and were deceptively labelled. As an example of this class of preparations the following has been prepared:

DATA RELATING TO LEMON EXTRACTS FOUND TO DEVIATE FROM LEGAL REQUIREMENTS.

Sold as	How Labelled.	Results of Analysis.	Remarks.
Lemon Extract.	Lemon flavor; superior fruit flavor.	Oil of Lemon. 1.4%	Below standard.
Lemon Extract	Concentrated Extract of Lemon.	Oil of Lemon—nil Citral—nil.	Misbranded; below standard.
Lemon Extract.	Highly concentrated Extract of Lemon.	Oil of Lemon. 1.5%	Misbranded; below standard.
Lemon Extract.	Extract of Lemon g	Citral. 0.2%	Misbranded; below standard.
Lemon Extract.	Highly concentrated Extract of Lemon.	Oil of Lemon. 1.4%	Misbranded; below standard.
Lemon Extract.	Extract of Lemon.	Oil of Lemon—Nil. Citral—Nil.	Artificially colored.
Lemon Extract.	Extract of Lemon.	Oil of Lemon. 0.6%	Below standard.
Lemon Extract.	Pure Extract of Lemon.	Citral trace.	Below standard.
Lemon Extract.	Substitute for Lemon Flavor.	Oil of Lemon, trace Citral. 0.01%	Below standard.
Lemon Extract.	Essence of Lemon.	Oil of Lemon—trace.	Below standard.
Lemon Extract.	Concentrated Extract of Lemon.	Oil of Lemon—nil Citral. 0.058%	Below standard.
Lemon Extract.	Lemon Extract Double Concentrated.	Oil of Lemon. 2.0%	Below standard.
Lemon Extract.	Extract of Lemon Superior.	Oil of Lemon—nil. Citral. 0.64%	Misbranded; below standard.
Lemon Extract.	Pure Extract of Lemon.	Oil of Lemon. 5%	Below standard.
Lemon Extract.	Lemon Flavor.	Citral. 0.83%	Below standard.
Lemon Extract.	Lemon Extract Double Strength.	Oil of Lemon—trace Citral. 28%	Below standard.
Lemon Extract.	High Grade Lemon Extract—Exceeded by none other.	Oil of Lemon. 5.6%	Misbranded.
Lemon Extract.	Extract of Lemon.	Citral. 1.2%	Misbranded; below standard.
Lemon Extract.	Essence of Lemon.	Oil of Lemon. 1.6%	Below standard.
Lemon Extract.	Extract of Lemon.	Oil of Lemon. 3.1%	Below standard.
		Oil of Lemon. 4.8%	Below standard.
		Artificially colored.	Below standard.

By consulting the table it can be seen that such terms as "Highly Concentrated," "Doubly Concentrated" or "High Grade," have been used on the labels; when as a matter of fact these preparations were found to contain but very small amounts of oil of lemon and to be deficient in alcoholic strength. In certain instances preparations plainly marked "Imitation" or "Substitute Lemon Extract" have been sold to our inspectors in response to requests made for lemon extract. This is a form of deception practiced by the storekeeper and is exceedingly difficult to break up until the average purchaser can be taught the value of reading the labels.

VANILLA EXTRACT: One hundred and twenty samples were examined, of which twenty-one were classed as below the standard. In the below standard class have been included such extracts as contained added coloring material, those which were sold as "Extract of Vanilla," which were labelled "imitation" or "compound," and those which varied slightly from statements made on the label. In no instance was the presence of coumarin, formerly a common adulterant of vanilla extract, detected.

Because of analytical difficulties, it was almost impossible to grade every extract according to its true worth, but in general the quality of the extracts examined was found to be uniformly good, the labels having been found to bear true statements of the character of the ingredients and in general it would appear that the vanilla extract business is on a much sounder basis than in the extract previously described.

In the examination of the above mentioned vanilla extracts, opportunity has been afforded for trying the colorimetric method of Folin for the determination of the amount of vanillin present and it has been found to work very satisfactorily.

MISCELLANEOUS FLAVORING EXTRACTS: Twenty-nine samples of extract of orange were analyzed. Thirteen of these samples were classed below the standard and contained less than the required amount of oil of orange. Two samples were found to contain artificial color.

Twenty-three samples of extract of almond were examined, two of which were found to be below the standard.

SPIRITS OF PEPPERMINT: During the past year a large number of analyses were made of samples of spirits of peppermint. This drug has been selected for investigation, first, because it is a common household remedy, which is used in considerable quantity, and second, because it is a preparation almost invariably prepared by the druggist himself. It was further believed that the results would serve, to some extent at least, to form some idea of the care used by the pharmacists in preparing drugs of this character. The materials which enter into the composition are readily obtained pure and the preparation can be readily and correctly made by the average pharmacist. The following table shows in detail the results of analyses:

Number of samples of Spirits of Peppermint examined	207
Number above the U. S. Pharmacopœia Standard	105
Number below the U. S. Pharmacopœia Standard	102
Number containing less than 5% oil of peppermint	12
Number containing between 5%-8% oil of peppermint	24
Number containing between 8%-10% oil of peppermint	62
Number containing between 10%-12% oil of peppermint	87
Number containing between 12%-15% oil of peppermint	13
Number containing between 15%-21% oil of peppermint	9

An inspection of the table shows that ninety-eight samples, or 47.5 per cent of the samples contained less than 10 per cent oil of peppermint, the amount required by the United States Pharmacopœia. A further examination of the table shows that 11.6 per cent of the total number of samples contained between 5 per cent and 8 per cent of oil of peppermint.

In a great many instances hearings have been granted by the Department to those persons from whom samples of Spirits of Peppermint have been collected for the purpose of affording them opportunity to explain why their drugs have not contained the required amount of oil of peppermint. In no single instance has a satisfactory explanation been

given. At the request of certain persons, spirits of peppermint has been prepared in the Laboratory of Hygiene from oil of peppermint submitted by them. In every instance in which the spirits of peppermint was prepared, 10 per cent of oil of peppermint was found upon analysis when that amount was placed in the spirits.

The only explanation which apparently can be offered for the lack of oil in many of these samples examined, is due to the carelessness in preparation of the finished spirits of peppermint or mistake in arithmetic in transposing from the apothecary system of weights to the metric system.

The manufacturers of lemon extract and spirits of peppermint are urged to assay their preparations before offering them for sale.

For the purpose of estimating the quantity of oil in the preparations mentioned, the following simple method will be found to serve admirably: By means of a pipette, measure ten cubic centimeters of the extract or spirit into an ordinary Babcock milk bottle whose neck is graduated from 0 to 10 in 0.2 divisions, the volume between the 0 mark and the 10 mark being two centimeters. To the liquid in the bottle add one cubic centimeter of concentrated hydrochloric acid and then fill the bottle nearly to the neck or stem with water. Do not add so much water that the liquid will come up into the stem of the bottle. Place the bottle in a centrifuge and whirl for five minutes or more at a speed approximating 800 revolutions per minute. Then remove from the centrifuge and it will be found that a layer of oil has formed on the top of the liquid. Now add water carefully until the oil has risen and lies entirely within the graduations on the stem of the bottle. In order to prevent the formation of any emulsion, the bottle should be held at a slight angle and the water delivered slowly against the stem wall and not dropped in directly upon the oil. Replace the bottle in the centrifuge and whirl for about three minutes. Remove from the centrifuge and read off where the extremities of the oil column lie on the graduated stem. Subtract the reading of the lower extremity from that of the upper, multiply the figure so obtained by 2 and the results will be the per cent by volume of the oil in the preparation.

The method described consumes but little time and requires only inexpensive apparatus, most of which is available in any well equipped pharmacy.

ACETANILID TABLETS: For several years the Division has been desirous of examining the various tablet preparations of strong drugs in order to acquire information with regard to the accuracy of the statements as to the amount of drug present in the tablets. Opportunity was afforded during the past year to do a little work along this line.

Fifty samples of acetanilid tablets were purchased in various cities and towns throughout the State. All the samples were purchased in such a manner as to require the pharmacist to count the tablets and write a label for the container. In three instances the count was found to be short; in seven instances the strength of the tablets did not appear on the package as required by statute and in two cases the boxes

containing the tablets bore no label whatsoever. One sample labelled to contain the five-grain acetanilid tablets requested by the purchaser, was found to contain no acetanilid; phenacitin having been substituted therefor. Other instances of substitution are noted below.

All samples were submitted to the Laboratory of Hygiene for chemical examination. The analytical results are summarized in the following table:

PLACES WHERE ACETANILID TABLETS WERE COLLECTED, THE DECLARED STRENGTH OF THE TABLETS, AND VARIATION FROM THE DECLARED STRENGTH UPON EXAMINATION.

Sample Number.	Place Collected.	Declared Strength.	Variation from Declared Strength
L 2901.	Camden	3 grains	+ 1.75%
L 2902.	Camden	3	- 33.59%
L 2903.	Camden	5	- 2.09%
L 2904.	Camden	5	+ 2.47%
L 2905.	Camden	2	+ 1.16%
L 2906.	Camden	2	- 5.48%
L 2907.	Camden	2	- 4.39%
L 2908.	Camden	2	- 4.39%
L 2909.	Camden	5	- 7.34%
L 2910.	Newark	5	- 4.63%
L 2911.	Newark	5	- 5.53%
L 2912.	Newark	5	- 3.67%
L 2920.	Atlantic City	5	- 13.59%
L 2921.	Atlantic City	5	- 35.99%
L 2922.	Atlantic City	5	+ 0.26%
L 2923.	Atlantic City	5	- 30.00%
L 2924.	Atlantic City	5	- 4.67%
L 2925.	Atlantic City	5	- 7.04%
L 2951.	Newark	5	+ 9.05%
L 2952.	Newark	3	+ 3.50%
L 2953.	Newark	3	- 2.78%
L 2954.	Newark	3	- 0.31%
L 2955.	Newark	3	- 10.40%
L 2956.	Newark	3	- 5.14%
L 2957.	Newark	4	- 10.70%
L 2958.	Newark	3	- 2.22%
L 3068.	Newark	5	- 1.73%
L 3071.	Newark	5	- 1.31%
L 3072.	Newark	5	- 1.67%
L 3073.	Newark	5	+ 12.63%
L 3074.	Newark	5	- 25.56%
L 3075.	Newark	5	- 6.33%
L 3355.	West Hoboken	5	- 6.23%
L 3356.	West Hoboken	5	- 47.10%
L 3357.	Union Hill	5	- 13.12%
L 3359.	West Hoboken	5	- 41.57%
L 3360.	Union Hill	5	- 10.59%
L 3361.	West Hoboken	5	- 0.99%
L 3362.	West Hoboken	5	- 4.97%
L 3363.	Union Hill	5	- 3.27%
L 3364.	West Hoboken	5	- 5.50%
L 3365.	Paterson	5	- 4.60%
L 3366.	Paterson	5	- 1.45%
L 3367.	Paterson	5	- 9.88%
L 3368.	Paterson	5	- 9.58%
L 3369.	Paterson	5	- 9.58%
L 3370.	Paterson	5	- 9.58%
L 3371.	Hoboken	5	No acetanilid present.
L 3372.	oboken	3.5	- 4.69%
L 3373.	Henton	4	- 4.32%
			- 0.92%

It will be seen from the preceding table that the amounts of acetanilid in the forty-nine samples containing this drug, determined by quantitative analysis, differed from the declared amounts by percentages ranging between 0 and 47.10, the average variation being 8.76 per

cent. Twelve samples showed a variation greater than 10 per cent; six samples showed a variation greater than 25 per cent and two samples varied from their declared strengths by more than 40 per cent. On the other hand twenty-six samples showed a variation of less than 5 per cent from the amount declared; eleven samples varied less than 2 per cent and five samples varied less than 1 per cent.

Analytical observations showed that in the cases of the two samples which varied more than 40 per cent from their declared strengths, the pharmacists had substituted acetanilid compound or "migraine" tablets for the plain five-grain acetanilid tablets requested by the purchaser. As no standard "migraine" mixture known to this Division contains five grains of acetanilid per tablet, it is not unreasonable to assume that the manufacturer of the tablets in question did not declare them to be of the strength stated by the dispenser on his label.

The results of this investigation would indicate that there need be little concern felt with regard to inaccuracies in the statements of the amount of the drug present in acetanilid tablets. However, the Division believes that reasonable limits for variation in the strength of tablet preparations of strong drugs should be established in order to protect the public from careless manufacturers and dispensers. With this end in view it is hoped that work of a similar character may be undertaken with other tablet preparations.

WATER ANALYSIS: The analysis of water, sewage, trade wastes and various substances used in water and sewage purification has been conducted so as to obtain the greatest amount of useful data pertaining to waters of the State.

Previous to the last session of the Legislature, when the act was amended, the statutes required that all public water supplies be examined at least four times a year. In carrying out this provision the procedure, mentioned in the report for 1914, of examining each supply with reference to its particular composition, source and history, rather than performing a complete chemical analysis each time, has been followed. A more efficient use of time and laboratory facilities is thus secured, for many waters from deep well supplies which are known to be safe by analyses covering many years require a minimum number of tests to indicate their condition, while numerous surface supplies, on the other hand, receiving polluting matter from time to time demand more frequent and complete analysis.

The waters supplied to State Institutions are examined quarterly upon the same basis as public supplies. About three-fourths of the total number of samples analyzed belong to these two classes.

Waters from private supplies are analyzed at the request of the local boards of health when there is reason to believe that the water may have been the cause of sickness, or is used frequently by a large number of people as a semi-public supply. About 15 per cent of the laboratory work falls in this class.

Samples of sewage and trade wastes are analyzed to test the efficiency of the sewage purification plants and to secure evidence of stream pollution. Eight per cent of the total samples examined are of these types.

In addition to the above, samples are examined from bottled water supplies, natural and artificial ice supplies, dairies, etc., where the water used may have a direct bearing on the public health. These together comprise a little over 1½ per cent of the total.

Besides the analysis of the various waters and wastes mentioned above, numerous analyses of chemicals used in water and sewage purification such as alum, bleaching powder, soda ash, and sand are conducted in the Laboratory, in all about 2 per cent of the work being on these samples.

Analyses made during the last fiscal year were:

Public water supplies, 1,406; proposed public supplies, 18; State institution supplies, 72; private supplies, 311; bottled water supplies, 14; miscellaneous waters, 16; sewage supplies, 158; trade wastes, 7; ice, dairy and miscellaneous supplies, 45; total, 2,047.

The necessity for confirming presumptive tests for *B. coli*, briefly discussed in the report for 1914, is now widely recognized. This Laboratory has been confirming the presumptive tests since June, 1914, using Endo's Medium for the purpose. The procedure followed consisted of making streaks on plates of Endo's Medium from all lactose bile tubes showing any production of gas. The tubes were examined at 24, 48 and 72-hour periods of incubation and the percentage of gas produced at the 48 and 72-hour examinations were recorded to the nearest 10. When 10 per cent or more of gas was found in a tube a streak was made. Those producing less than 10 per cent were streaked after 72 hours incubation. Tubes giving a negative reaction on Endo plates, which continued to produce gas, were streaked a second time. In most instances the second plate was found to check the first.

The results from confirming nearly 1,600 bile tubes in this manner are tabulated below.

PER CENT OF BILE TUBES GIVING POSITIVE REACTION FOR *B. COLI* ON ENDO MEDIUM.

% gas in bile tube in 72 hours.	Trace.	16%	20%	30%	46%	50%	60%	70%	80%	90%	100%	Total
Bile tubes confirmed for each % of gas.	107	204	251	200	149	104	67	95	82	84	236	1,579
Positive on Endo.	3	17	49	43	54	67	53	83	73	78	214	734
Negative on Endo.	104	187	202	157	95	37	14	12	9	6	22	845
% positive on Endo.	2.8	8.3	15.9	21.5	36.2	64.4	79.1	87.4	89.0	92.9	90.7	

The distribution of the tubes examined among all percentages of gas formation will be noted, and the fact that the majority are from those having less than 50 per cent of gas in 72 hours.

The percentage of tubes showing *B. coli* after confirmation increases quite regularly from 2.8 per cent positive for a trace of gas, to 36.2 per cent positive for 40 per cent of gas. Here a sharp rise occurs to 64.4 per cent for 50 per cent of gas with a steady increase to the maxi-

imum of 92.9 per cent positive for 90 per cent gas production. The drop to 90.7 per cent positive for the maximum gas production was due to anærobic growth, which produced 100 per cent gas in 24 hours. In nearly 10 per cent of the tubes examined from this group of 236 tubes the gas was due to anærobic growth, no growth on the Endo plates being secured.

Too broad conclusions should not be drawn from this table, as the limits of accuracy of Endo's Medium as used in this work are not fully known. It is safe to assume, however, on the basis of this work, that in the majority of lactose bile tubes showing 40 per cent or less gas production after 72 hours incubation, the gas was not due to the activity of the *B. coli*. Where 50 per cent or more gas is produced in 72 hours the greater part of the fermentation is due to *B. coli*.

In addition to the routine and special chemical and bacterial work enumerated above, a careful revision of the methods of analysis used in this Laboratory has been made during the last six months, and the detailed procedure for each determination typewritten for future reference.

SHELLFISH: To secure oysters which are safe and suitable for human consumption, has again been the aim of the Department in its regulation of the shellfish industry. It is believed this has been accomplished by systematic investigations of the water-sheds adjacent to the oyster beds and floating grounds, for the purpose of ascertaining the prevalence of typhoid fever, and further by the subsection of the shellfish to Laboratory examinations.

The work this year has been marked by the helpful cooperation of the United States Department of Public Health, which has been engaged in making a study of the coastal waters, particularly those in which shellfish are grown and placed. Their investigations have also included the examination of shellfish, and the results obtained are in substantial conformity with those secured by this Department.

PENNS GROVE.—During the year a comprehensive survey was made of the Town of Penns Grove by the Division of Medical and Sanitary Inspection. For a period of approximately six weeks the oyster inspection boat was at the service of that division, and 304 samples of water, which were collected by representatives of the above mentioned division from various wells in Penns Grove and vicinity, were analyzed in the laboratory on board the boat.

MAURICE RIVER SECTION.—The sanitary conditions in Maurice River and Bivalve are slowly but surely improving. All of the privies on the Maurice River are now equipped with removable metal lined boxes. These were installed by the Pennsylvania Railroad Company, and are taken out when necessary, loaded upon flat cars and removed some distance from the river, after which the fecal matter is buried by members of the section crew. The privies on Maurice River side are now in fairly good condition, being more spacious and better ventilated than on the Bivalve side.

In the past, evidences of defecation have been noticed at certain places on the Bivalve side of the river. This year three toilets have been constructed in accordance with plans furnished by the Board. These have been well constructed, provided with pails, and are fly tight.

The scavenger pail system for the boats is rigidly enforced and is effective. This system has been carefully observed during the period when the "Inspector," the Board's shellfish boat, has been in Maurice River, and it has been established to our satisfaction that this rather unique system has passed the experimental stage, and is being operated in an efficient manner. The business rivalry of the oyster men, and the natural instinct to protect their own business, are two factors which have helped to make the pail system a success. It is now believed that the possibility of direct pollution of Maurice River at Long Reach is exceedingly remote.

At the request of the Board of Health of Commercial Township, the total solid content was determined on a number of oysters submitted by them to the laboratory. The following analytical procedure was used:

Approximately twenty-five oysters were opened and placed in a dish. These oysters were then placed on a sieve and allowed to drain for five minutes. The sieve was seven and one-quarter inches in diameter, and contained twelve meshes to the square inch. After draining, the oysters were ground up by means of a meat chopper, care being taken to not lose any of the oyster juice. The mass was then thoroughly mixed, and a representative sample placed in a four-ounce bottle. This bottle was fitted with a rubber stopper to which a stirring device entered into the ground-up oysters. From two to three grams of the ground oysters were placed in a tared lead dish which contained a small glazed pestle, and about twenty grams of sand. Three to four of these weighings were made from the four-ounce bottle containing the ground-up oysters, and the leaden dishes then placed in a drying oven at 100° C., and allowed to remain therein until constant weight was obtained. The average of these determinations was taken as the solid content of the particular sample. The same procedure was followed in the case of the shucked oysters not drained except the screening procedure was omitted.

Following are the results of the examinations, twenty-five oysters being used in each instance:

Kind of Oyster	Average Total Solids—Per Cent	
	Drained 5 Min.	Not Drained
Prime—Salt	19.16	16.44
Prime—Salt	18.31	
Prime—Salt	18.33	
Prime—Floated 144 hours	15.4	12.87
Prime—Floated 144 hours	15.26	
Prime—Floated 144 hours	15.57	
Prime—Floated 144 hours	15.70	
Prime—Floated 144 hours	15.76	
Prime—Floated 144 hours	15.95	
Culls—Floated 144 hours	16.14	14.1
Culls—Floated 144 hours	16.70	
Culls—Floated 144 hours	16.70	
Culls—Floated 144 hours	16.18	
Culls—Floated 144 hours	15.89	

SHUCKING BUSINESS: At the present time the shucking of oysters at Maurice River amounts to little in comparison with the shell trade, but some of the dealers are commencing to realize that this is a profitable phase of the oyster business.

The Chesapeake Bay oysters do not "come in" nearly so early as Maurice River Coves, so the Baltimore dealers purchase oysters from other places, and large shipments of Maurice River oysters are sent to Baltimore in the shell. These oysters are shucked, packed in cans, and then sent to the trade.

Some of the Jersey shippers have come to the conclusion that if the Baltimore dealers can pay freight on oysters from Maurice River, and sell them shucked, and make money then they should find the shucking business a profitable side line.

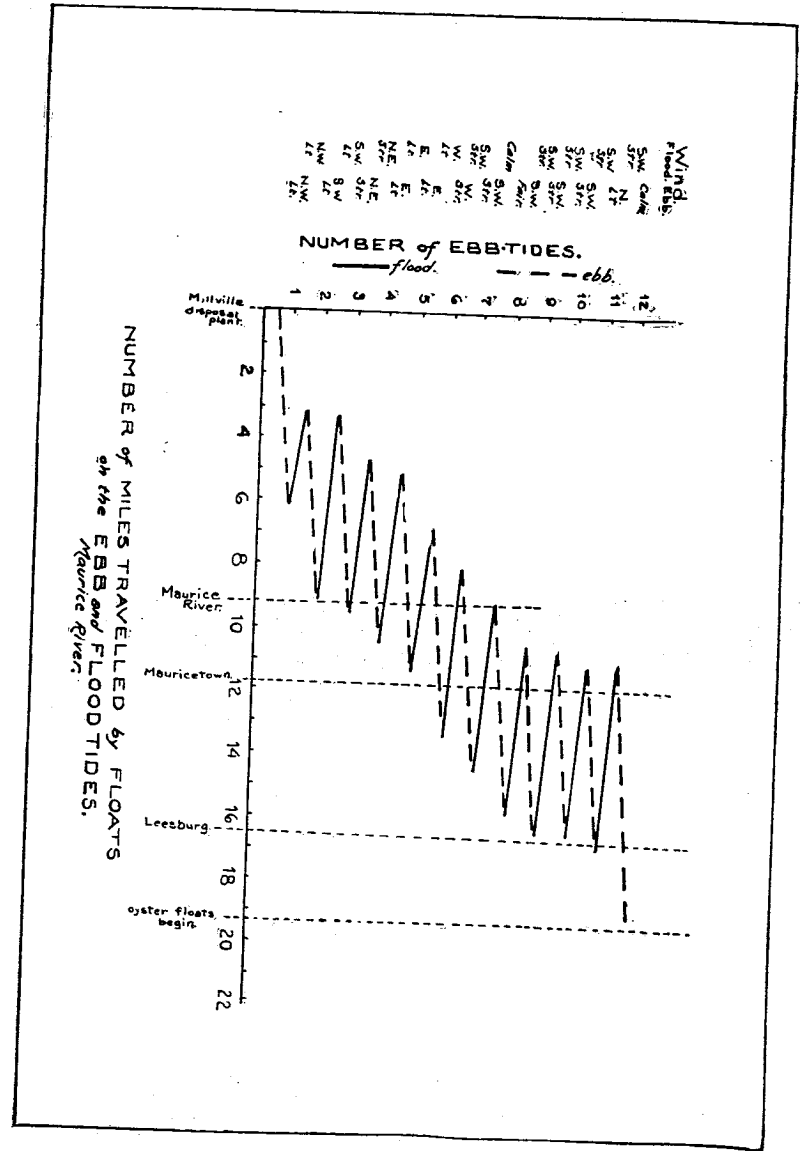
Therefore, some of the Maurice River dealers now ship shucked oysters. The oysters are shucked, washed, packed in cans, and iced. At present the business is small, but there is no good reason why Maurice River and Bivalve should not become large factors in the Western market, where shucked oysters are in demand.

EXPERIMENT TO DETERMINE TIME FOR SEWAGE FROM MILLVILLE TO REACH OYSTER FLOATS AT BIVALVE.—The Millville disposal plant, which empties its effluent into the Maurice River at Millville, does not adequately provide for proper disposal of the city's waste. It is overtaxed as to capacity, and the copper sulphate as a germicide is totally inefficient. For the purpose of obtaining data on the length of time it requires the effluent from the plant to reach the oyster floats in Long Reach, a distance of approximately twenty miles, the following experiment was made:

Bottle floats were set in the channel opposite the effluent pipe of the disposal plant, and allowed to float down the river on the ebb tide; the exact position of floats at ebb tide noted, and the same procedure followed on returning flood tide. Great care was exercised to keep the floats in the channel, and this was done by accompanying them with a power boat and returning them to the channel as soon as they were blown or drifted ashore. Whenever possible, a complete tide was followed. Later, when the depth of the river warranted it, the style of float was changed. By using a larger and heavier wooden float, it was possible to equip the same with a device for holding a lantern, thus making it possible to follow a complete tide, even in the dark.

The accompanying chart shows in detail the progress of the floats, tide by tide. The average gain of an ebb tide over the returning flood tide was approximately a mile and one-quarter (1¼ miles), although this record was not necessarily uniform. Occasionally there would be no gain, and even a loss has been known to occur. The wind has a marked effect upon the rise of the tide, and makes its effect felt upon the floats to some extent. Southerly winds cause high flood tides, as the wind backs up the water from the bay into the river. Under these conditions the gain on an ebb tide is small, while if reverse wind conditions prevail, the gain on an ebb tide is much greater.

This apparently simple experiment is very time-consuming as it requires only minor accidents to cause an entire day's work to be disregarded. About six weeks were required to complete the work, yet by consulting the chart it is seen that the floats required six days, or twelve tides, to carry them from the disposal plant to Long Reach.



The chart has been prepared so that the dash lines represent the progress made by floats on the ebb tide, and the solid lines indicate the progress upon the returning flood tide. To obtain the gain on any ebb tide, it is only necessary to drop a vertical line from a "flood tide line" to the "ebb tide line," directly below, and the horizontal distance from beginning of "ebb tide line" represents the gain.

At the left side of the chart the number of days are given, and also the condition of wind, while at the bottom the distance in miles is given, and the position of certain towns indicated.

Six days were required to reach the oyster floating grounds at the upper end of Long Reach in Maurice River, under the conditions which prevailed during this experiment; but owing to the strong southerly winds encountered during the last week, very little gain was made by the floats, and it is, therefore, probable that some diluted sewage from the Millville sewage disposal plant may reach the oyster floats in about five days' time.

The total number of oyster samples collected in Maurice River was eighty-two. The results of the examination of these oysters were as follows:

Total number of floated oysters examined	82
Number giving confirmed score of 5 or under	69—84.1%
Number giving confirmed score above 5 and under 50	12—14.6%
Number giving confirmed score above 50	1—1.3%

WATER SAMPLES—LONG REACH.

Bacteriological Results:

Total number examined	32
Number showing B. coli (Endo) in 1.0 c.c.	17—53.1%
Number showing B. coli (Endo) in 0.1 c.c.	3—9.8%
Number showing B. coli (Endo) in 0.01 c.c.	1—3.2%

In order to determine the accuracy of the method used for the confirmation of the presumptive B. coli test, it was thought desirable to re-confirm on Endo's Medium certain tubes showing gas production which gave negative results upon first streaking.

The following data shows that 91.5 per cent of the lactose broth tubes, in which gas was produced and which were found to be negative for B. coli when first streaked, also gave negative results upon re-confirmation. It was found that 8.5 per cent of the tubes showing gas, which were first streaked on Endo's Medium and found to be negative, gave a positive reaction for B. coli when re-confirmed. For the purpose of increasing the accuracy of the work, it was, therefore, made a part of our routine technique to re-confirm all lactose broth tubes in which gas was produced, and which were found to be negative on Endo's Medium when first streaked.

Number of tubes giving negative results on Endo's Medium after first confirmation	274
Number of tubes giving negative results on Endo's Medium after second confirmation	251—91.8%
Number of tubes giving positive results on Endo's Medium after second confirmation, but which were negative on first confirmation	23—8.5%

DISSOLVED OXYGEN.

As stated in the report of 1914, it was the intention to make a thorough study of the dissolved oxygen content of the Maurice River. Unfortunately, because of the necessity of using the "Inspector" for work which could not be foreseen, the contemplated study could not be made. In cooperation with the United States Department of Health it was, however, possible to collect a limited number of samples, and to determine their dissolved oxygen content.

Four complete sets of samples were collected at various points between the Millville bridge and the mouth of the river. It was aimed to collect the first sample at the beginning of the ebb tide. In certain instances top

and bottom samples were taken. Experience gained in other years having shown that the nitrite content of the Maurice River is comparatively low, the Winkler method was employed in all our dissolved oxygen determinations.

The following tables show the results of such dissolved oxygen determinations as were made:

MAURICE RIVER—DISSOLVED OXYGEN RESULTS.

LOCATION.	Temp. °C. of water.		Dissolved Oxygen p. p. m.		B. coli positive in	Temp. °C. of water.		Dissolved oxygen p. p. m.		B. coli positive in
	Top.	Bottom.	Top.	Bottom.		Top.	Bottom.			
Millville Bridge	18.5	7.3	7.2	0.01 c.c.	18.5	7.9	8.00	0.10 c.c.		
Opposite disposal plant	18.5	6.95	7.1	0.01 c.c.	18.0	7.4	7.50	0.10 c.c.		
Between disposal plant and brick yd.	18.5	7.40	7.4	0.01 c.c.	17.5	7.2	7.90	0.10 c.c.		
Brick yard	18.5	7.35	7.4	1.0 c.c.	18.0	7.6	7.65	0.10 c.c.		
Near Mannumoskin creek	18.5	7.10	7.2	1.0 c.c.	19.0	7.3	7.30	0.10 c.c.		
Bricksboro.	19.0	7.00	7.1	0.01 c.c.	19.0	7.1	7.20	0.10 c.c.		
Mauricetown bridge	19.5	6.80	.....	1.0 c.c.	19.0	7.1	7.25	1.00 c.c.	
Dorchester.	20.0	6.90	.....	0.10 c.c.	19.0	7.15	7.25	1.00 c.c.	
Leesboro.	20.0	6.80	.....	1.0 c.c.	19.5	7.05	7.15	0.10 c.c.	
Fish factory.	20.5	6.75	.....	1.0 c.c.	19.5	6.90	7.00	0.01 c.c.	
Bivalve.	20.5	6.90	.....	Ab.1.c.c.	19.0	7.0	7.10	1.00 c.c.	
Mouth of river	20.5	7.20	.....	Ab.1.c.c.	19.5	7.4	7.40	Ab.1.c.c.	

MAURICE RIVER—DISSOLVED OXYGEN RESULTS.

DATA OBTAINED BY UNITED STATES DEPARTMENT OF PUBLIC HEALTH.

LOCATION.	Temp. °C. of water.	Dissolved oxygen p. p. m.		Temp. °C. of water.	Dissolved oxygen p. p. m.	
		Before incubation.	After incubation.		Before incubation.	After incubation.
Millville Bridge	20	7.55	7.40	27	6.60	5.30
Disposal plant	20	7.20	7.10	27	5.30	4.70
Between disposal plant and brick yard	20	6.60	6.55	27	6.30	5.30
Brick yard	20	6.75	.....	27	6.80	6.80
Mouth of Mannumoskin creek	20	6.75	.....	27	6.25	5.95
Menantic creek	20	6.75	.....	27	6.35	6.25
Bricksboro.	20	6.85	6.70	27	6.35	6.25
Mauricetown bridge	20	6.85	6.85	27	6.35	5.70
Dorchester.	20	6.80	6.75	27	5.80	5.65
Leesburg.	20	6.65	6.80	27	5.90	5.50
Fish factory.	27	8.25	5.60	27	5.70	5.60
Bivalve.	20	7.65	7.70	27	6.15	5.70
Mouth of river.	27	8.55	5.70	27	6.25	6.00

COHANSEY RIVER—DISSOLVED OXYGEN RESULTS.

LOCATION.	Temp. °C. of water.	Dissolved Oxygen p. p. m.	Temp. °C. of water.	Dissolved Oxygen p. p. m.
Bridge, Bridgeton	17	4.30	19	2.9
Below disposal plant	17	5.10	19	3.8
Fairton	17	6.46	19	6.3
Between Fairton and first club house	17.5	6.90	19	6.4
At first club house	17.5	6.40	19	6.4
Between first and second club house	17.5	6.30		
At second club house	17.5	6.50	19	7.0
Between second club house and Greenwich	17.5	6.60	18.5	7.2
Greenwich	17.5	6.80	18.5	7.6
Greenwich pier	17.5	7.00	18.5	7.8
Near mouth of river	17.5	7.40	18.5	8.0
Mouth of river	17.5	7.70	18.5	8.0

CAPE MAY SECTION.—It was stated in the report of last year that the oyster business in Cape May County was rapidly decreasing. Investigations conducted this year would seem to confirm this statement, and it seems likely that the oyster business in this section will probably be extinct in a few years.

The oyster beds in Jarvis Sound have practically been abandoned. All the oysters examined from this section were found to have scored less than five.

The one oyster planter at Wildwood, upon whom an order was served to transplant his oysters, because of possible pollution, was found to have complied therewith.

ATLANTIC CITY SECTION.—So much difficulty had been experienced with the clambers in this section, who persist in tonging clams in certain of the Thoroughfares back of Atlantic City, that it was thought advisable to placard the Thoroughfares in such a manner as to thoroughly inform the tongers of the provisions of the Shellfish Act. This work was accomplished by tacking a suitable notice on wooden frames, mounted on substantial wooden posts, which in turn were driven into the shore in prominent places on Clam Thoroughfare, Clam Creek, Ventnor Canal, part of Bridge Thoroughfare, from Absecon Inlet to Venice Park, and another part of the same Thoroughfare, adjacent to the Boulevard Bridge; a small section of Great Thoroughfare, and the southern extremity of Inside Thoroughfare. Having thus given the clambers a thorough opportunity to inform themselves, it is expected that with the cooperation of the Atlantic City health authorities, the taking of clams from polluted waters for food purposes in this section will be materially lessened.

LAKES BAY AND ABSECON CREEK SECTION.—Inspections made at these points during the summer show that conditions are substantially the same as were described in some detail in the 1914 report. All the oysters examined were found to have scores less than five.

Twenty samples of water were examined from Lakes Bay. The *B. coli* communis was found to be absent in thirteen of the samples; present in

the remaining seven samples in dilutions of 1 c.c., and positive four times in dilutions of one-tenth c.c. In only one of the ten samples of water collected from Absecon Creek was *B. coli* found to be present.

TUCKERTON SECTION.—A particularly poor season was experienced by the oyster men of this section. It was estimated that the business was about sixty per cent below normal. The principal oysters shipped were obtained chiefly from Great Bay and Brighton Inlet, which furnished a fairly well fattened oyster. The investigations which have been conducted in the past have shown that the oysters in this section have been comparatively free from polluting substances, and no difficulty has ever been experienced in regulating the industry in this section until this year, when, through the persistency of several oystermen in keeping shellfish in certain polluted waters near Beach Haven, it became necessary for the Department to condemn all the oyster and clam beds lying within a radius of one mile of the Beach Haven Yacht Club. Notices were served on these men, informing them that oysters must not be taken from the condemned area, as a result of which it is believed that the practice of fattening oysters in the polluted waters, defined by the notices, has been stopped.

RARITAN BAY SECTION.—Because of a recent ruling of the New York City Board of Health, to the effect that no shellfish will be permitted to be sold in New York City unless the shippers of such shellfish first file with that Department a statement that the shellfish are produced under conditions which will render them safe for food purposes; applications for such forms were made to the State Board of Health, through the Local Board of Health of Keyport by the oystermen of that section. Based upon the results of the Board's work during the summer of 1914, and upon a preliminary survey made this year, statements were furnished, that in the opinion of the Board, oysters grown in Raritan Bay, and floated in Luppaccong Creek, were safe for human consumption.

Some time after these statements were made it developed that the Board of Health of the City of New York had refused to accept them, and further, that the United States Department of Agriculture, through its Bureau of Chemistry, had condemned all the waters on the New Jersey side of Raritan Bay, on the ground that these waters were polluted, and, therefore, improper places for the growing or floating of oysters.

These rulings have resulted in considerable hardship to the oystermen of this section, as it has shut them off from their principal market. During the months of July and August considerable time was spent in cooperation with the United States Department of Public Health, making a sanitary survey of Raritan Bay and its tributaries, and in the examination of samples of water and shellfish. As a result of this work, the opinion is still held that oysters which are grown on the New Jersey side of Raritan Bay are safe and suitable for human consumption.

Two complete sanitary surveys were made of Luppaccong Creek, which is the principal floating ground for oysters in this section. The first of these surveys indicated that there were several sources of minor pollutions, all of which were found to have been abated when the second inspection was completed.

In order that existing conditions during the winter months may be compared to those throughout the summer, an investigation is now being conducted in Raritan Bay, and its tributaries, by the United States Department of Public Health, in conjunction with this Department. When this work has been completed a report will be prepared, showing in detail the results of the entire research.

BREVENT PARK SECTION AND BELFORD.—These two towns, together with Port Monmouth, are the principal points from which hard clams are shipped. The grounds from which the clams are gathered are in Sandy Hook Bay, and extend from Spermaceti Cove to Sandy Hook Point. During the past year a number of the clambers made application to the State Board of Health for certificates which they might file with the New York City Board of Health. It having been found that the grounds above mentioned were satisfactorily located, statements were issued to these men that clams taken from them were, in the opinion of the Board, safe for human consumption.

EXPERIMENTS RELATING TO HIBERNATION OF OYSTERS.

The theory has been advanced, due to the experimental work performed by Gorham and others, that during the cold weather oysters assume a condition of rest, or hibernation, during which ciliary action ceases, and the process of feeding is suspended.

So far as is known, the researches which have thus far been made have been conducted with oysters taken from waters of the same salt content as that in which they are grown. The floating of oysters, or the placing of them for short periods in tidal waters where the water is less salt than in which they are grown, is so universally practiced in this State that it was thought desirable to conduct some experiments under practical conditions for the purpose of ascertaining if oysters, when placed on floats during the hibernation period, take up water or "drink."

The experiments were conducted in Tuckerton Creek at a point near the head of that stream and directly off the public wharf, on the east bank of the Creek at Tuckerton, New Jersey. At this point the Creek extends nearly north and south, and is entirely exposed to the direct action and influence of the elements. Our experimental float was so placed and conducted that it would be influenced by the same conditions as would affect the float of practical dealer.

The experimental work was carried on during the period between January 25th and March 16th, daily observations being made in a manner which will be hereafter described. The air temperature was obtained from a Bristol Recorder, range from 9° to 61° F., during the period above mentioned. The water temperatures were also observed for the entire period by a Bristol Recorder, and found to range from 30° to 44° F. This average temperature was approximately the same for February and March, with one or two exceptions, when the temperature rose to 50° F.

The oysters used in the experiments were natural Tuckerton Bay Stock, of the size commonly known as culls. Fifteen hundred were tonged from the Bay on January 25th, and transferred immediately to the experimental float. Two thousand more of a similar kind were placed on the float on February 1st. The density of the Bay water was found to be about 1.017, with a chlorine content of approximately 12,000 p.p.m. The shell liquor on an average lot of oysters selected at random, from the entire lot of oysters before being placed on the float, was found to average 12,877 p.p.m.

A seven-day chart was used on the Bristol Recorder for obtaining the temperature of the air, and a twenty-four-hour chart was similarly used for the obtaining of the water temperature. The recording apparatus in each case was carefully sheltered by wooden boxes; the air temperature recorder was protected from the weather, and still given proper exposure by the use of canvas, thus one side of the box containing the apparatus consisted simply of a removable piece of heavy canvas, while the other sides were constructed of wood. The water temperature recording apparatus was bolted onto a plank, which was in turn fastened in an upright position to one end of the float, so that the bulb at the end of the capillary tube rested on the bottom of the float with the oysters surrounding it. The oysters were placed in a heap in such a manner that the top of the heap lay within an inch of the surface of the water.

A large canvas-covered water-tight box, two feet by three feet, was also fastened to the end of the float supporting the recorder in such a manner that the bottom of the box was submerged about six inches. This box which was used in the Carmine Experiment, was fitted with an opening in one corner of the bottom, the opening being stopped by a removable plug. At the beginning of the experiment 300 oysters were placed in the box, the plug was removed and sufficient Creek water allowed to run in to just cover the oysters. Finally the finely divided carmine water was added and thoroughly stirred in the box. (Approximately 53,000 c.c. of water and 25 c.c. of dye water were used throughout the experiment). This procedure was followed twice daily on different tidal conditions during the experimental period, the liquid being removed by a dipper each time before entering upon the above procedure.

The entire investigation was made to include the following observations, and tests which were regularly conducted: (1) Observations of weather conditions, the local observation being supplemented by data taken from the United States Daily Weather Maps. (2) Observation of water and air temperature for the entire experimental period by the Bristol Recorder, as previously stated. (3) Determination of density of Creek water, which was made twice daily on the Creek water at the experimental float. (4) Determinations of chlorine content of the Creek water. (5) Carmine Test: In this test, the apparatus for which has been described, five oysters were removed from the box; scrubbed in order that all dye might be removed from the exterior of the shell; examined for soundness and imperfection in shell edges, and carefully opened. A thorough search for particles of the dye was made with the

use of a hand glass. Specimens suspected of containing carmine were further examined under the microscope. Other specimens showing positive results were examined microscopically for the action of cilia. From February 17th until the end of the period of experimentation, the examination of three of the five Carmine Test oysters was made a matter of routine procedure. (6) Visual Test was conducted in connection with the chlorine determination, and involved the use of ten oysters, taken twice daily from the experimental float. The oysters were carefully opened so that the deep left valves retained sufficient liquor for the chlorine determination, and the oysters attached to the other valve were arranged in order on a tray placed before a window. Thus a close scrutiny of the samples disclosed a general as well as a comparative view of them. (7) Determination of Chlorine Content of Oysters: The procedure in this case involved the use of two c.c. of liquor from each oyster. This volume was pipetted into a twenty-five-c.c. flask, and the volume made up to the calibration mark; the whole was then shaken, filtered quickly through a S. & S. filter, and ten c.c. of the filtrate titrated with standard silver nitrate. Usually twenty oysters were examined daily.

In this report it has not been possible to show in detail the results obtained, but from the carmine experiments, visual observations and chlorine determinations, the opinion has been formed that oysters will drink, in part at least, when held on floats at what are commonly regarded as hibernating temperatures.

WATER AND SEWERAGE INSPECTIONS: By F. E. Daniels, Director of Water and Sewerage Inspections.

INTRODUCTION: The work of supervision and inspection of the water supplies, sewage disposal systems, and the water courses of the State of New Jersey, has been continued along the lines of last year. While every effort has been made to keep to our schedule of routine work, it has been impossible to do so on account of losing men whose places have not been filled.

The loss of one inspector was partly compensated for by arrangements with the various water companies and departments to have reliable representatives of the corporations supplying potable water collect and ship to the Laboratory samples of water for analysis. This arrangement saves considerable time and expense on the part of the State. The representatives have cheerfully complied with our requests and the samples are collected with little or no inconvenience, the expense of shipment being borne by the State. In a few cases it has been found necessary to have representatives of this Division make the collections.

The most serious losses have been that of two technical assistants, whose places could not be immediately filled. As a result, our routine schedule of water and sewage disposal plant inspections could not be carried out. Several special investigations of a very important character, having a direct bearing upon the water purification and sewage disposal of the State, have had to be dropped on account of lack of men.

Notwithstanding the above difficulties, considerable work has been accomplished. While more detailed accounts will appear under the subsequent headings, the following table will give a brief summary of the work of the Division done during the year:

MONTH.	Water supplies inspected.	Bottled water supplies inspected.	Ice supplies and ice manufacturing plants inspected.	Watersheds inspected.	Sewerage systems inspected.	No. stream pollutions reported.	No. stream pollutions reinspected.	No. stream pollutions abated.	No. notices to cease pollution issued.
November, 1914.	18			2	23	43	72	37	
December, 1914.	11	1			13	60	40	16	
January, 1915.	19	1			40	9	57	5	
February, 1915.	14	1			45	21	12	5	
March, 1915.	23				60	81	79	32	
April, 1915.	23		1		43	19	69	30	
May, 1915.	14				42	6	56	33	
June, 1915.	15	1		13	30	12	63	15	
July, 1915.	5	1		7	32	41	17	10	
August, 1915.	10	4		19	12	39	9	4	
September, 1915.	7			7	30	95	121	88	
October, 1915.	11	2		2	35	53	89	11	
Total	192	11	1	77	405	509	690	286	188

PUBLIC WATER SUPPLIES OF NEW JERSEY.

TOWN.	Supplied By	Source.	Treatment.	Approximate daily con. in gal.
Absecon.....	Pleasantville Water Co. (See Pleasantville)			
Acquackanonk Twp.	Yantacaw Water Co. (See Delawanna)			
Acquackanonk Twp.	Montclair Water Co. (See Little Falls)			
Aldene.....	Plainfield-Union Water Co. (See Netherwood)			
Allendale.....	Borough of Ramsey (See Ramsey)			
Alienhurst	Borough of Alienhurst.	5 wells.	Iron removal.	305,000
Allentown.	Borough of Allentown	Pond.	Filtration.	20,000
Ampere.....	City of East Orange. (See East Orange)			
Anglesea.....	Wildwood Water Works Co. (See Wildwood)			
Annandale.....	Clinton Water and Water Supply Co. (See Clinton)			
Arlington.....	Montclair Water Co. (See Little Falls)			
Asbury Park	City of Asbury Park.	8 wells.	Iron removal.	800,000
Asbury Park	Monmouth Co. Water Co. (See Neptune Township)			
Asbury Park	Tintern-Manor Water Co. (See Long Branch)			
Athenia.....	Montclair Water Co. (See Little Falls)			
Atlantic City.	City of Atlantic City.	24 wells and Absecon Cr.	None.	8,000,000 12,000,000
Atlantic Highlands.	Borough of Atlantic Highlands	8 wells.	Iron removal.	150,000
Audubon.....	N. J. Water Service Co. (See Haddonfield)			
Audubon	Merchantville Water Co. (See Merchantville)			
Avalon.....	Borough of Avalon.	2 wells.	None.	120,000
Avon.....	Monmouth Co. Water Co. (See Neptune Township)			
Avondale.....	Montclair Water Co. (See Little Falls)			
Barnegat.....	Barnegat Water Co.	1 well.	None.	40,000
Basking Ridge	Bernards Water Co. (See Bernardsville)			
Bayhead.....	Bayhead Water Co.	4 wells.	None.	15,000 200,000
Bayonne.....	Montclair Water Co. (See Little Falls)			
Beach Haven	Borough of Beach Haven	2 wells.	None.	70,000 225,000
Beach Haven Ter.	Fidelity Land Co.	1 well.	None.	
Beachwood Heights.	Watchung Water Co. (See Dunellen)			
Belleville.....	City of Newark (See Newark)			
Belmar.....	Borough of Belmar.	8 wells.	None.	250,000 700,000 100,000
Belvidere.....	Belvidere Water Co.	Delaware riv	None.	
Belvidere.....	Buckhorn Springs Water Co.	Buckhorn Cr and springs.	None.	*95,000
Bergenfield.....	Hackensack Water Co. (See New Milford)			
Bernardsville.	Bernards Water Co.	Passaic river.	None.	150,000
Bernardsville	Frank B. Allen.	2 springs.	None.	46,000
Beverly.....	Delaware River Water Co.	11 wells.	None.	500,000 2,000,000
Blackwood.	Blackwood Water Co.	4 wells.	Iron removal.	
Blairstown.	Blairstown Water Co.	1 well.	None.	100,000
Bloomfield.....	Montclair Water Co. (See Little Falls)			
Bloomingdale.....	Butler Water Co. (See Butler)			
Bloomsbury.....	Bloomsbury Water Co.	Spring & Pine Hollow Brook	None.	70,000 25,000
Bogota.....	Bogota Water & Light Co	1 well.	None.	
Bogota.....	Hackensack Water Co.			
Boonton.....	United Water Supply Co.	Brook.	None.	356,000

PUBLIC WATER SUPPLIES OF NEW JERSEY.—Continued.

TOWN.	Supplied By	Source.	Treatment.	Approximate daily con. in gal.
Bordentown.....	City of Bordentown.....	Springs and 1 well.	None.	400,000
Bound Brook.....	Bound Brook Water Co.	Middle Brook and 20 wells.	Filtration and disinfection.	450,000
Bradley Beach.....	Monmouth County Water Co. (See Neptune Twp.)			
Bradley Park.....	Monmouth County Water Co.			
Branchville.....	Borough of Branchville	Dry Brook.		
Branchville.....	Branchville Electric Power, Water and Lighting Co.			
Brant Beach.....	Beach Haven North Co.	Culver's Lake	None.	
Brick Church.....	City of East Orange. (See East Orange)	1 well.	None.	5,000
Brick Township.....	Point Pleasant Water Co. (See Point Pleasant)			
Bridgeport.....	Bridgeport Water Co.	4 wells.	None.	2,000
Bridgeton.....	City of Bridgeton.	Tumbling Dam pond.	Filtration and disinfection.	1,800,000
Bridgewater Twp.....	Bound Brook Water Co. (See Bound Brook)			
Brown's Mills.....	Brown's Mills Water Co.	1 well.	None.	50,000
Burlington.....	City of Burlington.	Delaware river.	Filtration & disinfection.	1,000,000 240,000
Butler.....	Butler Water Co.	Brook.	None.	
Caldwell.....	Essex Fells Electric Light & Water Co. (See Essex Fells)			
Califon.....	Califon Water Co.	Springs.	None.	
Califon.....	Dr. I. Topkins.	Springs.	None.	
Camden.....	City of Camden.	106 wells.	None.	12,000,000
Camden.....	Merchantville Water Co. (See Merchantville)			
Camden.....	Stockton Water Co.	26 wells.	None.	1,500,000
Cape May City.....	City of Cape May.	32 wells.	None.	1,750,000
Cape May Court House.....	Neptunus Water Co.	3 wells.	None.	35,000
Cape May Point.....	Bor. of Cape May Point.	Wells.		10,000 40,000
Carlstadt.....	Hackensack Water Co. (See New Milford)			
Carlton Hill.....	Hackensack Water Co. (See New Milford)			
Cartaret.....	Middlesex Water Co. (See Rahway)			
Centre Township.....	N. J. Water Service Co. (See Haddonfield)			
Chatham.....	Borough of Chatham.	6 wells.	None.	270,000
Chronie.....	Middlesex Water Co. (See Rahway)			
Cinnaminson Twp.....	Riverton-Palmyra Water Co. (See Riverton)			
Clarksboro.....	Charles Stewart.	1 well.	None.	
Clayton.....	Clayton-Glassboro Water Co.	6 wells.	None.	200,000
Clementon.....	Clementon Spring Water Co.	2 wells.	None.	40,000
Clifton.....	Montclair Water Co. (See Little Falls)			
Cliffside Park.....	Hackensack Water Co. (See New Milford)			
Clinton.....	Clinton Water & Water Sup- ply Company.	Beaver Brook and 1 well.	None.	
Closter.....	Hackensack Water Co. (See New Milford)			
Collingswood.....	Merchantville Water Co. (See Merchantville)			
Colonia.....	Middlesex Water Co. (See Rahway)			
Columbus.....	Columbus Water Co.	2 wells.	None.	10,000
Como.....	Borough of Spring Lake (See Spring Lake)			
Corson's Inlet.....	Corson's Inlet Water Co.	1 well.	None.	20,000
Coytesville.....	Hackensack Water Co. (See New Milford)			
Cranbury.....	Cranbury Water Co.	1 well.	Carbon diox- ide removal	22,000
Cranford.....	Plainfield-Union Water Co. (See Netherwood)			

PUBLIC WATER SUPPLIES OF NEW JERSEY.—Continued.

TOWN.	Supplied By	Source.	Treatment.	Approximate daily con. in gal.
Cresskill.....	Hackensack Water Co. (See New Milford)			
Crosswicks.....	Crosswicks Water Co.	Spring	None.	
Deal.....	N. J. Water and Light Co.	Wells.	None.	
Deal Beach.....	N. J. Water and Light Co. (See Deal)			
Deal Boro.....	Tintern-Manor Water Co. (See Long Branch)			
Delair.....	Merchantville Water Co. (See Merchantville)			
Delanco.....	Delaware River Water Co. (See Beverly)			
Dalawanna.....	Yantacaw Water Co.	1 well.	None.	13,000
Delaware.....	D. L. & W. R. R. Co.	Brook.	None.	700
Delaware Twp.....	N. J. Water Service Co. (See Haddonfield)			
Delford.....	Hackensack Water Co. (See New Milford)			
Demarest.....	Hackensack Water Co. (See New Milford)			
Dover.....	Town of Dover.	Springs and 7 wells.	Disinfection.	440,000
Dumont.....	Hackensack Water Co. (See New Milford)			
Dunellen.....	Watchung Water Co.	6 wells.	None.	200
East Bound Brook.....	Bound Brook Water Co. (See Bound Brook)			
East Newark.....	Montclair Water Co. (See Little Falls)			
East Orange.....	City of East Orange.	40 wells.	None.	2,750,000
East Rutherford.....	Hackensack Water Co. (See New Milford)			
East Summit.....	Commonwealth Water & Light Co. (See Summit)			
Eatontown.....	Tintern-Manor Water Co. (See Long Branch)			
Edgewater.....	Hackensack Water Co. (See New Milford)			
Edgewater Park.....	Delaware River Water Co. (See Beverly)			
Egg Harbor City.....	Egg Harbor City Water Co.	3 wells.	None.	
Elberon.....	Tintern-Manor Water Co. (See Long Branch)			
Elizabeth.....	Elizabethtown Water Co.	110 wells, Elizabeth river.	Filtration and disinfection.	14,000,000
Elizabeth.....	City of Newark (See Newark)			
Elizabeth.....	Plainfield-Union Water Co. (See Netherwood)			
Elizabeth.....	Short-Hills Water Co. (See Short Hills)			
Elizabeth Twp.....	Middlesex Water Co. (See Rahway)			
Elmer.....	Elmer Water Co.	1 well.	None.	17,800
Emerson.....	Hackensack Water Co. (See New Milford)			
Englewood.....	Hackensack Water Co. (See New Milford)			
Englewood Cliffs.....	Hackensack Water Co. (See New Milford)			
Essex Fells.....	Essex Fells Electric Light & Water Co.	6 wells.	None.	212,000
Fair Haven.....	Tintern-Manor Water Co. (See Long Branch)			
Fairview.....	Hackensack Water Co. (See New Milford)			
Fanwood Borough.....	Plainfield-Union Water Co. (See Netherwood)			
Fanwood Township.....	Plainfield-Union Water Co. (See Netherwood)			
Flemington.....	Flemington Water Co.	1 well and Raritan river.	Filtration and disinfection.	200,000
Fords.....	Middlesex Water Co. (See Plainfield)			
Fort Lee.....	Hackensack Water Co. (See New Milford)			

PUBLIC WATER SUPPLIES OF NEW JERSEY.—Continued.

TOWN.	Supplied By	Source.	Treatment.	Approximate daily con. in gal.
Freehold.....	Town of Freehold.	13 wells.	None.	350,000
Frenchtown.....	Frenchtown Water Co.	Nishisakawik Creek.	None.	100,000
Garfield.....	Borough of Garfield.	12 wells.	None.	500,000
Garwood.....	Plainfield-Union Water Co. (See Netherwood)			
German Valley.....	German Valley Water Co.	2 springs.	None.	
German Valley.....	M. T. Welsh.	2 wells.	None.	
Gibbsboro.....	John Lucas & Co.	2 wells.	None.	
Gibbstown.....	E. I. DuPont de Nemours.	1 well.	None.	1,000
Gillette.....	Gillette Water Co.	1 well.	None.	1,500
Gladstone.....	Dr. M. C. Smalley.	spring.	None.	1,000
Glassboro.....	Clayton-Glassboro Water Co. (See Clayton)			
Glen Gardner.....	Glen Gardner Water Co.	spring.	None.	
Glen Gardner.....	N. J. Sanatorium.	Rocky Run Brook.	Filtration and disinfection.	65,000
Glen Lake.....	C. G. Justice.	1 well.	None.	1,200
Glen Ridge.....	Montclair Water Co. (See Little Falls)			
Glen Rock.....	Bergen Water Co. (See Ridgewood)			
Gloucester.....	Gloucester City.	9 wells and creek.	Filtration and disinfection.	1,600,000
Grantwood.....	Hackensack Water Co. (See New Milford)			
Grasselli.....	Elizabethtown Water Co. (See Elizabeth)			
Greenloch.....	Bateman Mfg. Co.	2 wells.	None.	40,000
Guttenburg.....	Hackensack Water Co. (See New Milford)			
Hackensack.....	Hackensack Water Co. (See New Milford)			
Hackettstown.....	Town of Hackettstown.	Mine Hill and Morris Co. Reservoirs.	None.	425,000
Haddonfield.....	N. J. Water Service Co.	Springs and 2 wells.	None.	425,000
Haddonfield.....	Borough of Haddonfield.	4 wells.	None.	150,000
Haddon Heights.....	N. J. Water Service Co. (See Haddonfield)			
Haledon.....	Borough of Haledon.	Springs & brk.	Filtration.	
Hammonton.....	Town of Hammonton.	6 wells.	None.	150,000
Hampton.....	Junction Water Co.	Rocky Run.	None.	
Hanover Twp.....	Morris Aqueduct Co. (See Morristown)			
Harrington Park.....	Hackensack Water Co. (See New Milford)			
Harrison.....	Montclair Water Co. (See Little Falls)			
Hasbrouck Heights.....	Hackensack Water Co. (See New Milford)			
Haskell.....	E. I. DuPont de Nemours.	Spring and wells.	None.	300,000
Haworth.....	Hackensack Water Co. (See New Milford)			400,000
Haworth.....	Haworth Water Supply Co.	1 well.	None.	
Helmetta.....	Geo. W. Helme Co.	2 wells.	None.	14,000
High Bridge.....	Borough of High Bridge	Springs.	Iron removal.	
Highlands.....	Borough of Highlands.	3 wells.	None.	
Highlands.....	James M. Johnson.	Spring and well.	Iron removal.	100,000
Highland Park.....	City of New Brunswick. (See New Brunswick)			
Hightstown.....	Hightstown Water Dept.	4 wells.	Iron removal.	520,000
Highwood.....	Hackensack Water Co. (See New Milford)			
Hillsdale.....	Hackensack Water Co. (See New Milford)			
Hillsdale Manor.....	Hackensack Water Co. (See New Milford)			
Hillside.....	Elizabethtown Water Co. (See Elizabeth)			
Hilton.....	Commonwealth Water and Light Co. (See Summit)			

PUBLIC WATER SUPPLIES OF NEW JERSEY.—Continued.

TOWN.	Supplied By	Source.	Treatment.	Approximate daily con. in gal.
Hoboken.	Hackensack Water Co. (See New Milford)			
Hohokus	Bergen Water Co. (See Ridgewood)			
Holly Beach.	Wildwood Water Co. (See Wildwood)			
Hopewell.	Borough of Hopewell	4 wells.	None.	15,000
Interlaken.	Monmouth Water Co. (See Neptune Twp.)			
Irvington.	Commonwealth Water and Light Co. (See Summit)			
Island Heights.	Island Heights Water, Power, Gas and Sewer Co.	2 wells.	None.	6,000 240,000
Ivy Hill.	Commonwealth Water and Light Co. (See Summit)			
Jamesburg.	Jamesburg Water Co.	Wells.	None.	60,000
Jamesburg.	State Home for Boys.	2 wells.	None.	75,000
Jersey City Junction.	City of Jersey City Junetion Water Co. (See Hampton)	Rockaway river	Disinfection.	47,000,000
Keansburg.	Ideal Beach Water Co.	1 well.	Iron removal.	6,000
Keansburg.	Keansburg Beach Water Co.	1 well.	Iron removal.	35,000
Keansburg.	Keansburg Heights Water Co.	Wells.	Iron removal.	
Keansburg.	Keansburg Water Co.	Wells.	Iron removal.	
Kearny.	Montclair Water Co. (See Little Falls)			
Kearny.	(Soldiers' Home)	1 well and city	None.	230,000
Kearny.	City of Perth Amboy (See Perth Amboy)			
Kenilworth.	New Orange Park Water, Heat, Light & Power Co.	1 well.	None.	10,000
Kenilworth.	Plainfield-Union Water Co. (See Netherwood)			
Keyport.	Town of Keyport.	4 wells.	Iron removal.	400,000
Kingsland.	Hackensack Water Co. (See New Milford)			
Kirkwood.	Lakeside Park Water Co.	1 well.	Iron removal.	
Lakehurst.	Lakehurst Sewer Co.	1 well.	None.	10,000
Lakeside Park (Mer- cer County)	Lakeside Park Land Co.	1 well.	None.	3,000
Lakewood.	Lakewood Water Co.	6 wells.	None.	734,000
Lambertville.	Lambertville Water Co.	Brook.	Filtration, slow sand	300,000
Laurel Springs.	Laurel Springs Water Sup- ply Co.	Wells.	None.	100,000
Lawrenceville.	James Hullfish	2 wells.	None.	8,000
Lawrence Township.	C. F. Reed	2 wells.	None.	
Leonia.	Hackensack Water Co. (See New Milford)			
Lincoln.	Watchung Water Co. (See Dunellen)			
Linden.	Elizabethtown Water Co. (See Elizabeth)			
Lindenwold.	N. J. Water Service Co. (See Haddonfield)			
Little Falls.	Montclair Water Co.	Passaic river.	Filtration and disinfection.	32,000,000
Little Ferry.	Hackensack Water Co. (See New Milford)			
Little Silver.	Tintern-Manor Water Co. (See Long Branch)			
Little York.	Community Supply	Spring.	None.	
Lodi.	Hackensack Water Co. (See New Milford)			
Lodi.	Borough of Lodi.	1 well.	None.	150,000
Loch Arbor.	Monmouth Co. Water Co. (See Neptune Twp.)			
Logansville.	Bernards Water Co. (See Bernardsville)			
Long Branch.	Tintern-Manor Water Co. (See W. End and Middle- town Township)			
Longport.	Borough of Longport.	1 well.	None.	100,000
Lucaston.	John Lucas & Co. (See Gibbsboro)			

PUBLIC WATER SUPPLIES OF NEW JERSEY.—Continued.

TOWN.	Supplied By	Source.	Treatment.	Approximate daily con. in gal.
Lumberton.	Lumberton Light, Water & Sewerage Co.	Rancocas Cr'k.	None.	17,000
Lyndhurst.	Hackensack Water Co. (See New Milford)			
Lyons Farms.	Elizabethtown Water Co. (See Elizabeth)			
Madison.	Borough of Madison.	9 wells.	None.	350,000
Mahwah.	Cragmere Water Co.	1 well.	None.	20,000
Mahwah.	Albert Winter.	Spring.	None.	
Mahwah.	John Winter.	1 well.	None.	1,500
Manasquan.	Borough of Manasquan.	Wells.	None.	40,000
Mantoloking.	Louis Downer.	2 wells.	None.	60,000
Mantua.	Job Scott.	2 wells.	None.	12,000
Maple Shade.	Maple Shade Water Co.	1 well.	Iron removal.	7,000
Maplewood.	Commonwealth Water and Light Co. (See Summit)			
Margate City.	Margate City Water Dept.	2 wells.	None.	75,000
Marion.	City of Jersey City (See Jersey City)			
Marlton.	Marlton Water Co.	1 well.	None.	18,000
Matawan.	Borough of Matawan.	3 wells.	Iron removal.	150,000
May's Landing.	May's Landing City.	2 wells.	None.	30,000
May's Landing.	May's Landing Water Power Co.	Lake Lenape.	None.	
Maywood.	Hackensack Water Co. (See New Milford)			
Medford.	Medford Water Co.	Rancocas Cr'k.	None.	60,000
Mendham.	Borough of Mendham.	Springs.	None.	25,000
Merchantville.	Merchantville Water Co.	10 wells.	Iron removal.	355,000
Metuchen.	Middlesex Water Co. (See Plainfield and Rahway)			
Mickleton.	August Eichler.	Well.	None.	
Mickleton.	Jeremiah Haines	1 well.	None.	1,000
Middletown Twp.	Tintern-Manor Water Co.	Hop and Yel- low Brooks.	Filtration.	3,500,000
Midland.	Hackensack Water Co. (See New Milford)			
Midland Park.	Bergen Water Co. (See Ridgewood)			
Millburn Twp.	Commonwealth Water and Light Co. (See Summit)			
Milford.	Mine Springs Water Co.	1 well.	None.	8,000
Millington.	Millington Water Co.	2 wells.	None.	
Millville.	Millville Water Co.	Union Lake and 14 wells.	Filtration and disinfection.	2,600,000
Millville.	People's Water Co.	6 wells.	Iron removal.	720,000
Monmouth Beach.	Tintern-Manor Water Co. (See Long Branch)			
Montclair.	Montclair Water Co. (See Little Falls)			
Moonachie.	Hackensack Water Co. (See New Milford)			
Moorestown.	Moorestown Water Dept.	Wells.	Iron removal.	300,000
Morris Plains (State Hospital).		Springs.	None.	700,000
Morristown.	Morris Aqueduct Co.	Springs and 8 wells.	None.	750,000
Morris Township.	Morris Aqueduct Co. (See Morristown)			
Morris Township.	Normandy Water Co. (See Normandy Heights)			
Morris Plains.	Morris Aqueduct Co. (See Morristown)			
Morsemere.	Hackensack Water Co. (See New Milford)			
Mount Holly.	Mount Holly Water Co.	Rancocas Cr'k.	Filtration and disinfection.	375,000
Mountain Lakes.	Hillcrest Water Co.	2 wells.	None.	52,000
Mount Tabor.	Camp Meeting Assoc. of Newark Con. M. E.	Springs and 2 wells.	None.	60,000
Mullica Hill.	Harrison Heights Improve- ment Co.	2 wells.	None.	20,000
Murray Hill.	Commonwealth Water and Light Co. (See Summit)			
Navesink Beach.	Tintern-Manor Water Co. (See Long Branch)			

PUBLIC WATER SUPPLIES OF NEW JERSEY.—Continued.

TOWN.	Supplied By	Source.	Treatment.	Approximate daily con. in gal.
Neptune City	Monmouth Co. Water Co. (See Neptune Twp.)			
Neptune Township	Monmouth Co. Water Co.	Jumping Brook and 9 wells.	Filtration	800,000
Netcong	Borough of Netcong.	Springs.	None.	50,000
Netherwood	Plainfield-Union Water Co.	38 wells.	None.	6,000,000
Newark	City of Newark.	Pequannock river.	Disinfection at times.	42,000,000
Newbold	Westville-Newbold Water Co. (See Westville).			
New Brunswick	City of New Brunswick.	Lawrence Br'k.	Disinfection.	3,500,000
New Durham	Hackensack Water Co. (See New Milford)			
New Egypt	New Egypt Light, Heat, Power and Water Co.	1 well.	None.	
New Lisbon	Burlington Co. Water Co.	Rancocas Cr'k.	None.	50,000
New Market	Watchung Water Co. (See Dunellen)			
New Milford	Hackensack Water Co.	Hackensack river.	Filtration and disinfection.	28,000,000
New Providence Borough.	Commonwealth Water and Light Co. (See Summit).			
New Providence Twp	Commonwealth Water and Light Co. (See Summit).			
Newton	Town of Newton.	Morris Lake.	None.	350,000
Nordhoff	Hackensack Water Co. (See New Milford)			
Normandie	Tintern-Manor Water Co. (See Long Branch)			
Normandy Heights	Normandy Water Co.	27 wells.	None.	78,000
North Arlington	City of Jersey City. (See Jersey City).			
North Bergen	Hackensack Water Co. (See New Milford)			
Northfield	Pleasantville Water Co. (See Pleasantville)			
North Hackensack	Hackensack Water Co. (See New Milford)			
North Plainfield	Plainfield-Union Water Co. (See Netherwood)			
North Wildwood	Wildwood Water Works Co. (See Wildwood)			
Norwood	Hackensack Water Co. (See New Milford)			
Nutley	Montclair Water Co. (See Little Falls)			
Oaklyn	N. J. Water Service Co. (See Haddonfield)			
Ocean City	Ocean City Water Co.	7 wells.	None.	
Ocean Gate	N. J. Coast Water Co.	1 well.	None.	12,000
Ocean Grove	Ocean Grove Camp Meeting Association.	21 wells.	None.	400,000
Ocean Grove Heights	Monmouth Co. Water Co. (See Neptune Twp.)			
Oceanic	Tintern-Manor Water Co. (See Long Branch)			
Oceanport	Tintern-Manor Water Co. (See Long Branch)			
Ocean Township	Tintern-Manor Water Co. (See Long Branch)			
Oradell	Hackensack Water Co. (See New Milford)			
Orange	City of Orange.	Rahway river.	None.	2,400,000
Overbrook	Laurel Springs Water Co. (See Laurel Springs)			
Overbrook Hospital	Montclair Water Co. (See Little Falls)			
Overpeck	Hackensack Water Co. (See New Milford)			
Oxford	Empire Steel & Iron Co.	Springs	None.	
Palisades Park	Hackensack Water Co. (See New Milford)			
Palisades Twp.	Hackensack Water Co. (See New Milford)			

PUBLIC WATER SUPPLIES OF NEW JERSEY.—Continued.

TOWN.	Supplied By	Source.	Treatment.	Approximate daily con. in gal.
Palmyra	Riverton-Palmyra Water Co. (See Riverton)			
Passaic	Montclair Water Co. (See Little Falls)			
Passaic Twp.	Morris Aqueduct Co. (See Morristown)			
Paterson	Montclair Water Co. (See Little Falls)			
Paulsboro	Paulsboro Water Co.	6 wells.	None.	10,000
Pedricktown	Pennsgrove Water Supply Co. (See Pennsgrove)			
Pemberton	Pemberton Twp. Water, Sewerage & Light Co.			
Pennington	Pennington Spring Water Co.	Rancocas Cr'k	None.	40,000
Pennsgrove	Pennsgrove Water Supply Co.	Wells and springs	None.	
Pensauken	Merchantville Water Co. (See Merchantville)	Wells.	Iron removal.	150,000
Pensauken Twp.	J. N. Wilkins.	1 well.	None.	16,000
Perth Amboy	City of Perth Amboy.	Wells.	Aeration.	10,000,000
Phillipsburg	Lopatcong Water Co.	Merrill brook.	None.	800,000
Phillipsburg	People's Water Co.	Filter gallery.	None.	1,500,000
Phillipsburg	Lehigh Water Co.	Delaware river.	Disinfection.	35,000
Piscataway	Plainfield-Union Water Co. (See Netherwood)			
Piscataway Twp	Bound Brook Water Co. (See Bound Brook)			
Piscataway Twp.	Middlesex Water Co. (See Rahway)			
Pitman	Pitman Water Co.	1 well.	None.	45,000
Pitman	N. J. Conference Camp Meeting Association.	1 well.	None.	70,000
Plainfield	Middlesex Water Co. (See Union Water Co.)	9 wells.	None.	1,300,000
Plainfield	Plainfield-Union Water Co. (See Netherwood)			
Pleasantville	Pleasantville Water Co.	Patcong Creek.	None.	500,000
Pluckamin	Superior Thread & Yarn Co.	Echo Lake.	None.	25,000
Point Pleasant	Point Pleasant Water Works Co.	12 wells.	None.	400,000
Port Reading	Middlesex Water Co. (See Plainfield & Rahway).			
Princeton	Princeton Water Co.	4 wells.	None.	600,000
Prospect Park	Montclair Water Co. (See Little Falls)			
Quinton	City of Salem.	28 wells and pond.	None.	700,000
Rahway	City of Rahway.	Rahway river.	Filtration and disinfection.	1,800,000
Rahway Reform'y.	City of Rahway.			
Rahway	Middlesex Water Co.	Rahway river and wells.	Filtration and disinfection.	4,000,000
Ramsey	Borough of Ramsey	3 wells.	None.	10,000
Raritan	Somerville Water Co.	Raritan river.	Filtration and disinfection.	1,800,000
Raritan Twp.	Middlesex Water Co. (See Rahway)			
Red Bank	Borough of Red Bank.	3 wells.	None.	400,000
Red Bank	Tintern-Manor Water Co. (See Long Branch)			
Ridgefield	Hackensack Water Co. (See New Milford)			
Ridgefield Park	Hackensack Water Co. (See New Milford)			
Ridgewood	Bergen Water Co.	6 wells.	Disinfection.	1,750,000
Riegelsville	Mrs. Lee S. Clymer. (Riegelsville, Pa.)	6 springs.	None.	
River Edge	Hackensack Water Co. (See New Milford)			
Riverside (Bergen Co.)	Hackensack Water Co. (See New Milford)			
Riverside Twp.	Delaware River Water Co. (See Beverly)			
Riverton	Riverton-Palmyra Water Co.	1 well.	None.	600,000
Rockaway	Borough of Rockaway.	Brook.	None.	
Roebling	John A. Roebling's Sons Co.	Delaware river.	Filtration and disinfection.	350,000

PUBLIC WATER SUPPLIES OF NEW JERSEY.—Continued.

TOWN.	Supplied By	Source.	Treatment.	Approximate daily con. in gal.
Rosland	Essex Fells Elec. Light & Water Co. (See Essex Fells)			
Roselle Borough	Plainfield-Union Water Co. (See Netherwood)			
Rosells Park	Plainfield-Union Water Co. (See Netherwood)			
Roosevelt	Middlesex Water Co. (See Plainfield and Rahway)			
Rumson Borough	Tintern-Manor Water Co. (See Long Branch)			
Rumson Borough	Rumson Improvement Co.	5 wells	Iron removal.	35,000
Runyon	City of Perth Amboy (See Perth Amboy)			
Rutherford	Hackensack Water Co. (See New Milford)			
Salem	City of Salem (See Quinton)			
Scotch Plains	Plainfield-Union Water Co. (See Netherwood)			
Sea Bright	Tintern Manor Water Co. (See Long Branch)			
Sea Girt	Sea Girt Water Co.	1 well	None	30,000
Sea Isle City	Sea Isle City Water Co.	1 well	None	75,000
Seaside Heights	Peninsular Water Co.	1 well	None	100,000
Seaside Park	Borough of Seaside Park	2 wells	None	24,000
Secaucus	Hackensack Water Co. (See New Milford)			
Sewaren	Middlesex Water Co. (See Plainfield & Rahway)			
Sewell	Sewell Water Co.	1 well	None	7,600
Short Hills	Short Hills Water Co.	13 wells	None	1,250,000
Shrewsbury Twp.	Tintern-Manor Water Co. (See Long Branch)			
Skillman (State Village)		Rock Brook	Filtration and disinfection.	80,000
Smithville	H. B. Smith Machine Co. (See Laurel Springs)	2 wells	Iron removal.	30,000
Somerdale				
Somers Point	Pleasantville Water Co. (See Pleasantville)			
Somerville	Somerville Water Co. (See Raritan)			
South Amboy	City of Perth Amboy (See Perth Amboy)			
South Bound Brook	Bound Brook Water Co. (See Bound Brook)			
South Cape May	City of Cape May (See Cape May)			
South Egg Harbor	(See Egg Harbor)			
South Englewood	(See New Milford)			
South Orange	Village of South Orange	7 wells	None	450,000
South Orange Twp.	Commonwealth Water and Light Co. (See Summit)			
South Plainfield	Middlesex Water Co. (See Plainfield)			
South River	Borough of South River	1 well	None	40,000
Sparta	Andrew Foulds	Spring	None	
Sparta	David Fisher	Spring	None	
Sparta	Robert M. Smith	Glen Brook	None	
Springfield	Short Hills Water Co. (See Short Hills)			
Spring Lake	Borough of Spring Lake	7 wells	None	600,000
Stanhope	Borough of Stanhope	1 well	None	25,000
Stirling	Stirling Water Supply Co.	6 wells	None	65,000
Stockton	Borough of Stockton	2 wells	None	16,000
Stone Harbor	Stone Harbor Water Co.	1 well	None	40,000
Stratford	Laurel Springs Water Supply Co. (See Laurel Springs)			
Strathmere	(See Corson's Inlet)			
Summit	Commonwealth Water and Light Co.	38 wells	None	2,600,000
Surf City	Surf City Water Co.	1 well	None	
Sussex	Borough of Sussex	Lake Rutherford	None	75,000
Swedesboro	Woolwick Water Co.	4 wells	None	115,000

PUBLIC WATER SUPPLIES OF NEW JERSEY.—Continued.

TOWN.	Supplied By	Source	Treatment.	Approximate daily con. in gal.
Teaneck	Hackensack Water Co. (See New Milford)			
Tenafly	Hackensack Water Co. (See New Milford)			
Toms River	Toms River Water Co.	4 wells	None	60,000
Trenton	City of Trenton	Delaware river	Filtration and disinfection.	17,000,000
Trenton (State Home for Girls)		2 wells	None	20,000
Trenton (State Hospital)		6 wells	None	
Tuckerton	Tuckerton Water Co. (See New Milford)	Pohatcong lake	None	60,000
Union (Bergen Co.)	Hackensack Water Co. (See New Milford)			
Union (Union Co.)	Elizabethtown Water Co. (See Elizabeth)			
Union Township	City of Jersey City (See Jersey City)			
Ventnor	City of Ventnor	4 wells	None	
Verona	Essex Fells Elec. Light and Water Co. (See Essex Fells)			
Vincentown	Vincentown Water Co.	Rancocas Crk.	None	21,000
Vineland	Borough of Vineland	12 wells	None	700,000
Vineland (Soldiers' Home)		1 well	None	35,000
Vineland (Training Schools)		3 wells	None	60,000
Wallington	Borough of Wallington	2 wells	None	275,000
Wanamassa	Monmouth Co. Water Co. (See Neptune Twp.)			
Washington	Washington Water Co.	Roaring Rock brook	None	
Watsontown	Clementon Spring Water Co. (See Clementon)			
Weehawken	Hackensack Water Co. (See New Milford)			
Wenonah	Wenonah Borough	6 wells	None	60,000
West Allenhurst	Monmouth Co. Water Co. (See Neptune Twp.)			
West Caldwell	(See Essex Fells)			
West Cape May	City of Cape May (See Cape May)			
West End	Tintern Manor Water Co.	Whale brook	Filtration.	
Westfield	Plainfield-Union Water Co. (See Netherwood)			
West Grove	Monmouth Co. Water Co. (See Neptune Twp.)			
West Hoboken	Hackensack Water Co. (See New Milford)			
Westmont	Merchantville Water Co. (See Merchantville)			
West Long Branch	Tintern Manor Water Co. (See Long Branch)			
West New York	Hackensack Water Co. (See New Milford)			
West Orange	Montclair Water Co. (See Little Falls)			
West Point Pleasant	Point Pleasant Water Works Co. (See Point Pleasant)			
Westville	Westville-Newbold Water Co.	2 wells	None	60,000
Westwood	Hackensack Water Co. (See New Milford)			
Wharton	R. M. Oram	Springs	None	20,000
White Horse	W. V. McGiillard	1 well	None	6,000
Whitesville	Monmouth Co. Water Co. (See Neptune Twp.)			
Wildwood	Wildwood Water Works Co.	29 wells	None	512,000
Wildwood Crest	Wildwood Water Works Co. (See Wildwood)			
Williamstown	Monroe Water Co.	Wells	None	30,000
Williamstown	C. D. Tice & Son	Wells	None	
Woodbine	Woodbine Land & Improvement Co.	Wells	None	110,000
Woodbridge	Middlesex Water Co. (See Plainfield)			

PUBLIC WATER SUPPLIES OF NEW JERSEY.—Continued.

TOWN.	Supplied By	Source.	Treatment.	Approximate daily con. in gal.
Woodbridge Twp.	City of Perth Amboy (See Perth Amboy)			
Woodbridge Twp.	Middlesex Water Co. (See Rahway)			
Woodbury	City of Woodbury	Wells	None	600,000 700,000
Woodbury Heights	City of Woodbury (See City of Woodbury)			
Woodcliff Lake	Hackensack Water Co. (See New Milford)			
Woodlyne	Merchantville Water Co. (See Merchantville)			
Woodridge	Hackensack Water Co. (See New Milford)			
Woodstown	City of Woodstown	6 wells	None	100,000
Wortendyke	Bergen Water Co. (See Ridgewood)			
Wrightstown	Wrightstown Water, Elec- tric Light & Sewer Co.	1 well	None	80,000
Wyoming	Commonwealth Water & Light Co. (See Summit)			
Cardville Heights	C. A. Comp.	Spring	None	4,000

WATER SUPPLIES: The foregoing table shows the towns of the State which have public water supplies. In some cases there is more than one supply in a given town, while some supplies furnish water to several municipalities. Some of the supplies obtain water from several sources, which is distributed separately in some cases, while in others all the water is brought to a common point and furnished as a mixed supply. Potable water is obtained from both surface and underground sources, and is used either in its raw state or treated for the removal of various impurities.

For convenience the 233 public supplies may be classified and grouped as follows:

Ground waters without treatment	143
Ground waters treated for removal of iron	22
Ground waters treated for removal of CO ₂	1
Ground waters treated for removal of bacteria	2
Surface waters without treatment	35
Surface waters treated for removal of pollution	22
Combination supplies	8
Total	233

The quality of the water of these supplies is ascertained by analytical tests, by supervision of the treatment plants and by inspection of the watersheds for the purpose of detecting and removing sources of pollution.

Samples from all supplies are analyzed at least four times a year, and the watersheds are gone over by the inspectors at least once a year.

A definite routine schedule is followed in the cases of the treatment plants, although many additional visits are made in cases of emergency, such as the investigation of complaints, breakdowns, trouble due to algæ or other causes.

The routine schedule for 1915 is as follows:

BI-MONTHLY—Allentown, Glen Gardner, Roebling, Mount Holly.

QUARTERLY—Bound Brook, Burlington, Bridgeton, Dover, Elizabeth, Flemington, Franklin, Gloucester, Haledon, Lambertville, Long Branch, Millville, Moorestown, Neptune Township, Rahway (City), Rahway (Middlesex), Raritan, Skillman, Woodbury.

YEARLY—Allenhurst, Asbury Park, Atlantic Highlands, Bernardville, Blackwood, Bound Brook (Piscataway), Clarksboro, Cranbury, Helmetta Highlands, Hightstown, Jersey City, Keansburg (4), Keyport, Lakeside Park (Camden County), Little Falls, Maple Shade, Matawan, Merchantville, Midland Park, Millville (People's), New Milford, Penns Grove, Perth Amboy, Rumson, Salem, Smithville, South Orange, Trenton.

During the past year new water purification plants have been put in operation at Franklin, Flemington, Glen Gardner and Helmetta, while the plants at Allentown, Moorestown and Woodbury were completely overhauled. The Gloucester plant is being extensively rebuilt. Improvements which materially changed the operation were made at Burlington, Bridgeton, Perth Amboy and Rahway, (Middlesex Water Company).

The total of fifty-four water treatment plants in the State may be classified as follows:

WATER TREATMENT PLANTS—Disinfection alone, 8; filtration for the removal of pollution, 23; filtration for removal of iron, 22; treatment for removal of carbon dioxide, 1.

DISINFECTION PLANTS—Plants using calcium hypochlorite, 4; plants using liquid chlorine, 4.

FILTRATION PLANTS FOR THE REMOVAL OF POLLUTION—Slow sand filters, 2; rapid sand filters, 21.

FILTRATION PLANTS FOR THE REMOVAL OF IRON—Slow sand filters, 2; rapid sand filters, 19; special type, 1.

The disinfection plants have been giving very good results, as shown in the tables of analyses. Most of the new installations use liquid chlorine, and in some cases old hypochlorite plants have been changed over to use liquid chlorine, viz., at Gloucester and Little Falls.

The following tables show the locations of the various plants:

DISINFECTION PLANTS.

Calcium Hypochlorite.	Liquid Chlorine.
Boonton (Jersey City).	Bound Brook (Piscataway Water Co.)
Dover.	Dover (Jersey City).
Easton (Lehigh Water Co.).	Newark.
Elizabeth.	New Brunswick.
Midland Park (Bergen Water Co.).	

FILTER PLANTS FOR REMOVAL OF POLLUTION.

Slow Sand.	RAPID SAND.					
	PRESSURE.			GRAVITY.		
	No Disinfectant.	Use Hypochlorite.	Use Chlorine.	No Disinfectant.	Use Hypochlorite.	Use Chlorine.
Haledon. Lambertville.	Neptune Township West End	Rahway. Rahway. (Middlesex). Raritan.	Bound Brook.	Allentown. Long Branch.	Burlington. Franklin. Glen Gardner. Millville. Mount Holly New Milford. Roebling. Skillman.	Bridgeton. Flemington Gloucester. Little Falls. Trenton.

FILTER PLANTS FOR THE REMOVAL OF IRON.

SLOW SAND.	RAPID SAND.	
	PRESSURE.	GRAVITY.
Matawan. Runson.	Allenhurst. Asbury Park. Atlantic Highlands. Helmetta (Permutit Filter). Keansburg (Beach Water Company) Merchantville Millville (People's Water Co.). Neptune Township.	Blackwood. Gloucester. Highlands (Johnson's). Hightstown. Keansburg (Ideal Beach Water Co.). Keansburg (Keansburg Heights Water Company). Keansburg (Keansburg Water Co.). Keyport. Lakeside Park. Maple Shade. Moorestown. Pennsgrove. Smithville

The filter plants at Franklin, Flemington and Glen Gardner, which are classified under the plants which filter for the removal of pollution, are of the rapid sand gravity type, and are very complete in detail. The Franklin plant consists of a coagulation basin, two rapid sand filters, a clear water basin, loss of head gauges, and appliances for the addition of aluminum sulphate and calcium hypochlorite. A special feature of this plant is the method of applying the chemicals to the water. The alum and hypochlorite solution orifice boxes are of a constant orifice, but variable head type. The heights of the solutions in the orifice boxes are kept constant by floats, and the orifice, which is a revolving glass arm, terminates in a small circular opening of a constant size. The rate of feed is changed by revolving this glass arm which thus changes the head on the constant orifice. The washing of the filters is accomplished by means of a reverse current of wash water at a high rate. No air or other means of agitation is employed. The bacteriological results obtained from tests made at this plant show that a very efficient bacterial reduction is obtained.

The Flemington plant, which was started in May, 1915, is very complete in all details. This plant is of the rapid sand gravity type, and

consists of a concrete coagulation basin, circular wooden filter and clear water reservoir. The accessories to the plant are worthy of comment. The alum and hypochlorite are added to the water by means of a proportionate feed apparatus, which is operated by float tubes. These float tubes are actuated by tubes leading from a Venturi meter which is inserted into the inlet line to the filter. The rate controller and loss of head gauge, which is both recording and indicating, are the types manufactured by the Simplex Valve and Meter Company. The filter is washed by means of a reverse current of wash water, and the sand is agitated by a mechanical rake. This plant is also supplied with a liquid chlorine installation of the Electro Bleaching Gas Company. Tests made at this plant show that the bacterial reduction obtained is very satisfactory.

The plant at Glen Gardner for the New Jersey State Sanatorium for Tuberculous Diseases consists of a coagulation basin, from which the water flows by gravity into a concrete rapid sand filter, thence into the clear water basin. A rate controller and recording loss of head gauge are accessories of the filter. The plant is supplied with solution tanks and calibrated constant head orifice feed boxes for aluminum sulphate and calcium hypochlorite. Complete and detailed tests were made at this plant, and from the results obtained several tables and sheets of directions were drawn up and supplied to the attendant at the plant, which have materially aided the attendant in its successful operation. The filter is washed by means of a reverse current of wash water, and agitation is by compressed air. Considerable trouble has been experienced here with red water and at the present time an experimental plant for remedying this has been designed, and it is hoped that it will furnish information for correcting this trouble.

The water filtration plant at Allentown has been re-built in accordance with recommendations made by this Bureau. A coagulation basin, new solution tanks and a larger clear water basin have been added. From the results of tests made at this plant several tables and sheets of directions were drawn up so as to aid the attendant in operating the plant.

At Burlington the old hypochlorite disinfection plant has been replaced by a plant similar in detail but supplied with a constant head orifice feed box, which is a decided improvement.

There have been several changes made at the Bridgeton filtration plant so as to be able to wash the filters more efficiently. Wash water troughs have been supplied, and also additional waste water lines.

There have been several changes made at the Gloucester plant and the most vital one was the replacement of the old hypochlorite disinfection plant with a liquid chlorine installation. At the present time there are several changes being made at this plant, viz., construction of an aërotator and settling basin for the proper oxidation and settling of the iron in solution from the well water, which are essential for preliminary treatment.

The hypochlorite plant at the Middlesex Water Company at Rahway, which has been installed for some time, was started in operation during the past six months, and since then the bacterial results obtained show a more efficient reduction.

During the summer it was found that bad water was being delivered from the Mount Holly filters. An investigation showed that the immediate trouble was due to dirty filters.

The three filters were emptied and the manifold laterals, strainer and sand were all thoroughly cleaned and replaced. It was then found that the results were excellent, and all further work was then stopped, contrary to our advice. The plant will probably continue to give good water for several months, although it will surely break down again in perhaps a year's time because of lack of proper washing facilities. The company has also been advised concerning other necessary improvements, but so long as good water is provided no improvements are made; and when the filters break down, only emergency work is then done.

The plant at Woodbury, which formerly treated a surface water with hypochlorite, has been changed to a plant supplying deep well water without any treatment whatsoever.

There are three different methods of washing rapid sand filters in use in New Jersey, and of the sixteen filters of the gravity type, the methods can be classified as follows:

Reverse current—wash water alone	3
Reverse current—wash water and agitation by compressed air	7
Reverse current—wash water with mechanical agitation by means of a revolving rake	5
	15

The method for removal of iron which is chiefly used in this State is as follows: The water containing iron in solution is allowed to flow through an aerator and thence into a settling basin so as to allow the oxidized iron a chance to settle. The settled water is allowed to pass onto slow sand filters, rapid sand filters of the gravity type, or forced through pressure filters. In some cases lime is added to the water previous to aeration so as to precipitate the iron in solution. Plants of this type are located at Allenhurst, Hightstown and Neptune Township, (Monmouth County Water Company).

A very interesting plant for the removal of iron has been installed during the past six months at Helmetta, and the installation is known as the permutit filter. The source of supply is one driven well, 12 inches by 32 feet, and one dug well, 10 feet in diameter and 24 feet deep. The water from these wells is pumped through a permutit filter which is of the pressure type, and the over-all dimensions of which are 32 inches in diameter by 12 feet, 2 inches high. The water on entering the filter passes through a 4-foot layer of sand which is supported on a perforated plate, then through about 11 inches of coarse gravel which is supported in the same manner. After passing through the sand and

gravel, the water passes through a layer of manganese permutit of about 18 inches which is also supported on a perforated plate. Beneath the permutit is a compartment about 16 inches high which is used as a clear water basin. The sand and gravel remove any suspended impurities in the water, while the permutit is the active agent in the removal of iron. The water containing iron in solution in the ferrous state on coming in contact with the manganese permutit is oxidized and precipitated, and thus removed from the water. In time all the peroxides of manganese are reduced to manganous oxide, then the permutit must be reoxidized.

The operation of the filter involves the filtering, washing the filter, the generation of the permutit, and rewashing. The method of operation is similar to that employed in ordinary pressure filters. The manganese permutit is reoxidized by means of a solution of potassium permanganate which is supplied by gravity from a small tank. About thirty gallons of water are treated with eight pounds of potassium permanganate, and after the filter is drained this solution enters on the bottom and passes up through the permutit until the solution passes through an overflow pipe which is situated directly above the permutit. The permanganate solution is allowed to remain in contact with the permutit for about twenty-four hours and then allowed to flow to waste. The filter is then re washed until the waste water is colorless. The results obtained from this plant show a very good removal of iron. However, the iron content of the raw water is low.

The plant at Moorestown has been changed from a surface treatment plant for the removal of pollution to an iron removal plant. The construction of an aerator and subsidence basin are important additions to the plant. Since this change has been made, considerable trouble has been experienced in washing the filter properly, and inspections of the plant have brought out the fact that the water passing onto the filters from the settling basin contains excessive amounts of iron in solution and in suspension. An experimental coke aerator has been constructed at this plant, and experiments have been conducted with the hope that recommendations can be made to remedy this trouble.

At the Monmouth County Water Company's plant at Neptune Township trouble was experienced with the lime treatment device which was used in the aid of removal of iron. At this plant a solution of hydrated lime, which is continually agitated by revolving paddles, is added to the well water through a 2-inch iron pipe which extends down into the well a little over 30 feet. This method allows the lime water to become thoroughly mixed with the well water before reaching the air, and the appearance of this solution shows that considerable iron is thus precipitated as ferrous hydrate, which is finally oxidized and settled in the settling basin before being filtered. The pipe line which carried the lime solution down into the well from the solution tanks became entirely clogged and it was necessary to replace this pipe. There is a connection for flushing this pipe line, and the attendant at

the plant failed to make use of this daily. This trouble will probably be overcome, providing the attendant at the plant flushes out this pipe daily after shutting off the lime.

There have been several improvements made at the plant of the Perth Amboy Water Department which is located at Runyon. An aëerator has been built and three settling basins, which are merely excavations in the sandy soil, have been constructed. The water from the artesian wells is pumped to the aërating tower and percolates through this aëerator into the settling basins. Water in these basins filters through the ground and is supposed to enter the ground storage wells which are sunk in the middle as well as around the basins. It is very doubtful whether much of the water from these basins eventually finds its way into the ground storage wells as this depends upon the level of the ground water. A decided improvement at this plant would be made if these basins were underdrained, and thus the settled and aërated water would be allowed to filter and flow into the suction well. With this system, the water would receive aëration, sedimentation, and also would filter through a bed of sand which would be similar to a slow sand filter.

At the carbon dioxide removal plant at Cranbury an aëerator has been installed on top of the elevated tank, which has materially aided in the operation of this plant. Prior to the installation of this aëerator the water from the well was treated with a lime solution for the removal of carbon dioxide and the treated water was pumped direct into the mains, and the excess allowed to enter the elevated storage tank. The aëerator is a tower 4 feet square by 8 feet high and contains four trays of coke which are placed 1½ feet apart. Each tray contains 6 inches of coke. At the present time a small amount of lime solution is forced into the well water, which passes onto the aëerator and into the elevated tank. All the water from the well must be treated, aërated and settled in the tank before passing into the distribution system. Since these changes have been made at this plant a more efficient removal of carbon dioxide has been observed, with a great saving in the amount of lime required.

The following tables show the results obtained from the water treatment plants during six months, the routine work having been suspended on account of lack of men:

ALLENTOWN.

WATER ANALYSES	Nov. 5, '14		Apr. 20, '15	
	Raw	Filtered	Raw	Filtered
Color	30	0	20	3
Turbidity	10	5	10	0
Free ammonia	.038	.032		
Alb. ammonia	.094	.048		
Nitrites	.005	.001		
Nitrates	.60	.60		
Chlorine	6.0	6.0	5.5	6.0
Alkalinity			7.0	12.0
Bacteria per c.c. 20° C.	265	26	125	68
Bacteria per c.c. 37° C.	5	1	28	0
Red colonies per c.c.	0	0	1	0
B. coli (presump.) in 10 c.c.	0	0	10	0

BOUND BROOK.

WATER ANALYSES.	Nov. 6, '14.		Feb. 4, '15.		May 7, '15.	
	Raw.	Filtered.	Raw.	Filtered.	Raw.	Filtered.
Color			0	0	30	0
Turbidity			3	0	10	0
Free ammonia					.024	2.6
Alb. ammonia					.080	.044
Nitrites			.001	0		
Nitrates			.40	.32		
Chlorine			4.5	4.5	3.5	3.5
Alkalinity			18.0	13.0	26.0	16.0
Bacteria per c.c. 20° C.	410	290	825	6	8750	76
Bacteria per c.c. 37° C.	4	6	73	2	100	3
Red colonies per c.c.	0	1	2	1	25	0
B. coli (presump.) in 10 c.c.		1	50	0	100	3

BURLINGTON.

WATER ANALYSES.	Nov. 23, '14.		Jan. 5, '15.	
	Raw.	Filtered.	Raw.	Filtered.
Color			25	5
Turbidity			20	2
Free ammonia			.150	.144
Alb. ammonia			.074	.070
Nitrites			.005	.003
Nitrates			.36	.32
Chlorine			5.0	5.5
Alkalinity			28.0	25.0
Iron			0.9	0.2
Bacteria per c.c. 20° C.	7250	400	37000	
Bacteria per c.c. 37° C.	13	0	105	13
Red colonies per c.c.	1	0	22	2
B. coli (presump.) in 10 c.c.	100	6	100	6

BURLINGTON.—Continued.

WATER ANALYSES.	Jan. 20, '15.		Apr. 5, '15	
	Raw.	Filtered.	Raw.	Filtered.
Color			15	0
Turbidity	40	0	10	0
Free ammonia			.060	.058
Alb. ammonia			.060	.032
Nitrites			.004	.001
Nitrates			0.16	0.16
Chlorine			3.5	3.5
Alkalinity	11.0	5.0	28.0	21.0
Iron			0.8	0
Bacteria per c.c. 20° C.	8500	50	1750	55
Bacteria per c.c. 37° C.	330	0	255	0
Red colonies per c.c.	36	0	200	0
B. coli (presump.) in 10 c.c.	100	0	10	0

BRIDGETON.

WATER ANALYSES.	Dec. 29, '14.		Mar. 11, '15.	
	Raw.	Filtered.	Raw.	Filtered.
Color.....	40	0	25	0
Turbidity.....	10	0	2	0
Free ammonia.....	.032	.040		
Alb. ammonia.....	.080	.044		
Nitrites.....	.001	0	.001	0
Nitrates.....	0.64	0.64	0.64	0.84
Chlorine.....	5.0	5.0	5.0	5.0
Alkalinity.....	2.0	0	5.0	5.0
Bacteria per c.c. 20° C.....	3500	16	180	1
Bacteria per c.c. 37° C.....	230	0	44	1
Red colonies per c.c.....	8	0	0	0
B. coli (presump.) in 10 c.c.....			0	0

DOVER.

WATER ANALYSES.	Feb. 15, '15.		May 3, '15.	
	Raw.	Treated.	Raw.	Treated.
Color.....	0	0		
Turbidity.....	3	0		
Free ammonia.....	.020		.022	
Alb. ammonia.....	.034		.062	
Nitrites.....	.002	0		
Nitrates.....	0.92	1.28		
Chlorine.....	3.5	3.5		
Alkalinity.....	11.0			
Bacteria per c.c. 20° C.....	1000	10	2	
Bacteria per c.c. 37° C.....	188	78	0	1
Red colonies per c.c.....	7	1	0	0
B. coli (presump.) in 10 c.c.....	6	2	0	0

ELIZABETH.

WATER ANALYSES.	Dec. 2, '14.		Jan. 6, '15.		Mar. 8, '15.	
	Raw.	Treated.	Raw.	Treated.	Raw.	Treated.
Color.....					5	
Turbidity.....					10	
Free ammonia.....			ppt.		ppt.	
Alb. ammonia.....			.200		.100	
Nitrites.....			.045		.035	
Nitrates.....			1.60		4.00	
Chlorine.....			18.0		16.5	
Alkalinity.....					63.0	
Bacteria per c.c. 20° C.....	10500	250000	250	16250	23	
Bacteria per c.c. 37° C.....	370	350	365	35		
Red colonies per c.c.....	62	0	0	0		
B. coli (presump.) in 10 c.c.....	100	0	50	0	0	0

FRANKLIN.

WATER ANALYSES.	Jan. 11, '15.		Apr. 12, '15.	
	Raw.	Filtered.	Raw.	Filtered.
Color.....	50	0	50	3
Turbidity.....	55	0	30	0
Free ammonia.....	.032	.034	.044	
Alb. ammonia.....	.088	.040	.118	
Nitrites.....	.001	.001	.001	
Nitrates.....	0.20	0.20	0.28	
Chlorine.....	2.0	2.0	1.0	
Alkalinity.....	34.0	18.0	40.0	45.0
Iron.....	0.3	0.1	0.5	0.3
Hardness.....	47.1	47.1		
Bacteria per c.c. 20° C.....	4000	30	6500	46
Bacteria per c.c. 37° C.....	122	0	210	0
Red colonies per c.c.....		0	28	0
B. coli (presump.) in 10 c.c.....	5	0	100	0

GLEN GARDNER.

WATER ANALYSES.	Jan. 7, '15.		Jan. 28, '15.	
	Raw.	Filtered.	Raw.	Filtered.
Color.....	30		0	0
Turbidity.....	30	310	5	0
Free ammonia.....	.060	.096	.022	.012
Alb. ammonia.....	.094	.162	.028	.012
Nitrites.....	.001	.004	.001	.001
Nitrates.....	0.32	0.16	0.80	0.64
Chlorine.....	2.5	2.5	2.5	2.8
Alkalinity.....	8.0	8.0	13.0	5.0
Iron.....	0.7	9.5	0.3	0.1
Hardness.....	20.8	20.8	18.2	18.2
Bacteria per c.c. 20° C.....	51500		550	20
Bacteria per c.c. 37° C.....	1400	2500	55	5
Red colonies per c.c.....	42	35	0	1
B. coli (presump.) in 10 c.c.....	100	10	5	0

GLEN GARDNER.—Continued.

WATER ANALYSES.	Mar. 16, '15.		May 13, '15.	
	Raw.	Filtered.	Raw.	Filtered.
Color.....	3	0	15	0
Turbidity.....	3	0	4	
Free ammonia.....	.008	.012	.028	
Alb. ammonia.....	.036	.016	.054	
Nitrites.....	.001	.000	.001	
Nitrates.....	0.40	0.52	0.16	
Chlorine.....	2.0	2.0	1.5	
Alkalinity.....	13.0	11.0	18.0	
Iron.....	0.2	0.1	0.3	
Hardness.....				
Bacteria per c.c. 20° C.....	330	8	425	120
Bacteria per c.c. 37° C.....	14	2	30	7
Red colonies per c.c.....	0	0	5	3
B. coli (presump.) in 10 c.c.....	0	0	10	2

HALEDON.

WATER ANALYSES.	Nov. 4, '14.		Apr. 26, '15.	
	Raw.	Filtered.	Raw.	Filtered.
Color.....	20	0	25	15
Turbidity.....	10	0	5	0
Free ammonia.....	.082	.018	.046	.018
Alb. ammonia.....	.122	.062	.108	.054
Nitrites.....	.001	0	.002	0
Nitrates.....	.04	.08	.08	0.16
Chlorine.....	5.0	5.0	3.0	3.0
Bacteria per c.c. 20° C.....	235	6	450	54
Bacteria per c.c. 37° C.....	4	1	34	12
Red colonies per c.c.....	0	0	3	2
B. coli (presump.) in 10 c.c.....	10	0	10	0

LAMBERTVILLE.

WATER ANALYSES.	Mar. 9, '15.		May 20, '15.	
	Raw.	Filtered.	Raw.	Filtered.
Color.....	20	5	20	12
Turbidity.....	25	0	2	0
Nitrites.....	.001	0		
Nitrates.....	0.20	0.40		
Chlorine.....	3.5	3.5	3.0	3.0
Alkalinity.....	16.0	17.0	29.0	26.0
Bacteria per c.c. 20° C.....	550	52	290	105
Bacteria per c.c. 37° C.....	34	40	4	4
Red colonies per c.c.....	1	0	0	0
B. coli (presump.) in 10 c.c.....	0	1	10	3

MILLVILLE WATER COMPANY.

WATER ANALYSES.	Dec. 18, '14.		Feb. 9, '15.		Apr. 29, '15.
	Raw.	Treated.	Raw.	Treated.	Raw.
Color.....	50	30	80	55	
Turbidity.....		0	5	10	
Free ammonia.....			.020	.018	
Alb. ammonia.....			.072	.050	
Nitrites.....			0	0	0
Nitrates.....			0.16	0.12	0.16
Chlorine.....			3.0	5.0	3.0
Alkalinity.....	3.0	11.0	acid	0	0
Bacteria per c.c. 20° C.....	2200	365	700	40	30
Bacteria per c.c. 37° C.....	39	13	49	13	6
Red colonies per c.c.....	5	0	0	0	0
B. coli (presump.) in 10 c.c...	5	1		0	0

MOUNT HOLLY.

WATER ANALYSES.	Nov. 9, '14.		Dec. 17, '14.		Feb. 25, '15.	
	Raw.	Filtered.	Raw.	Filtered.	Raw.	Filtered.
Color.....	50	0	35	0	60	0
Turbidity.....	0	0	0	0	50	0
Free ammonia.....	.048	.008				
Alb. ammonia.....	.070	.020				
Nitrites.....	.001	0			.001	0
Nitrates.....	.04	.04			0.12	.08
Chlorine.....	4.0	4.0			3.0	3.0
Alkalinity.....	3.0	5.0	1.0	1.0	2.0	1.0
Iron.....						
Hardness.....						
Bacteria per c.c. 20° C.....	500	2	700	0	12500	58
Bacteria per c.c. 37° C.....	8	1	47	0	800	8
Red colonies per c.c.....	3	0	5	0	12	0
B. coli (presump.) in 10 c.c. 10		0	100	0	50	0

MOUNT HOLLY.—Continued.

WATER ANALYSES.	Apr. 7, '15		May 19, '15.	
	Raw.	Filtered.	Raw.	Filtered.
Color.....	40	0	100	5
Turbidity.....	10	0	2	0
Free ammonia.....				
Alb. ammonia.....				
Nitrites.....	.001			
Nitrates.....	0.12			
Chlorine.....		3.5	3.0	3.0
Alkalinity.....	2.0	2.0	3.0	6.0
Iron.....	0.8	0.1		
Hardness.....	12.7	12.7		
Bacteria per c.c. 20° C.....	2100	1	260	3
Bacteria per c.c. 37° C.....	42	2	0	0
Red colonies per c.c.....	2	0	0	0
B. coli (presump.) in 10 c.c.....	10	0	10	0

RAHWAY.

RAHWAY WATER DEPARTMENT.

WATER ANALYSES.	Dec. 3, '14.		Jan. 14, '15.	
	Raw.	Filtered.	Raw.	Filtered.
Color.....	20	10	30	15
Turbidity.....	5	0	70	20
Free ammonia.....	.068	.012	.148	.162
Alb. ammonia.....	.052	.036	.146	.008
Nitrites.....	.008	0	.005	.001
Nitrates.....	0.28	0.28	0.48	0.36
Chlorine.....	8.5	8.5	5.0	5.0
Alkalinity.....	67.0	63.0	6.0	3.0
Iron.....				
Bacteria per c.c. 20° C.....	355	50	105000	1250
Bacteria per c.c. 37° C.....	20	4	2850	360
Red colonies per c.c.....	0	0	125	1
B. coli (presump.) in 10 c.c.....		0	100	1

RAHWAY.—Continued.

WATER ANALYSES.	Apr. 16, '15.	
	Raw.	Filtered.
Color.....	25	0
Turbidity.....	10	2
Free ammonia.....	.062	.018
Alb. ammonia.....	.122	.046
Nitrites.....	.005	0
Nitrates.....	0.24	0.24
Chlorine.....	7.0	7.0
Alkalinity.....	46.0	30.0
Iron.....	0.6	
Bacteria per c.c. 20° C.....	725	28
Bacteria per c.c. 37° C.....	60	4
Red colonies per c.c.....	4	0
B. coli (presump.) in 10 c.c.....	50	0

RAHWAY.

MIDDLESEX WATER COMPANY.

WATER ANALYSES.	Mar. 17, '15.		Dec. 11, '14.	
	Raw.	Filtered.	Raw.	Filtered.
Color.....			60	0
Turbidity.....			25	0
Free ammonia.....			.062	.056
Alb. ammonia.....			.164	.076
Nitrites.....			.003	.001
Nitrates.....			0.32	0.32
Chlorine.....			6.5	7.0
Alkalinity.....			13.0	10.0
Bacteria per c.c. 20° C.....	380	30	63500	2400
Bacteria per c.c. 37° C.....	41	3	675	7
Red colonies per c.c.....	0	0	55	0
B. coli (presump.) in 10 c.c.....	0	0	100	10

RARITAN.

WATER ANALYSES.	Nov. 10, '14.		Mar. 10, '15.	
	Raw.	Filtered.	Raw.	Filtered.
Color.....	20	0	10	0
Turbidity.....	5	0	10	0
Free ammonia.....	.042	.042		
Alb. ammonia.....	.068	.032		
Nitrites.....	.002	0	.003	0
Nitrates.....	.08	.08	0.52	0.40
Chlorine.....	4.0	4.0	3.5	3.5
Alkalinity.....	61.0	52.0	29.0	18.0
Iron.....	0.3	0.1		
Bacteria per c.c. 20° C.....	875	3	675	1
Bacteria per c.c. 37° C.....	10	1	36	0
Red colonies per c.c.....	0	0	3	0
B. coli (presump.) in 10 c.c.....	50	0	0	0

ROEBLING.

WATER ANALYSES	Nov. 2, '14.		Dec. 4, '14.		Jan. 8, '15.	
	Raw.	Filtered.	Raw.	Filtered.	Raw.	Filtered.
Color.....					15	15
Turbidity.....					480	80
Nitrites.....					.012	.005
Nitrates.....					.20	.20
Chlorine.....					3.5	5.0
Alkalinity.....					30.0	27.0
Iron.....					18.0	1.3
Bacteria per c.c. 20° C.....	4500	7	33000	2	120000	
Bacteria per c.c. 37° C.....	9	1	31	1	2600	200
Red colonies per c.c.....	2	0	7	0	60	3
B. coli (presump.) in 10 c.c. 100	0	0	10	0	10	7

ROEBLING—Continued.

WATER ANALYSES	Mar. 3, '15.		May 6, '15.	
	Raw.	Filtered.	Raw.	Filtered.
Color.....	25	3	35	0
Turbidity.....	20	25	5	0
Nitrites.....	.001	.001		
Nitrates.....	.20	.20		
Chlorine.....	4.5	7.0	3.0	4.0
Alkalinity.....	11.0	3.0	20.0	17.0
Iron.....	2.5	8.0	1.6	0.3
Bacteria per c.c. 20° C.....	625	5	2400	3
Bacteria per c.c. 37° C.....	50	1	58	2
Red colonies per c.c.....	18	0	24	0
B. coli (presump.) in 10 c.c.....	10	0	500	0

SKILLMAN.

WATER ANALYSES	Feb. 17, '15.		Apr. 6, '15.	
	Raw.	Filtered.	Raw.	Filtered.
Color.....	10	0	15	0
Turbidity.....	50	0	5	0
Nitrites.....	.002	.001	.001	.001
Nitrates.....	0.40	0.40	.08	.08
Chlorine.....	4.5	5.0		
Alkalinity.....	10.0	4.0	22.0	27.0
Hardness.....			28.6	64.3
Bacteria per c.c. 20° C.....	400	15	1800	3
Bacteria per c.c. 37° C.....	325	1	24	1
Red colonies per c.c.....	4	0	2	0
B. coli (presump.) in 10 c.c.....	10	0	5	0

WEST END (LONG BRANCH).

WATER ANALYSES	Apr. 21, '15.	
	Raw.	Filtered.
Color.....	20	0
Turbidity.....	5	0
Free ammonia.....	.044	.022
Alb. ammonia.....	.058	.048
Nitrites.....	.002	.002
Nitrates.....	0.16	0.20
Chlorine.....	8.0	8.0
Alkalinity.....	16.0	11.0
Iron.....	0.8	0.1
Bacteria per c.c. 20° C.....	265	1
Bacteria per c.c. 37° C.....	4	0
Red colonies per c.c.....	0	0
B. coli (presump.) in 10 c.c.....	0	0

WOODBURY.

WATER ANALYSES	Nov. 27, '14.		Dec. 10, '14.		Feb. 3, '15.	
	Raw.	Treated.	Raw.	Treated.	Raw.	Treated.
Color.....					50	
Turbidity.....					40	
Free ammonia.....						.062
Alb. ammonia.....						.074
Nitrites.....						.002
Nitrates.....						0.56
Chlorine.....						4.5
Bacteria per c.c. 20° C.....	700	400	3850	1300	6750	3000
Bacteria per c.c. 37° C.....	14	16	86	40	230	205
Red colonies per c.c.....	3	2	7	6	1	1
B. coli (presump.) in 10 c.c.....	0	9	10	5	100	6

BOTTLED WATERS SOLD IN NEW JERSEY.

BRAND.	SOURCE.	LOCATION OF SOURCE.
(Unnamed)	Driven well	Hutchinson's Mills, (Mercer County)
Alpha Spring Water	Spring	Springfield, N. J.
Ariston Distilled Water	New York City Supply, dist'd	New York City, N. Y.
Art-dist-pure Water	Driven wells	Salem, N. J.
Artois Table Water	Artesian wells	Hopewell, N. J.
Belmar Spring Water	Spring	Glen Rock, N. J.
Century Spring Water	Spring	New Brunswick, N. J.
Chemung Spring Water	Spring	Chemung Spring, N. Y.
Cold Indian Spring Water	Spring	Asbury Park, N. J.
(Unnamed)	Spring	Montville, N. J.
Crystal Spring Water	Driven wells	Hamilton Township, (Mercer County)
Crystal Spring Water	Spring	Ulster County, N. Y.
Culm Rock Spring Water	Spring	Pluckemin, N. J.
Echo Spring Water	Spring	Ewingville, N. J.
Englewood Hygeia Water	Driven well	Englewood, N. J.
Great Bear Spring Water	Springs	Fulton, N. Y.
Great Rock Spring Water	Spring	Whippany, N. J.
Gray Rock Artesian Water	Driven well	Ewing Township, N. J.
Home Brand Water	Driven well	Gloucester, N. J.

BOTTLED WATERS SOLD IN NEW JERSEY.—Continued.

BRAND.	SOURCE.	LOCATION OF SOURCE.
Indian Lady Hill Spring Water	Springs	Asbury Park, N. J.
Indian Spring Water	Spring	Rockaway Twp., N. J.
Ironrock Mineral Spring Water	Springs	Maple Shade, N. J.
Kalium Spring Water	Spring	Collingswood, N. J.
Kanouse Mountain Spring Water	Spring	Oakland, N. J.
Keystone Spring Water	Driven well	Bucks County, Pa.
Mountainside Spring Water	Spring	Livingston, N. J.
Paradise Spring Water	Spring	Boonton, N. J.
Pilgrim Spring Water	Spring	Ridgefield Park, N. J.
Polar Spring Water	Spring	Morrisville, Pa.
Purity Water	Driven well	Mercerville, N. J.
Purock Water	City supply, distilled	Philadelphia, Pa.
Red Rock Spring Water	Driven well	Midland, Twp., N. J. (Bergen County).
Rock Spring Water	Spring	West Orange, N. J.
Shell Rock Spring Water	Spring	Perth Amboy, N. J.
Stelton Spring Water	Spring	Stelton, N. J.
Washington Rock Spring Water	Spring	Plainfield, N. J.
Watchung Spring Water	Springs	Plainfield, N. J.
White Cap Sparkling Water	Driven well	Jersey City, N. J.

Four new bottled water supplies have been investigated during the year and applications have been granted to sell the waters in the State. These new supplies are as follows:

BRAND.	Date of Permit.	Source.	Location.	Proprietor.
.....	Jan. 5, 1915...	1 1/4" driven well.....	Hutchinson's Mills.....	Ralph C. Ackley, R. F. D. No 3, Trenton, N. J.
.....	Feb. 9, 1915...	Spring.....	Montville.....	Mrs. W. H. Cole, Montville, N. J.
Stelton Spring Water.....	May 25, 1915...	Spring.....	Stelton.....	J. C. L. Amerman, New Brunswick, N. J.
Shell Rock Spring Water	June 8, 1915...	Spring.....	Perth Amboy	William Mullins, Perth Amboy, N. J.

TABULATION OF SEWAGE DISPOSAL PLANTS IN THE STATE OF NEW JERSEY.

PLACE.	Service.	System.	No. of Inspections per year.
Absecon.	Golf Club.	Sed'n tank, disinfection.	2
Aidene.	Factory.	Sed'n tank, contact filter.	2
Allenhurst.	Municipality.	Sed'n tank.	2
Ancora.	Sanatorium.	Sed'n tank, ground absorption.	2
Asbury Park.	Municipality.	Sed'n tank.	2
Ross Fenton Farm.	Hotel and Cottages.	Sed'n tank, sand filter.	2
Asyla.	Almshouse, Asylum.	Screens, sed'n tank, primary and secondary contact filters.	2
Atlantic City (part).	Municipality.	Screens, disinfection.	4
Audubon.	Municipality.	Sed'n tank, sprinkling filter, settling basin.	2
Avon.	Municipality.	Sed'n tank.	2
Avon, Kling's.	Boat House.	Sed'n tank.	2
Beach Haven.	Municipality.	Sed'n tank.	2
Belmar.	Municipality.	Sed'n tank.	2
Beverly.	Municipality.	Sed'n tank, disinfection.	4
Bogota.	Municipality.	Sed'n tank.	2
Bonnie Burn.	Sanatorium.	Sed'n tank, primary and secondary contact beds, land absorption.	2
Bordentown.	Municipality.	Sed'n tank, primary and secondary contact filters, sand filters.	4
Bradley Beach (2).	Municipality.	Sed'n tanks.	12
Branchville.	Almshouse.	Sed'n tanks, sand filter.	2
Bridgeton (2).	Municipality.	Sed'n tank, disinfection.	2
Brown's Mills.	Hotel and Cottages.	Sed'n tank, contact filters, disinfection.	12
Burlington.	Municipality.	Pump well, sed'n tank, land filtration.	12
Burlington, T. Devlin.	Factory.	Sed'n tank, sprinkling filter, sand filters.	12
Caldwell.	Prison.	Sed'n tank, tile absorption.	6
Cape May.	Municipality.	Pump well.	6
Cape May C'rt House.	County Buildings.	Sed'n tank, land absorption.	2
Carlstadt.	Municipality.	Sed'n tank.	2
Carlton Hill.	Municipality.	Sed'n tank.	2
Changewater.	Factory.	Sed'n tank, sand filters.	2
Chatham-Madison.	Municipality.	Imhoff tanks, sand filters, disinfection.	2
Clinton.	Creamery.	Chemical precipitation.	12
Collingswood.	Municipality.	Sed'n tank, contact filters.	4
Colt's Neck.	Creamery.	Chemical precipitation.	6
Cresskill.	Municipality.	Sed'n tank, land absorption.	4
Deal Beach.	Municipality.	Sed'n tank.	2
Deal.	Golf Club.	Sed'n tank, sand filters.	2
Delford.	Municipality.	Sed'n tank.	2
East Rutherford.	Municipality.	Sed'n tank.	2
Englewood.	Municipality.	Imhoff tank.	2
Essex Fells.	Municipality.	Sed'n tank, contact beds, sand filters.	2
Far Hills (3).	Residences.	Sed'n tank, sand filters.	6
Flemington.	Municipality.	Sed'n tank, land filtration.	4
Freehold.	Municipality.	Settling basin, land filtration.	4
Gibbsborough (3).	Factory and Cottages.	Sed'n tank, land absorption.	4
Gibbstown.	Cottages.	Sed'n tank, land absorption.	2
Glen Gardner.	Sanatorium.	Sed'n tank, sprinkling filters, ground absorption.	1
Grenloch.	Factory.	Sed'n tank, sand filters.	4
Hackettstown.	Factory.	Broad irrigation.	4
Haddonfield.	Municipality.	Sed'n tank, sprinkling filters, sand filters.	1
Haddon Heights.	Municipality.	Sed'n tank, coke strainers, sand filters.	6
Hammonton.	Municipality.	Imhoff tank, sprinkling filters, settling basin.	6
Haworth.	Residences.	Sed'n tank, land absorption.	4
Helmetta.	Factory.	Sed'n tank, contact beds.	1
Highstown.	Municipality.	Sed'n tank, sand filters.	4
Hilliard's Island.	Store and residence.	Sed'n tank, sand filter.	6
Hopatcong.	Hotel.	Sed'n tank, sand filter.	2
Hopewell.	Asylum.	Sed'n tank, primary contact.	1
Interlaken.	Municipality.	Sed'n tank.	2
Island Heights.	Municipality.	Screen, sand filters.	2
Jamesburg.	State Home for Boys.	Sed'n tank, ground filtration.	4

TABULATION OF SEWAGE DISPOSAL PLANTS IN THE STATE OF NEW JERSEY.—Continued.

PLACE.	Service.	System.	No. of Inspections per year.
Keyport.	Municipality.	Sed'n tank, disinfection.	12
Kenilworth.	Factory.	Settling basin.	2
Lakehurst.	Hotel and cottages.	Sed'n tank, sand filters.	4
Lakewood.	Municipality.	Sed'n tank, sand filters.	6
Lawrenceville.	School.	Sedimentation tank, broad irrigation.	2
Leonia.	Municipality.	Imhoff tanks.	4
Loch Arbour.	Municipality.	Sed'n tank.	2
Long Branch.	Municipality.	Screens.	4
Longport (2).	Municipality.	Imhoff tank, disinfection.	4
Macopin.	Municipality.	Hampton tank, sand filter.	4
Mahwah.	Factory.	Sed'n tank, sand filters.	2
Manasquan.	Municipality.	Sed'n tank.	2
Margate City (2).	Municipality.	Sed'n tank, disinfection.	4
Maywood.	Factory.	Land absorption.	2
Medford.	Residences.	Sed'n tank, sand filters.	4
Merchantville.	Municipality.	Sed'n tank, primary contact, sand filters.	12
Metuchen.	Creamery.	Chemical precipitation.	2
Millville.	Municipality.	Sed'n basins, primary contact beds.	12
Montague.	Creamery.	Chemical precipitation.	2
Moorestown.	Municipality.	Imhoff tanks, sprinkling filters, settling basin.	6
Morris Plains.	Asylum.	1. Screens, broad irrigation.	4
Morristown.	Municipality.	2. Screens, sedimentation tank, sand filters.	4
		Sed'n tank, primary and secondary contact, sand filters.	
Neptune Township.	Municipality.	Sed'n tank.	6
Neshanic.	Creamery.	Chemical precipitation.	2
New Brunswick.	Wireless Station.	Sed'n tank, land absorption.	4
New Lisbon.	Asylum.	Sed'n tank, primary contact, sand filters.	1
New Lisbon.	Almshouse.	Sed'n, ground absorption.	6
Newton (2).	Municipality.	Sed'n tanks, sand filters.	2
Ocean City.	Municipality.	Sed'n tank, disinfection.	4
Ocean Grove (2).	Municipality.	Sed'n tank.	2
Oceanic.	Residence.	Sed'n tanks, sand filter.	1
Overbrook.	Hospital.	Sed'n tank, primary contact, sand filters.	4
Pemberton.	Municipality.	Settling pool, broad irrigation.	1
Plainfield.	Municipality.	Sed'n tank, primary and secondary contact beds.	2
		Sed'n tank, ground absorption.	6
Pleasantville.	Hotel.	Sed'n tank, land filtration.	2
Pluckemin.	Factory.	Sed'n tank.	4
Point Pleasant.	Municipality.	Sed'n, primary contact, filtration.	2
Powerville.	Factory.	Sed'n tank, sand filters.	2
Princeton (1).	Municipality.	Broad irrigation.	12
Princeton (2).	Municipality.	Imhoff tanks, sprinkling filter, settling basin.	4
Princeton (3).	College.	Sed'n tank.	12
Quarryville.	Creamery.	Sed'n tank, disinfection.	1
Rahway.	Reformatory.	Sed'n tank, land absorption.	4
Ralston.	Children's Home.	Sed'n tank, disinfection.	2
Red Bank.	Municipality.	Sed'n tank, primary contact.	12
Ridgewood.	Municipality.	Sed'n tank, primary contact, sand filters.	12
Riverside.	Municipality.	Sed'n tank, primary contact, sand filters.	6
Roebing.	Municipality.	Sed'n tank, primary contact, sand filters.	2
Rumson.	Municipality.	Sedimen. tank, disinfection.	2
Rutherford.	Municipality.	Sed'n tank.	4
Salem.	Municipality.	Pumping Station.	2
Sea Girt.	Municipality.	Sed'n tank.	2
Sea Girt.	State Camp.	Sed'n tank.	2
Secaucus.	Municipality.	Sed'n tank.	2
Skillman.	State Institution.	Sed'n tank, contact beds, land filtration.	12
Smith's Landing.	Asylum.	Sed'n tank, disinfection.	4
Smithville.	Factory.	Sed'n tank, ground absorption.	4
South Plainfield.	Factory.	Sed'n tank, sand filter.	2
Spring Lake (3).	Municipality.	Sed'n tanks.	2

TABULATION OF SEWAGE DISPOSAL PLANTS IN THE STATE OF NEW JERSEY.—Continued.

PLACE.	Service.	System.	No. of Inspections per year.
Stone Harbor.	Municipality	Sed'n tanks, disinfection.	4
Sunnyside.	Creamery	Chemical precipitation.	4
Three Bridges.	Creamery	Chemical precipitation.	2
Trenton.	Agasote Co.	Sed'n, filtration.	12
Trenton.	De Laval Steam Turbine Co.	Sed'n tank, primary contact	2
Trenton.	P. R. R. Shops.	Sedimentation tank.	2
Trenton.	I. O. F.	Sed'n, sand filters.	4
Tuckerton.	Wireless Station.	Sed'n tank.	1
Ventnor.	Municipality	Sed'n tank, disinfection.	4
Verona.	Home for Boys.	Sed'n tank, sub-surface irrigation.	2
Verona.	Factory.	Sedimentation tank, land absorption.	2
Vineland.	Municipality	Sed'n basins, sand filter, disinfection.	6
Vineland.	Home for Children.	Sed'n tank, broad irrigation.	2
Vineland.	Home for Women.	Sed'n tank, broad irrigation.	2
Washington.	Municipality	Sed'n tank, primary contact, sand filters.	6
Waterwitch.	Golf Club.	Sed'n tank.	1
Wenonah (2).	Municipality	Sed'n tank.	2
Westfield.	Municipality	Imhoff tank, sand beds.	6
Wildwood Crest.	Municipality	Sed'n tank, disinfection.	4
Woodbury.	Municipality	Sed'n tank.	2
Woodbridge (4).	Municipality	Sed'n tank.	2
Woodstown.	Municipality	Sed'n tank, sand filters.	6
Woodstown.	Creamery	Chemical precipitation, contact bed.	6
Wortendyke.	Factory.	Sand filters.	6

SEWAGE DISPOSAL PLANTS: A complete list of 150 plants, variously classified, appeared in last year's report, and since October 31, 1914, several new plants have been put in operation and others are being built.

It will, therefore, be sufficient to give a brief summary of the inspections made, together with a few comments upon the more important plants. For this purpose the plants have been arranged in five general groups, as follows:

SEWAGE DISPOSAL WORKS
HAVING SEDIMENTATION WITHOUT SUBSEQUENT TREATMENT.

NAME OR LOCATION.	Number of inspections.	Condition of tank effluent.	REMARKS.
Allenhurst	1	Good.	Tank cleaned in Spring.
Asbury Park	5	Good.	New steel outlet pipe on the ground, but not yet installed.
Avon	1	Good.	Tank cleaned in Spring.
Beach Haven.	1	Fair.	Tank cleaned in Spring.
Belmar	2	Fair.	Check valve in outfall pipe installed.
Bogota	1	Good.	Plant recently put in operation.
Bradley Beach (2 tanks)	1	Good.	Both tanks cleaned in Spring; effluent discharged from emergency pipes on account of damage to outfall system.
Deal Beach.	1	Good.	Tank cleaned in Spring.
Delford.	1	Good.	Scum board installed.
East Rutherford.	1	Fair.	
Englewood.	1	Fair.	
Interlaken.	1		
Kenilworth.	1	Good.	
Leonia.	2	Good.	Unequal flow through two tanks. No provision for removing sludge from Imhoff tanks.
Loch Arbour.	1	Good.	Tank did not need cleaning.
Long Branch.	3	Poor.	Sewage sometimes by-passed. Plant requires to be overhauled.
Manasquan.	2	Fair.	Tank in need of cleaning.
Neptune Township	1		Tank flooded; impossible to inspect.
Ocean Grove (2 tanks)	1	Good.	Tanks cleaned in Spring.
Point Pleasant.	1	Fair.	Outfall pipe repaired.
Spring Lake (3 tanks).	1	Good.	
Woodbridge (4 tanks)	2	Good.	Tanks do not need cleaning.
Woodbury.	1	Poor.	Tank discharges solids and liquids into Woodbury Creek to be carried back and forth by the tide.

These plants are for the most part in satisfactory condition. They need little attention, other than a general cleaning out about once a year. In some cases where this has not been done, an excessive amount of suspended matter goes out with the liquids, so that proper clarification is not accomplished.

The ocean outfall pipes at some of the shore plants have suffered from storms during the past winter, and in some cases emergency outfalls have had to be used.

In designing many of the new Imhoff tanks, not enough consideration is being given to the character of the sewage the tank is to handle, with the result that often some standard design is used without proper modification to accommodate the particular sewage. The slots are frequently too narrow, scum areas too small and pockets left to trap rising scum.

In the Leonia Imhoff tank no provision has been made for the withdrawal of sludge, and there is no way of sounding to ascertain how much sludge is present, nor is there any way of obtaining a sample to determine its character. It is said that a pump may be installed to remove the sludge; but it is highly probable that such a method will prove most objectionable, both in regard to cost and efficiency.

The slots of the baffles are so narrow that the settling solids do not pass through until forced through by the weight of the accumulated mass upon the slopes, resulting in much putrefaction and scum formation in the settling compartments. This, together with improper sludge removal, and a lack of means of determining when and how much sludge to remove, well nigh defeats the entire purpose of the Imhoff tank. A plain sedimentation or septic tank would have answered exactly the same purpose, at a far less expense.

A very brief mention should here be made of a most unfortunate accident which occurred in May at the Ocean Grove sewage disposal plant. A visiting party was entering one of the septic tanks through a manhole. While the third man was going down, the first man in the tank, for some reason or other, struck a match. This ignited the accumulated gases, and as a result the three men were so seriously burned that two died and the other barely recovered. A fourth man was seriously burned rescuing the others. This goes to emphasize the warning published over a year ago that one should never enter covered sewage tanks or manholes with unprotected lights or fires, until good ventilation has been secured and no inflammable or suffocating gases are present. In addition to gases and vapors from illuminating gas or volatile oils, which may accidentally get into the sewers and tanks, inflammable gases from the natural decomposition of the organic materials are bound to accumulate unless there is adequate ventilation.

SEWAGE DISPOSAL WORKS HAVING SEDIMENTATION AND DISINFECTION WITH CALCIUM HYPOCHLORITE.

NAME OR LOCATION OF PLANT.	Number of inspections.	Condition of			B. coli in final effluent indicated by presumptive test—per c.c.	REMARKS.
		Sedimentation tank.	Final effluent.	Dosing device.		
Atlantic City.	4	.....	Good	Good	100	Sewage screened through fine screens.
Beverly.	3	Poor..	Good	.....	10,000	Three of the four compartments are filled with sludge and require cleaning. Hypochlorite not applied at present.
Bridgeton (2 plants).	7	Poor..	Poor..	Fair..	100,000	Larger dose of hypochlorite advised. Tanks require cleaning. Poor attention. Results unsatisfactory.
Galloway Township. (See View Golf Club).	3	Good..	.....	Fair..	.....	New plant. Changes in design to facilitate operation have been recommended.
Keyport.	6	Good..	Fair..	Fair..	1,000	Minor changes in the application of hypochlorite have been made. Tanks cleaned.
Margate (2 plants).	2	Fair..	Fair..	Fair..	.....	Effluent pipes have been repaired.
Ocean City.	4	Fair..	Good	Fair..	10,000	Scum board installed in sterilization chamber. Complaints received concerning odors at pumping station.
Rahway (N. J. Reform'y).	4	Fair..	Fair..	Poor..	100,000	Tank requires cleaning.
Red Bank.	7	Good..	Good	Good	1,000	Hypochlorite in operation for Summer.
Rumson.	1	Fair..	Good	Good	.....	No hypochlorite applied.
Sewell's Point.	2	Good..	Fair..	Poor..	.....	Recommended improvements to prevent escape of suspended matter, not carried out.
Smith's Landing.	4	Poor..	Fair..	Poor..	100,000	Recommended improvements to prevent escape of suspended matter, not carried out.
Stone Harbor.	3	Fair..	Fair..	Poor..	100,000	Improvements to be made.
Wildwood Crest.	2	Good..	Fair..	Poor..	100,000	Sewage was by-passed on account of failure of pumps. A vent recommended in outlet pipe to prevent air-binding. Apparatus for hypochlorite not used.

The disinfection plants usually give considerable trouble and are more or less unsatisfactory, on account of the lack of care and laboratory control. In some cases, however, notably at Atlantic City and Red Bank, where constant attention is had, good results are obtained.

Contributory causes of poor results are deterioration of chemical, improper mixing, stoppages in the dosing, corrosion of apparatus, insufficient quantity of chemical, and presence of suspended matter in the sewage treated.

SEWAGE DISPOSAL WORKS HAVING SEDIMENTATION, WITH SUB-SURFACE IRRIGATION OR BROAD IRRIGATION.

NAME OR LOCATION OF PLANT.	Number of inspections.	Settlement.	Dosing Apparatus.	Condition of			REMARKS.
				Sub-surface system.	Broad irrigation or ground absorption areas.		
Ancora.....	1	Good.	Good.	Good.			Plant recently put in operation.
Bonnie Burn Sanatorium.	1	Good.	Poor.	Good.			Dosing device not operating.
Cape May Court House.	1	Fair.		Good.			Plant recently put in operation.
Cresskill.....	1	Fair.			Poor.		Plant should be improved.
Far Hills (3 plants).....	1	Good.					Nabstedt tank at larger plant.
Gibbstown.....	1	Good.	Good.	Fair.	Good.		Three separate disposal plants.
Macopin.....	1	Good.		Fair.	Good.		Hampton tank, New plant.
New Brunswick (Marconi Wireless).....	1	Good.	Good.	Good.			Plant not operating.
Pemberton.....	1	Good.			Fair.		
Smithville.....	1	Good.			Good.		
Tuckerton (Radio Station).....	1	Good.			Fair.		
Verona (Eagle Rock Mfg. Co.).....	1	Good.	Good.	Good.			New Plant.

Of the plants having sedimentation with sub-surface or broad irrigation, thirteen have been inspected and found in a fairly good condition. Four plants are quite new.

The absorption area at Cresskill should be improved.

The Pemberton plant is an old and very crude installation, consisting merely of a small open settling pond, from which radiate shallow open absorption ditches in the surrounding sand and soil. With very little attention, it has served its purpose.

At one of the plants at Far Hills, a private installation, a so-called Nabstedt tank has been built under ground. This is a modification of the usual Imhoff type. The settling compartment has a hopper bottom, into the opening of which a tight plug can be dropped. The sludge compartment is tightly sealed on top, save for a tall chimney well above ground. By filling this chimney with water, with the plug in the hopper bottom of the settling compartment, the sludge can be forced up high enough to be run into a tank wagon, to be carted away. The actual operation of this plant will be watched with interest.

PLANTS FOR THE TREATMENT OF CREAMERY WASTES.

NAME OR LOCATION OF PLANT.	Number of inspections.	Condition of sedimentation tank.	Regularity of use in application.	Appearance of effluent.	General condition of plant.	REMARKS.
Colt's Neck.....	2	Fair.	Good.	Good.	Good.	
Neshanic.....	2	Fair.	Good.	Good.	Good.	No slaked lime applied, on two inspections.
Sunnyside.....	1	Fair.	Fair.	Fair.	Fair.	
Three Bridges.....	2	Fair.	Good.	Fair.	Fair.	
Woodstown.....	4	Good.	Good.	Good.	Good.	Waste liquid passes through a gravel bed after sedimentation.

Six plants for the treatment of creamery wastes have been inspected. At five it was found that lime was regularly applied and results are generally good, although at Three Bridges a little too much of the suspended matter escapes with the liquids. The plant would be greatly improved by the addition of a small sand filter.

At the other plant it is almost impossible to secure adequate attention to the operative details.

MISCELLANEOUS SEWAGE DISPOSAL PLANTS.

NAME OR LOCATION OF PLANT.	Number of inspections.	CONDITION OF					Relative stability of final effluent.	REMARKS.
		Tank.	Contact beds.	Sprinkling filters.	Sand filters.	Final effluent.		
Aldene.....	1		Poor.			Fair.		
Asbury Park (Ross Farm Farms).....	1	Good.	Poor.			Poor.	60%	Entire plant needs overhauling. Distribution poor on stone beds.
Ayala.....	2	Good.	Poor.			Good.	80%	Excessive loss of head between dosing tank and sprinklers; changes recommended. Fungus growths removed with copper sulphate.
Audubon.....	5	Good.		Good.		Good.		Larger sludge bed needed.
Bordentown.....	5	Fair.	Good.		Good.	Good.	50%	Contact effluent disinfected with hypochlorite. Contact beds require cleaning.
Brown's Mills.....	6	Good.	Poor.			Fair.		
Burlington.....	4	Good.			Fair.	Good.		
Chatham-Madison.....	7	Good.	Good.		Good.	Good.		Flow beyond normal capacity of plant is by-passed and disinfected with liquid chlorine.
Collingswood.....	4	Good.	Good.			Fair.	20% 80%	Sedimentation tank cleaned weekly. Fungous growths removed with hypochlorite. Experiments to be conducted to improve stability of effluent.
Deal Golf Club.....	1	Good.			Fair.	Good.		Recommended to increase number of beds.
Essex Falls.....	4	Poor.	Poor.		Fair.	Good.	96%	Tank needs cleaning; cinder strainers need cleaning.
Flemington.....	5	Fair.			Good.	Good.	96%	Final beds are of natural soil.
Freehold.....	4	Fair.			Good.	Good.	96%	Final beds are of natural soil.
Grenloch.....	3	Good.			Fair.	Good.	95%	
Haddonfield.....	4	Fair.		Fair.		Fair.	68%	Sprinklers need better attention. Tank requires cleaning. Sand filter beds not used.
Haddon Heights.....	3	Fair.			Good.	Good.	96%	
Hammononton.....	3	Good.		Good.	Poor.	Good.	96%	New plant. Material in filter beds contains much clay.
Helmetta.....	2	Fair.	Fair.			Fair.		New plant. Necessary to decrease capacity of contact beds.
Hightstown.....	3	Fair.			Fair.	Submerged.		Distribution poor.
Hopewell.....	1	Poor.				Poor.		Contact bed not used. Plant to be reconstructed.
Island Heights.....	3				Fair.	Fair.	68%	Tank needed. Distribution poor.
Jamesburg.....	3	Fair.			Fair.	Fair.	60%	
Lakehurst.....	2	Poor.			Poor.	Poor.	37%	
Lakewood.....	5	Fair.			Fair.	Fair.	87%	Better distribution and more frequent change of dose needed.
Mahwah.....	1	Good.			Fair.	Good.	96%	Better distribution needed.
Medford.....	4	Poor.			Poor.	Poor.	60%	More filtering area required.
Merchantville.....	4		Fair.		Fair.	Fair.	30%	Better distribution; more frequent change of dose; prevention of breaks in sand beds needed.

MISCELLANEOUS SEWAGE DISPOSAL PLANTS—Continued

NAME OR LOCATION OF PLANT	Number of inspections	CONDITION OF					Relative stability of final effluent.	REMARKS.
		Tank.	Contact beds.	Sprinkling filters.	Sand filters.	Final effluent.		
Millville.....	2	Fair..	Poor..			Poor..		
Moorestown.....	9	Fair..		Good..		Good..	96%	Plant heavily overloaded; disinfection nil. Minor improvements advisable. Fungous growths have been removed with copper sulphate.
Morristown.....	1	Good..	Good..		Good..	Good..		
New Lisbon.....	2	Poor..	Poor..		Good..	Good..	96%	
Overbrook.....	1	Fair..	Good..		Good..	Good..		
Plainfield.....	2	Good..	Fair..			Fair..	68%	Tank and contact beds need cleaning.
Princeton.....	3	Fair..		Good..		Good..		Plant heavily overloaded. Change in design of tank recommended. Application of lime tried.
Ridgewood.....	5	Poor..	Fair..			Fair..		Settling tanks overloaded; contact beds dirty. Better provisions for handling sludge needed. Complaints about odors from sludge received.
Riverside.....	6	Good..	Good..			Good..		Use of sand filter beds discontinued.
Roebing.....	2	Good..	Good..		Good..	Good..		Stone in contact beds has been cleaned. Dosing has been changed from under-feed to top-feed.
Skillman.....	2							Plant in state of reconstruction.
South Plainfield (Spicer Mfg. Co.)	1	Poor..			Poor..	Poor..	68%	
Trenton (Agasole Millboard Co.)	3	Good..	Fair..			Good..		
Trenton (I. O. O. F. Home)	1	Good..			Good..	Good..	96%	
Vineland.....	4	Fair..			Good..	Fair..	68%	Plant requires overhauling.
Westfield.....	1	Good..			Good..	Fair..		Method of applying hypochlorite is poor.
Washington.....	6	Good..	Good..		Fair..	Good..	96%	Poor effluent sometimes due to the use of sludge bed.
Wenonah.....	1	Good..			Good..	Good..		Slots in Imhoff tank need widening.
Westfield.....	2	Good..			Good..	Good..		
Woodstown.....	7	Good..			Good..	Good..	96%	
Wortendyke.....	1				Good..	Good..		Sedimentation tank needed.

One hundred and fifty-five visits to forty-eight sewage disposal plants of a miscellaneous character, not included in the preceding tables, have been made between November 1, 1914, and October 31, 1915. The general results may be seen from the table just preceding, in addition to which a few notes here follow:

Although the final effluent of the Audubon plant is excellent at times of low flow, at times of high flows the plant cannot operate properly on account of defects in design. The dosing tanks are about three times too large, which gives a dose to the sprinklers too long in duration and with too long a resting period.

The dosing siphons discharge through a ten-inch line of pipe for about 300 feet, which results in a loss of head of over 40 inches when the whole bed is on, and this is necessary during high flows to prevent the

settling tanks from overflowing. During a test under these conditions the head on the nozzles was found to be $8\frac{3}{4}$ inches at the maximum. No spray can thus be secured. During light flows, with two-thirds of the nozzles cut out, good results are obtained.

As every inch of the available head is needed, the following changes have been submitted to the designing engineer for his consideration:

1. Shorten the risers, so as to drop the nozzles down to the stone.
2. Build a small dosing tank beside the sprinkling filter.
3. Install one large siphon in the new dosing tank.
4. Connect the settling tanks with the new dosing tank by means of a line of large terra cotta pipe on flat grade.
5. Salvage the present ten-inch cast iron discharge pipe and the two eight-inch siphons.

The settling tanks have a novel feature. Skimming troughs are provided for keeping scum from the tanks. On account of complaints when no scum covering is present, and because no separate digestion tanks have been provided, it has been advised to allow the tanks to run on the septic principle until it is desirable to change over into the duplicate set, then allow the solids to digest before drawing to the sludge bed. It will be impossible to handle the fresh solids on the sludge beds without serious offense to the neighborhood.

At Chatham, on account of excessive sewage flow, at times beyond the capacity of the works, a considerable amount of sewage has been treated with chlorine gas, passed through the low level tanks and then discharged directly into the river. The dose has been approximately thirty pounds of gas to the million gallons of sewage, and although the sewage has been comparatively free from large suspended solids and very weak, the bacterial reduction has been about 99 per cent. This leaves quite a high count in the final effluent, and considering the fact that the chlorine is taken up almost instantaneously, it is somewhat questionable whether the treatment is really effective.

It is believed that enough chlorine should be added to be mixed with all parts of the sewage and to persist for at least an appreciable length of time, if only for a few minutes. It has not been possible to carry out a sufficient number of tests to show how much this will require and what bacterial efficiency can be attained. It is also believed that it would be better to apply the chlorine to the tank effluent instead of to the incoming sewage.

The past season has been unusually favorable for growths of *Lep-tomitus* and kindred fungi in sewers and disposal plants. Moorestown, Collingswood, Merchantville, Haddon Heights, Audubon, and other places have had considerable quantities. Such growths cause trouble by stopping pipes, nozzles and producing a dense matted scum, filled with decomposing sewage, which is especially objectionable and troublesome in Imhoff tanks.

At Moorestown a very successful treatment was given early in the season to the entire sewerage system and disposal works, with sulphate of copper. The results were most gratifying. The growths were killed

and serious trouble averted. The same was true at the disposal works at Audubon, while at Collingswood good results were obtained with chloride of lime.

The Princeton University Imhoff tank still gives trouble in the gas vents and by the rapid formation of scum on the settling compartment, due to the return of gas and fine solids through the slots. Approximate measurements on the sewage flow seem to indicate that a flow greatly in excess of the amount figured on when the tank was designed, is passing through the plant. This, together with the character of the suspended matter, would appear to be sufficient explanation of the behavior of the tank. On account of the scum traps, it is impossible to keep the gas out of the solids so as to allow them to sink. Following one of the inspections 500 pounds of hydrated lime were put in the sludge compartments, but up to the present little if any beneficial effect upon the foaming can be noticed. The centre compartment, which naturally receives a smaller amount of solids of a finer character, is working admirably at the gas vents, while the end compartments are the ones which give trouble.

SHEDS FURNISHING POTABLE WATER FOR SURFACE SUPPLIES.
(INSPECTED YEARLY).

NAME OF SUPPLY.	Days required for inspection.	STREAM	COUNTY.	Area in square miles.	Population per sq. mile.	TREATMENT OF WATER.
Allentown.....	1	Trib. to Dr.'s creek.....	Monmouth.....	2	30	Filtration.
Atlantic City.....	2	Absecon creek.....	Atlantic.....	18	6	None.
Belvidere Water Co.....	.....	Delaware river.....	Warren, Sussex, Penn., and N. Y. States.....	1,708	.....	None.
Bernards Water Co.....	3	Passaic river.....	Morris, Somerset.....	10	75	None.
Bloomsbury Water Co.....	2	Pine Hollow brook.....	Warren.....	0.3	66	None.
Boonton—United Water Supply Co.....	1	Stony brook.....	Morris.....	2.3	16	None.
Bound Brook Water Co.....	3	Middle brook.....	Somerset.....	18.2	52	Filtration and disinfection.
Branchville.....	1	Dry brook.....	Sussex.....	1	0	None.
Bridgeton.....	4	Cohansey river (west branch).....	Cumberland and Salem.....	45.8	67	Filtration and disinfection.
Buckhorn Spring Water Co.....	2	Buckhorn creek.....	Warren.....	0.8	62	None.
Burlington.....	.....	Delaware river.....	.....	7,142	140	Filtration and disinfection.
Butler Water Co.....	3	Stonehouse brook.....	Morris.....	4.9	4	None.
Clinton Water and Water Supply Co.....	2	Beaver brook.....	Hunterdon.....	1.5	67	None.
Dover.....	1	15 springs.....	Morris.....	0.4	260	Disinfection.
Elizabethtown Water Co.....	5	Elizabeth river.....	Union, Essex.....	17.4	2,743	Disinfection.
Flemington Water Co.....	24	Raritan river (south branch).....	Hunterdon, Morris.....	195	42	Filtration and disinfection.
Franklin.....	.....	Walkkill river.....	Sussex.....	31.3	26	Filtration and disinfection.
Frenchtown Water Co.....	3	Nishisakawick creek.....	Hunterdon.....	10.5	100	None.
Glen Gardner (Sanatorium).....	1	Rocky Run brook.....	Hunterdon.....	1.5	11	Filtration and disinfection.
Gloucester.....	4	Newton creek (south branch).....	Camden, Gloucester.....	3.0	630	Filtration and disinfection.
Hackensack Water Co.....	24	Hackensack river.....	Bergen.....	114.8	182	Filtration and disinfection.
Hackettstown.....	2	Mine Hill brook and Mine brook.....	Morris.....	2.6	30	None.
Haddonfield—New Jersey Water Service Co.....	1	Springs.....	Camden.....	0.2	100	None.
Haledon.....	3	Springs.....	Bergen.....	1.8	70	Filtration.
High Bridge.....	1	Willoughby brook.....	Hunterdon.....	0.7	72	None.
Jersey City.....	.....	Roekaway river.....	Morris.....	118.2	195	Disinfection.
Junction Water Co.....	2	Rocky Run brook.....	Hunterdon.....	0.5	20	None.
Lambertville Water Co.....	1	3 reservoirs, fed by springs and surface flow.....	Hunterdon.....	1.4	28	Filtration.
Lumberton Light, Water & Sewerage Co.....	6	Rancocas creek (south branch).....	Burlington, Camden, Gloucester.....	139.2	11	None.
May's Landing Water Power Co.....	4	Lake Lenape.....	Burlington, Camden, Gloucester.....	215.8	19	None.
Medford Water Co.....	4	Rancocas creek.....	Burlington, Camden.....	25.4	4	None.
Mendham.....	2	Springs and brook.....	Morris.....	0.4	12	None.
Middlesex Water Co.....	4	Rahway river (Robin- son branch).....	Union, Middlesex.....	19.9	120	Filtration and disinfection.
Millville Water Co.....	5	Union Lake.....	Atlantic, Cumberland Gloucester.....	220.6	104	Filtration and disinfection.
Monmouth Co. Water Co.....	3	Jumping brook.....	Monmouth.....	5.8	78	Filtration.
Montclair Water Co.....	96	Passaic river.....	.....	772	116	Filtration and disinfection.
Morris Aqueduct Co.....	2	Springs (5 small watersheds).....	Morris.....	1.5	13	None.
Morris Plains (State Hos- pital).....	1	Trib. to Whippany R.....	Morris.....	1.7	20	None.
Mount Holly Water Co.....	5	Rancocas creek.....	Burlington.....	135	29	Filtration and disinfection.
Netcong.....	1	Springs.....	Morris.....	.....	.....	.....
Newark.....	20	Pequannock river.....	Sussex, Passaic, Morris.....	63	14	Disinfection.
Newton.....	2	Morris Lake.....	Sussex.....	0.9	11	None.
New Brunswick.....	4	Lawrence brook.....	Middlesex.....	45	70	Disinfection.

SHEDS FURNISHING POTABLE WATER FOR SURFACE SUPPLIES.
(INSPECTED YEARLY)—Continued.

NAME OF SUPPLY.	Days required for inspection.	STREAM.	COUNTY.	Area in square miles.	Population per sq. mile.	TREATMENT OF WATER.
New Lisbon (Burlington Co. Water Co.)	5	Rancocas creek (north branch)	Burlington	33.5	5	None.
Orange	2	Orange reservoir and Campbell's pond.	Essex	6.5	54	None.
Pemberton Twp., Water, Sewerage & Light Co.	5	Rancocas creek (north branch)	Burlington	33.5	5	None.
Phillipsburg (Lehigh Water Co.)	3	Delaware river.		4,880	125	Disinfection.
Phillipsburg (Lopatcong Water Co.)	3	Merrill brook.				
Pleasantville Water Co.	3	Bargaintown pond.	Warren	4	31	None.
Pluckemin	2	Echo Lake.	Atlantic	10.2	10	None.
Rahway	15	Rahway river.	Somerset	3	7	None.
Rockaway	2	Mt. Hope and Crossway brooks	Union	40	775	Filtration and disinfection.
Roebling		Delaware River	Morris	1.9	100	None
Salem	2	Trib. Alloway creek				Filtration and disinfection.
Skillman (State Village)	3	Rock brook.	Somerset, Hunterdon.	1.4	53	None.
Somerville Water Co.	96	Raritan river.	Hunterdon, Morris, Somerset.	9.5	70	Filtration and disinfection.
Sparta (3 supplies)	2	Glen Brook.	Somerset.	468	59	disinfection.
Sussex		Lake Rutherford.	Sussex.	1.3	10	None.
Tintern Manor Water Co. (Middleton Township)	2	Hop and Yellow brks.	Sussex.			None.
Tintern Manor Water Co. (West End)	2	Whale Pond brook.	Monmouth.	60.8	32	Filtration.
Trenton		Delaware river.	Monmouth	5.4	157	Filtration.
Tuckerton	2	Main branch supplying Pohatong Lake		6,916	130	Filtration and disinfection.
Vincentown Water Co.	4	Rancocas creek (south branch)	Burlington	7.8	7	None.
Washington	3	Roaring Rock brook.	Burlington	45.2	3	None.
			Warren	2.4	40	None.

Of the sheds furnishing potable water, fifty-eight have been inspected this year. A brief statement of the results will be found as follows:

INSPECTIONS OF SURFACE WATER SUPPLIES MADE DURING YEAR ENDING OCTOBER 31, 1915.

NAME OF WATER SUPPLY.	NUMBER AND NATURE OF POLLUTIONS REPORTED.										Total No. of existing pollutions.	General condition of watershed.	REMARKS.
	Public sewers.	Private sewers.	Cesspool pollutions.	Privies.	Sink, washstand, bath and wash tub drainage.	Factory pollutions.	Farmyard pollutions.	Garbage dumps, refuse dumps.	Outlets from disposal plants.	All other pollutions.			
Allentown											0	Fair	Considerable pollution from pasture land.
Atlantic City											0	Good	Impounding area being increased.
Bernard's Water Co.											0	Fair	Land around reservoir should be cleaned
Blackwood										2	2	Fair	Supply now from driven well.
Bloomsbury											0	Good	Reservoirs fed by springs.
Boonton											0	Fair	United Water Supply Co.
Bound Brook											0	Fair	Pastures.
Branchville											0	Fair	Considerable pollution from pasture land
Bridgeton				2							2	Good	Considerable pollution from pasture land.
Buckhorn Springs Water Co.											0	Good	Fence built around entire water shed.
Butler											0	Good	
Clinton											0	Fair	Possible pollution from pasture land.
Dover											0	Poor	Considerable surface wash.
Elizabethtown Water Co.	1		1			1		1			4	Bad	Shed thickly populated.
Frenchtown											0	Poor	Pollution from pasture land and Everetts town.
Flemington											0	Good	
Glen Gardner											0	Good	
Gloucester											4	Poor	Emergency supply only.
Hackensack Water Co.		3		11				2		1	17	Fair	Company has its own inspection service.
Hackettstown (Mine Hill Supply)											0	Fair	Receives considerable surface wash.
Hackettstown (Morris Co. Supply)											0	Fair	Receives considerable surface wash.
Haddonfield											0	Good	
Haledon											0	Fair	
High Bridge								1			1	Bad	Considerable pollution from pasture land.
Jamesburg (N. J. State Home for Boys)											0	Fair	Emergency supply only.
Junction Water Co.											0	Fair	Considerable pollution from pasture land.
Lambertville											0	Good	Considerable pollution from pasture land.
Lopatcong Water Co.								1			1	Fair	
Lumberton			2	3							5	Poor	
May's Landing											0	Good	
Medford									1		1	Fair	
Mendham											0	Good	
Millville Water Co.									1		1	Fair	Considerable bathing and boating on lake.
Monmouth County Water Co.											0	Fair	Possible pollution from pasture land.
Moorestown							10				5	Poor	Supply now from wells.
Morris Plains (N. J. State Hospital)											0	Fair	Considerable surface wash.
Morris Aqueduct Co.											0	Good	Shed in very good condition
Mount Holly										1	1	Fair	Considerable animal pollution.
New Brunswick										1	1	Fair	
New Lisbon										1	1	Fair	Considerable animal pollution.
Netcong											0	Good	Shed well protected.

INSPECTIONS OF SURFACE WATER SUPPLIES MADE DURING
YEAR ENDING OCTOBER 31, 1915—Continued.

NAME OF WATER SUPPLY	NUMBER AND NATURE OF POLLUTIONS REPORTED.								Number of previously reported pollutions found abated.	Total No. of existing pollutions.	General condition of watershed.	REMARKS.			
	Public sewers.	Private sewers.	Cesspool pollutions.	Privies.	Sink, washstand, bath and wash-tub drainage.	Factory pollutions.	Farmyard pollutions.	Garbage dumps, refuse dumps.					Outlets from disposal plants.	All other pollutions.	
Newton.											0	Good.			
Pemberton.											1	Fair.	Considerable animal pollution.		
Perth Amboy.											0	Poor.	Used to supplement supply from wells.		
Pleasantville.											0	Good.			
Pluckamin.											0	Bad.	Considerable pollution from pasture land. Reservoir in bad condition.		
Rockaway.										1	1	Fair.	Fence broken around reservoir.		
Salem.											0	Poor.	Used only as emergency supply.		
Somerville.											22				
Sparta (Dr. T. H. Andress Supply).			4	7	6	1		2	2				0	Fair.	Wall around spring should be repaired.
Sparta (David Fisher's Supply).													0	Good.	
Sparta (Rob't M. Smith's Supply).						1							1	Bad.	Considerable surface wash and animal pollution.
Stillman (N. J. State Village for Epileptics).													0	Fair.	Considerable pollution from pasture land.
Tuckerton.													0	Good.	
Uniontown.													0	Fair.	Considerable animal pollution.
Washington.													0	Fair.	Considerable pollution from pasture land.
Woodbury.						1							1	Fair.	Supply now from wells.

In addition to the regular inspections of potable watersheds and investigations in regard to complaints, special investigations have been made along the Pequannock River and tributaries, in the vicinity of Butler and Bloomingdale, and along the Rahway valley.

In the first case 125 properties were visited and thirty pollutions discovered. Notices and letters of request were sent out, with a result that nearly all of the pollutions have been abated.

In the second instance, the work was done in cooperation with the Union County Mosquito Extermination Commission, and seventy-five pollutions were discovered. Those cases coming under the jurisdiction of the State Board were acted upon, while those to be dealt with by the local authorities were referred to those bodies.

During the year the following rivers and tributaries have also been inspected, viz.: Upper Delaware, Elizabeth, Hackensack, Passaic, Raritan, Maurice, Millstone, Pequannock, Ramapo, Rockaway, Shrewsbury, Wallkill, Whippany, Salem, South, and Raritan Bay, Egg Harbor Bay, Little Egg Harbor Bay.

DIVISION OF ENGINEERING: C. G. Wigley, Chief Sanitary Engineer in Charge.

While the condition of the bond market in the early portion of the fiscal year in many instances prevented the construction of municipal sewerage and water works, the activity in these matters later in the year was so great that the amount of work of the Division of Engineering shows a considerable increase as compared with the work of 1914.

The following summary gives in brief form an account of the work of the Division: Inspections and investigations of sewerage works, 240; inspections and investigations of water works, 56; total number of inspections and investigations, 296.

Designs for sewerage and water works were examined and acted upon by the Department as follows: Plans for sewer extensions approved, 100; plans for sewer extensions held for further information, 14; plans for complete sewer systems approved, 13; plans for sewer outfalls approved, 2; plans for sewage disposal plants approved, 25; plans for sewage disposal plants disapproved, 1; plans for sewage pumping stations approved, 3; plans for water works approved, 6; total number of plans acted upon, 164.

SEWERAGE WORKS: Inspections and investigations of sewerage works were made at the following places, the number of inspections being given also:

Atlantic City, 1; Awosting, Ringwood Company, 2; Bogota, 2; Branchville, Sussex County Almshouse, 3; Butler, Warren Kinney Estate, 2; Caldwell, 2; Chatham-Madison, 1; Cliffside Park, 1; Elizabeth, 1; Fair Haven, 1; Fairview, 2; Haddonfield, Bancroft Training School, 3; Linden Township, 3; Macopin, 1; Manasquan, 4; Milltown, 3; Moorestown, 1; Mullica Hill, 4; Oaklyn, 2; Red Bank, Dr. B. H. Garrison, 1; River Edge, Kline Realty Company, 1; Secaucus, 2; Sea Isle City, 4; South Plainfield, 1; Trenton Junction, Knight's Farm, 1; Verona, Eagle Rock Manufacturing Company, 1; West Englewood, 4.

At the following places investigations were made for the purpose of advising as to the design or construction of sewerage works:

Alloway, Shwiller's Creamery, 2; Atlantic Highlands, 1; Audubon, 1; Avalon, 1; Bivalve, 2; Bayhead, 1; Boonton, New Jersey Firemen's Home, 1; Seyer Silk, Dyeing & Finishing Company, 1; Bradley Beach, 2; Branchville, Borden's Creamery, 3; Bloomingdale, Bloomingdale Rubber Company, 1; Brookside, S. Paule, 1; Butler, Pequannock Valley Paper Company, 3; Pequannock Rubber Company, 1; American Hard Rubber Company, 1; Camden, 4; Cape May City, 4; Corinthian Yacht Club, 2; Chatham-Madison, 1; Cliffside Park, 2; Cranford, 1; Ewing Township, Purity Farms, 1; Fairview, 1; Franklin Furnace, Franklin Hotel, 1; Gloucester, 1; Hackensack, 2; Haskell, E. I. du Pont de Nemours Company, 2; Hampton, Plainfield Milk & Cream Company, 1; Helmetta, George W. Helme Company, 1; Highlands, East View Hotel, 2; Victoria Hotel, 2; Hoboken, 1; Hopewell, Hopewell Chocolate Company, 1; Jersey City, 2; Mutual Chemical Company, 1; Keansburg, New Point Comfort Beach Company, 1; Kingston, St. Joseph's College, 1; Lambertville, Morris Brothers' Canning Company, 3; Leonardo, Public School, 2; Little Falls, 1; Lodi, 3; Long Branch, Long Branch Sewer Company, 1; Manasquan, Block Ice & Cold Storage Company, 3; Mansfield Township, Warren County Almshouse, 2; Maywood, 1; Metuchen, proposed factory, 1; Milltown, John Parsons,

3; Millville, 2, Milleville Manufacturing Company, 1; Monmouth Beach, 1; Newton, 1, Sussex Print Works, 2; North Bergen, 1, Woodcliffe Land Improvement Company, 1; Northfield, Atlantic County Tuberculosis Hospital, 1; North Wildwood, 2; Oaklyn, 2; Ocean Gate, 1; Palisade Park, 1; Paulsboro, 1; Penns Grove, 2; Perth Amboy, 1; Picton, American Felt Company, 1; Pine Beach, Pine Beach Realty Company, 1; Pitman, 2; Pittstown, Empire State Dairy Company, 1; Pleasantville, 2; Pluckemin, 3, Superior Thread & Yarn Company, 2; Point Pleasant, 1; Pompton, Slater Hat Factory, 1, Pompton Lake Silk Mill, 1, E. I. du Pont de Nemours Powder Company, fuse works, 1, cap works, 1; Rahway, 2, Kline Realty Company, 2; Red Bank, Monmouth Boat Club, 1; Ridgefield, 3; Ridgewood, 1; River Edge, Jas. T. Ackerman, 3, John A. Gurd, 1, Kline Realty Company, 1; Sandy Hook, U. S. Proving Ground, 1, Fort Hancock, 1; Seaside Park, 1; Secaucus, 1, Henry Born Estate, 1; Sewell's Point, Cape May Realty Company, 3; Sharptown, William Richman, Creamery, 6; Skillman, New Jersey State Village for Epileptics, 3; South Bound Brook, 1; Spring Lake, 1; Stone Harbor, 4; Summit, 2; Swartzwood, Dr. C. C. Rice, 1; Teaneck, Walter Bound, 1; Trenton, Inter-State Fair Association, 1; Ventnor, 2; Vineland, 1; Waldwick Bleachery, 1; Wanaque River Paper Company, 1; Westville, 1; West Englewood, R. T. Davison, 1; West Fells, 1; West Orange, F. S. Horn, 1; West Summit, 1; Wildwood, 10, Wildwood Crest, 1; Woodbridge, 1.

From the above tabulation, it will be noticed that much of the advisory work of the Division relates to the construction of works for the disposal of trade wastes. While many of the fundamental principles for the treatment of manufacturing wastes have been evolved by experiments carried on by various boards and commissions, the problem is always of a special nature because of variations in the methods and processes of manufacture of the same products. Because of this difficulty, in some instances it has been necessary to advise the companies to experiment with the wastes in order to discover a suitable method of treatment. Manufacturers are not always willing to undertake such experimental work, stating that they are not in a position to prosecute such work except at great expense and under great difficulties, that they are willing to comply with the laws of the State and will do so as soon as they are informed as to the required process of treatment.

It has been shown on several occasions that manufacturers are not inclined to construct manufactories producing large quantities of waste waters in rural sections, because of the difficulty and uncertainty of methods for the disposal of the wastes. It would therefore appear that it would be advantageous if some means could be devised whereby the necessary funds and equipment could be obtained for the purpose of alleviating this condition of affairs and promoting the manufacturing industries of the State. If facilities were given this Department to carry on experimental work of such a character the industries of the State would be greatly benefitted.

PRIVATE SEWAGE DISPOSAL WORKS also require considerable time for their proper inspection. These works are installed for the purpose of disposing of wastes from private dwellings and estates, and when several of them are installed on small watersheds from which water is used for domestic purposes, they may become a serious menace to the

quality of the supply. It is extremely difficult to see that plans for all these small installations are submitted to the Department for approval, as is required by law, as they are quickly installed and usually are hidden from view underground. If the construction of these works could be brought to the attention of the Department by local health inspectors and by water works men when such matters come to their attention, it would materially aid the Bureau in taking the proper precautions to secure proper treatment of the sewage.

Inasmuch as there are 3,330 square miles of the total area of the State which are tributary to surface waters from which potable supplies are derived, either treated or untreated, it can be readily seen that the problem is not a small one. The total area of the State is 8,224 square miles, and the area of the watersheds from which water supplies are derived comprises 40 per cent of the total area.

SEWAGE DISPOSAL WORKS CONSTRUCTED.

AWOSTING.—The Ringwood Company has installed a sewer system and sewage treatment plant. Each of the two settling tanks has the following effective dimensions: Length, 53 feet; width, 9 feet; depth, 8½ feet. The plans show a dosing tank 20 feet square and 3 feet deep. From the dosing tank the sewage is discharged to one of the four sand filters, each of which is 69 feet square and 3½ feet deep. The sludge bed is 40 feet square, the sand therein being 2 feet deep. The effluent is discharged into Wanaque Brook.

BOGOTA.—The sewer plans prepared for this municipality show about fourteen miles of pipe sewers from 8 inches to 24 inches in diameter. Two sewage treatment plants were to be constructed. The greater part of the sewerage system has been completed, including the larger sewage treatment plant. This plant is located in the southern part of the town and consists of four sedimentation tanks, arranged so that the flow can be passed through them, either in series or in parallel. One tank is 6 feet wide, two of the tanks are 7 feet wide, and one tank is 8 feet wide. Each tank is 50 feet long and has an average depth of 8 feet. A 6 H. P. gas engine supplies power to a 5-inch centrifugal pump which will discharge the sludge to a sludge bed. The sludge bed is 40 feet wide, 90 feet long, and the sand therein is 2 feet deep. Space in the pump house has been provided for a disinfection apparatus. The chemical will be applied when the Board so directs. The effluent from the tanks is piped well into the current of the Hackensack River.

BRANCHVILLE: Sussex County Almshouse.—This sewage treatment plant consists of a double sedimentation tank, a dosing chamber, and two sand filters. Each sedimentation tank is 5 feet wide, 10 feet long, and has an average depth of 6 feet. The dosing tank is 5 feet long, 4 feet wide, and is provided with a 4-inch siphon. At the present time but one sand bed has been constructed. This bed is 20 feet wide, 40 feet long, the filter sand being 3 feet deep. The effluent discharges into a tributary of Paulin's Kill.

BUTLER: Warren Kinny Estate.—On the Warren Kinny Estate an old cesspool has been converted into a settling tank and dosing chamber. The sewage is discharged from the dosing chamber to either of three sand filters. Each filter is 10 feet wide, 35 feet long, the sand being 4½ feet in depth. The effluent is discharged into Kikeout Brook.

CALDWELL.—Over ten miles of sewers and a sewage treatment plant have been constructed at this place. In the sedimentation tank is a small grit chamber and a bar screen. The sedimentation tank is 43 feet 8 inches long, 12 feet wide, and 8 feet deep. Each of the four contact beds is 57 feet square, and the stone in the beds is 4 feet deep. Each of the four sand beds is 57 feet square, the filter sand being 4 feet in depth. The effluent will discharge into a small brook which is tributary to the Passaic River.

CHATHAM-MADISON.—These towns have installed five gauges for recording the sewage flow from different parts of the system. A temporary chlorine gas disinfecting apparatus has been installed at the sewage treatment plant to treat the heavy flows of sewage that are received during wet weather. Baffle boards have been placed in the secondary settling tank.

CLIFFSIDE PARK.—This sewage treatment plant will treat the sewage which is collected in about eleven miles of sewers. Three Imhoff tanks have been constructed. Each tank is 14 feet 8 inches wide, 33 feet long, and the total depth is 15 feet. The sludge bed is 20 feet wide, 50 feet long. The effluent will be discharged through an outfall pipe passing through the borough of Edgewater to the Hudson River.

FAIR HAVEN: Harry Angelo.—An extension to this private sewage treatment plant was made. The plant originally consisted of a cesspool and a leaching basin. Another basin was added to take the overflow from the leaching basin. The overflow will pass from the basin into a line of sub-surface tile, laid with open joints.

HADDONFIELD: Bancroft Training School.—An ejector pumping station has been installed to lift the sewage to the borough sewer system.

KEANSBURG: New Point Comfort Beach Company.—A cesspool and leaching basin have been installed to care for the sewage from an office building.

LAMBERTVILLE: The Morris Canning Co., Inc.—The Morris Canning Company, Inc., has applied its canning wastes by broad irrigation to a center filled area near their cannery.

L. COPIN.—The Newark Water Department had plans approved for a sewage treatment plant which will care for the sewage from the houses occupied by employees of the Department. These plans show a Hampton tank, 7 feet square, with a total depth of 10 feet. The dosing tank is 7 feet wide, 5 feet long, and is provided with a 5-inch siphon. The plans also show three underground filters, each 30 feet square, and 4 feet deep. This plant has been constructed as shown on the plans, with the exception

of one filter which it is proposed to add when required. Provision has been made to install a chlorine gas feeding apparatus to disinfect the tank effluent before it is applied to the filters. The effluent is discharged into the Pequannock River.

MANASQUAN: Block Ice and Cold Storage Company.—A small settling basin was constructed to remove sand and solid particles from the wastes of this establishment before they are discharged into the sewer.

MILLTOWN.—About nine miles of sewers, ranging from 8 inches to 15 inches in diameter have been constructed. The sewage from this system discharges into a pumping station from which it is discharged into the New Brunswick sewerage system. The Milltown sewage pumping station is provided with a receiving basin, at the inlet of which is placed a bar screen. The receiving basin is 28 feet wide, 60 feet long, and it has an average depth of 7 feet. The pumping equipment consists of one 8-inch and two 6-inch centrifugal pumps. The 8-inch pump is operated by a gas engine. The two 6-inch pumps are operated by electric motors.

MULLICA HILL.—At this place a sedimentation basin and leaching basin were constructed to serve about twenty-five families. The sedimentation tank is 10 feet wide, 15 feet long, and 6 feet deep. The leaching basin has about the same dimensions. Several lines of sub-surface tile, laid with open joints, will aid the leaching basin in discharging the liquid into the soil.

NORTH WILDWOOD.—About one and one-half miles of sewers were constructed, which discharge sewage into a pumping station. The pumping equipment consists of two centrifugal pumps, operated by electric motors. The pumps discharge the sewage into Beach Creek.

OAKLYN.—At this place there has been installed an Imhoff tank, 12 feet wide, 30 feet long, and having a depth of 23 feet. This discharges sewage to a tapered dosing tank, 11 feet long, 8 feet wide, and 4 feet deep. The sewage passes from the dosing tank to the sprinkling filter which is 57 feet 4 inches wide, 69 feet 4 inches long, and 7 feet deep. The secondary settling basin is 16½ feet wide, 30 feet long, and 2½ feet deep. The effluent, after being disinfected with liquid chlorine, is discharged into Peter's Creek.

RIVER EDGE: The Kline Realty Company.—The Kline Realty Company has constructed a small sedimentation tank with a capacity of 1,450 gallons to care for the sewage from a real estate development. The effluent is discharged into the Hackensack River.

SEA ISLE CITY.—At this place there has been completed an intercepting sewer which collects the sewage from the lateral sewers. The sewage is raised by two ejectors onto a bar screen and it then passes to a biolytic sedimentation tank. The cross section of this chamber is triangular, the width is 14 feet, length 58 feet and depth 6½ feet. The sewage passes from the settling tank to a disinfection chamber 16½ feet wide, 58 feet long and 5 feet deep where the sewage effluent will be treated with hypochlorite of lime. The effluent is discharged into Ludlam's Thoroughfare.

SECAUCUS.—About two miles of 8 and 10-inch sewers were constructed in the western part of the Clarendon section of Secaucus. The sewage collected in this system is discharged into two sedimentation tanks. At the entrance of these tanks is located a grit chamber, 8 feet wide, 21 feet long, and 7 feet 3 inches deep. Each of the sedimentation tanks is 10 feet 2 inches wide, 83 feet long, and 7 feet 3 inches deep. The effluent is discharged through a 10-inch cast iron pipe into the current of the Hackensack River.

TRENTON JUNCTION: *Knight's Farm, New Jersey State Hospital for the Insane.*—At this place there have been constructed two sedimentation tanks, each 4 feet wide, 7 feet 6 inches long, and 4 feet deep. The effluent from the tanks flows into a dosing tank 4 feet square, which is provided with a 4-inch siphon. There are two fields of sub-surface irrigation tile, each field having 700 feet of tile.

VINELAND.—At this sewage treatment plant new sand has been placed in one filtration bed. The wooden walls and baffles of the disinfection chamber have been replaced with concrete. A concrete floor was placed in the disinfection chamber.

WATER WORKS: The inspections and investigations of water works were made at the following places in the number indicated below:

Allentown, 4; Awosting, Ringwood Company, 2; Bridgeton, 1; Flemington, 1; Garfield, 1; Hawthorne, 1; Hopewell, 2; Keansburg, Ideal Beach Water Company, 1, Keansburg Heights Water Company, 1, Keansburg Water Company, 1; Milltown, 5; Moorestown, 3; Perth Amboy, 1; Pompton Lakes, 1; Trenton, 1; Woodbury, 2; Woodstown, 1.

At the following places more important investigations were made for the purpose of advising as to the operation or construction of water works:

Belmar, Shark River Water Company, 1; Bernardsville, Bernards Water Company, 1; Clinton, New Jersey Reformatory for Women, 1; East Orange, 1; Gladstone-Peapack, 2; Glen Gardner, John D. Hornby, 1; Glen Gardner Water Company, 1; Glen Ridge, 1; Gloucester, 2; Hawthorne, 1; Irvington, 1; Jersey City, 1; Kearny, Hudson County Park Commission, 2; Merchantville, 1; Milltown, 1; National Park, 1; Ocean Gate, 1; Perth Amboy, 1; Pleasantville, 1; Pluckemin, Superior Thread & Yarn Company, 1; Totowa, 1; Towaco, Plausha Park Realty Company, 1; West Orange, 1; Woodstown, 1.

COMPLETED WATER PLANTS.

ALLENTOWN.—The water filtration plant has been remodeled, there having been added a coagulation basin and a clear water basin. At the present time this plant has the following equipment: A rapid sand filter, 10 feet in diameter, and 3 feet 6 inches deep; also a coagulation basin, 4 feet wide, 14 feet long, and 5 feet 6 inches deep. The old clear water basin is 13 feet 6 inches in diameter, and 7 feet 9 inches deep. The new clear water basin is 14 feet wide, 29 feet 10 inches long, and 7 feet 9 inches deep. Provision has been made for the application of solutions of alum and soda. The water is taken from a pond which is formed by impounding the water of Indian River, a tributary of Doctor's Creek.

AWOSTING: *The Ringwood Company.*—The Ringwood Company has drilled one well 130 feet deep. The water is pumped into the distribution system and the excess goes to a concrete storage reservoir located on a hill nearby. The reservoir is 47 feet square and 8 feet 6 inches deep.

BERNARDSVILLE: *The Bernards Water Company.*—The Bernards Water Company has installed a chlorine gas disinfecting apparatus with which to treat the water supplied to that municipality.

BRIDGETON.—New gutters for the filters and an additional waste water pipe have been added at this filtration plant.

GARFIELD.—The six new wells have depths ranging from 300 to 428 feet. This water will be pumped to the old distribution system and standpipes by steam pumps located at the site of the wells. Following the advise of the Board, the town acquired the tract on which the wells are located.

HOPEWELL.—Two wells having depths of 243 and 261 feet respectively have been constructed. The water flows from these wells to a 22,000-gallon reservoir. From this reservoir it is pumped to the distribution system. Additional distributing pipes have been laid.

MILLTOWN.—At this place there have been constructed two small infiltration wells and a collecting gallery. The collecting gallery is 400 feet long, 6 feet deep, and 3 to 4 feet wide. The water flows to a storage well, from which it is pumped to the standpipe and distribution system.

POMPTON LAKES.—Two large infiltration wells have been constructed. These wells are about 75 feet in diameter at the top, about 20 feet in diameter at the bottom, and about 15 feet deep. A new reservoir, having a capacity of about one and three-fourths millions gallons, was constructed on the top of a nearby hill. The water is pumped to the reservoir and the new distribution system.

WOODBURY.—The source of water supplied to this municipality has been changed from a surface supply to a well supply. Formerly the water from Mantua Creek, after having been disinfected with a solution of calcium hypochlorite, was pumped to the distribution system. They have now completed ten wells which average in depth 290 feet. The water from these wells flows to a suction well, from where it is pumped by the old pumping equipment to the distribution system.

WOODSTOWN.—At this place there have been constructed two additional wells which are 350 feet deep.

SEWERAGE WORKS ACTED UPON: The plans for sewer extensions approved by the Board have been for the following places: Asbury Park, Atlantic Highlands, Avalon, Bogota, Bound Brook, Camden, Chatham, Collingswood, Elizabeth, Fairview, Haddonfield, Jersey City, Lakewood, Linden, Long Branch, Millville, Newton, North Bergen, Rahway, Ridgewood, South Orange, Trenton, West Orange, Westfield.

Sewer extensions held for further information were for the cities of Camden, Cape May and Fairview.

Plans for sewer outlets in Edgewater and Cliffside were approved.

ATLANTIC CITY.—On March 16, 1915, plans showing several changes in the sewage treatment plant under construction for the Atlantic City Sewerage Company were approved. This plant when completed will consist of fine mesh movable screens, which will remove the coarse suspended solids.

ATLANTIC HIGHLANDS.—On October 5, 1915, plans for several sewer extensions were approved, subject to the condition that the Borough submit plans for a sewage treatment plant within ninety days.

AVALON.—On November 17, 1914, plans for a trunk sewer and amended plans for a sewage treatment plant, consisting of settling tanks and an outfall, were approved. On January 28, 1915, an extension of time was given for the installation of the sewage treatment plant, in which period of time they were to sell bonds. On March 16, 1915, the time was further extended to May 16, 1915. Revised plans for the trunk sewer and sewage treatment plant were approved on July 13, 1915.

BAYONNE.—On February 16, 1915, a letter advising as to future developments as related to sewage treatment was sent to the authorities.

BOGOTA.—An extension of time until January 1, 1916, for the installation of the second sewage treatment plant, was granted this municipality on March 30, 1915.

BRANCHVILLE.—On September 7, 1915, the Board approved plans of a creamery waste treatment plant to be constructed at the Borden Condensed Milk Company's creamery station.

BUTLER.—Plans were approved on November 17, 1914, showing a private sewage treatment plant consisting of settling tanks and sand filters to be constructed on the Warren Kinney Estate.

CAMDEN.—On September 7, 1915, the Board disapproved plans for an experimental sewage treatment plant.

CHATHAM-MADISON.—On November 10, 1914, plans for changes to the present sewage treatment plant, also for a disinfection apparatus, were approved. On January 12, 1915, there was approved a general scheme for making improvements at the plant.

CLINTON.—On December 1, 1914, the Board approved a sewer system for the New Jersey Reformatory for Women, to be used temporarily, the sewage to be treated by broad irrigation for the present.

CONVENT.—On September 7, 1915, plans of a sewage treatment plant for St. Elizabeth's College were approved. The plant will consist of settling tanks and sand filters.

FAIRVIEW.—On March 9, 1915, permission was granted to Fairview to use sewers serving a school until June 9, 1915, pending the completion of the sewage treatment plant.

GLEN GARDNER.—On July 20, 1915, plans of a sewage treatment plant for the New Jersey Sanatorium for Tuberculosis Diseases were approved. The plant will consist of settling tanks, sprinkling filters, and secondary settling tanks, the effluent from which will be disinfected.

JERSEY CITY.—On October 5, 1915, the Board approved plans showing a sewer connection to discharge into the Lackawanna Railroad Company's basin on the Hudson River, until the Anderson street sewer is constructed. This sewer connection will serve the abattoir of the Nagle Packing Company.

KINGSTON.—On December 11, 1914, the plans for a settling tank which had been installed at St. Joseph's College were approved. The plans for the secondary purification were held for revision.

LODI.—Plans of a sewerage system and sewage treatment plant consisting of settling tanks were approved on October 5, 1915, with the proviso that additional treatment works be installed when required.

MANASQUAN.—On November 10, 1914, the Board approved plans for a trunk sewer and sedimentation tanks.

MAYWOOD.—On February 23, 1915, plans were approved for a sewerage system and sewage treatment plant consisting of settling tanks.

MORSEMERE.—On March 22, 1915, plans of a private sewage treatment plant for the Erie Railroad were approved.

NORTH WILDWOOD.—Plans for a trunk sewer and pumping station were approved on May 12, 1915.

OAKLYN.—On January 12, 1915, plans were approved for a sewerage system and sewage treatment plant consisting of settling tanks, sprinkling filters, and disinfection.

PALISADES PARK.—Plans for a sewerage system and sewage treatment plant consisting of settling tanks were approved on May 11, 1915.

PICTON.—The Board approved plans for a sewage treatment plant for the American Felt Company on March 16, 1915.

RAHWAY.—On March 16, 1915, plans were approved for a sewage treatment plant consisting of settling tanks.

RED BANK.—Plans of a private sewage treatment plant for E. L. Brown were approved on April 16, 1915.

RIVERSIDE.—On April 9, 1915, plans were approved for a sewerage system and sewage treatment plant consisting of settling tanks.

RIVERTON.—Plans for a trunk sewer and sewage treatment plant consisting of settling tanks were approved on November 17, 1914.

SEASIDE PARK.—On February 25, 1914, plans for a trunk sewer and sewage treatment plant consisting of settling tanks were approved.

SOUTH BOUND BROOK.—Amended plans of the sewerage system and sewage treatment plant consisting of settling tanks were approved on October 5, 1915.

SUMMIT.—Plans of a sewage pumping station were approved on May 4, 1915.

SWARTZWOOD.—Plans of a private sewage treatment plant for Dr. C. C. Rice were approved on September 7, 1915.

TRENTON.—Plans of a settling tank for factory wastes of the Thermoid Rubber Company were approved on October 5, 1915.

WILDWOOD.—On March 23, 1915, plans for trunk sewers and a pumping station were approved. On April 9, 1915, a general plan for sewage disposal was approved.

WOODBURY.—On September 7, 1915, plans of a private sewage treatment plant for Theodore Schalliol were approved.

HEARINGS ON MATTERS RELATING TO SEWERAGE.

BUTLER, BLOOMINGDALE AND WANAUKE.—On October 5, 1915, a hearing was held at which were present a number of manufacturers from these places and a representative from the Butler Board of Health. This hearing was held for the purpose of obtaining the cooperation of the manufacturers in abating the existing pollution of the Pequannock and Wanaque Rivers by manufacturing wastes.

CLIFFSIDE.—On December 15, 1915, a hearing on the location of a sewage treatment plant outfall was given.

MIDDLESEX.—On August 3, 1915, the Board granted a hearing to the Borough of Middlesex officials regarding the installation of sewage treatment works.

NORTH BERGEN.—The officials of this place appeared on September 14, 1915, to explain as to why a proper system of sewerage and sewage treatment had not been constructed.

WATER WORKS ACTED UPON.

ATLANTIC CITY.—On March 2, 1915, plans for additions to the water works were approved.

AWOSTING.—On May 1, 1915, the well supply for this place was approved, as the analysis showed the water to be of satisfactory quality.

GLADSTONE AND PEAPACK.—On March 16, 1915, plans for a surface water supply were approved.

GLOUCESTER.—On August 3, 1915, plans showing changes to be made at the water treatment plant were approved.

MORRIS PLAINS.—On July 20, 1915, plans for a water disinfection plant for the New Jersey Hospital for the Insane were approved.

TOWACO.—On September 7, 1915, plans of a well water supply for the Plausha Park Land Company were approved, the quality of the water being of a satisfactory sanitary quality.

HEARINGS ON MATTERS RELATING TO WATER.

JERSEY CITY.—On September 14, 1915, and October 29, 1915, the Board held hearings relating to the improvement of the existing conditions of the Jersey City watershed.

Report of the Bureau of Vital Statistics.

DAVID S. SOUTH, *State Registrar.*

The continued publication of the series of tables showing the deaths from various causes in certain cities of New Jersey, forms a valuable contribution permitting the study of mortality.

The law in relation to reporting births has been revised, and the attention of local boards of health is called to Chapter 381, Laws of 1911, which makes it compulsory that they bring action against physicians and midwives who fail to report births occurring in their practice. The demand for intelligent study of infant mortality and the correct birth-rate, together with applications for records of births makes it important that every birth that occurs be promptly reported as required by law.

In some districts of the State there are colonies of foreign speaking people who employ no physicians or midwives, and such districts should be periodically canvassed by the local health authorities, and in cases where children have been born the facts should be procured, the local registrar should make a report over his own signature, marking the same as "special return," as required under the law.

The complete registration of births greatly depends upon the local authorities, and without their sincere cooperation a full and complete report of every birth that takes place is impossible.

In sanitary work the greatest good can be accomplished in the shortest space of time, with a minimum expenditure of funds and labor, by a concentrated cooperative effort. The form which this cooperation should take is capable of endless variation, but one of the most important single factors is the collection of vital statistics. The starting point of epidemiology is a knowledge of the occurrence and mortality from the various diseases. The State Department of Health should have correct knowledge as to all births and marriages. Accurate mortality statistics are positively necessary, but above all the great prerequisite to success in checking and controlling disease is the knowledge of its morbidity.

It is the intention of the State Bureau of Vital Statistics in the near future to publish additional charts and tables in reference to mortality statistics, which a vigorous effort is being made to make more accurate. Beginning July 1st, last, to meet objections of the Commissioner of Reports, or State Editor, a system of crediting all deaths of non-residents of municipalities to the usual places of residence of said deceased. This prevents municipalities which contain hospitals or similar institutions and resort towns and cities from being given unfairly high death rates. The success of the plan, however, is of course dependant upon the vigilance of local registrars of vital statistics in reporting deaths of non-residents as such.

TABLE I—BIRTHS, MARRIAGES AND DEATHS BY COUNTIES, CITIES, BOROUGHS AND TOWNSHIPS FOR THE YEAR 1914.

ATLANTIC COUNTY.

NAME OF PLACE	B.	M.	D.
Absecon City	3	8	13
*Atlantic City	985	659	823
Brigantine Borough	0	0	0
Buena Vista Township ..	100	28	31
Egg Harbor City	64	28	38
Egg Harbor Township ..	39	8	26
Folsom Borough	4	0	0
Galloway Township	21	4	17
Hamilton Township	46	13	24
Hammonton Town	190	55	80
Linwood Borough	7	4	10
Longport Borough	0	0	1
Margate City	4	0	1
Mullica Township	13	6	12
Northfield City	18	2	48
Pleasantville Borough ..	95	56	54
Port Republic City	2	4	5
Somers Point Borough ...	14	1	8
Ventnor City	22	8	23
Weymouth Township	20	5	10

BERGEN COUNTY.

NAME OF PLACE	B.	M.	D.
Allendale Borough	12	9	11
Alpine Borough	5	2	3
Bergenfield Borough	46	12	27
Bogota Borough	38	17	30
Carlstadt Borough	94	37	46
Cliffside Park Borough ..	137	22	38
Closter Borough	20	7	17
Cresskill Borough	11	6	5
Delford Borough	16	12	19
Demarest Borough	7	5	5
Dumont Borough	42	9	18
East Rutherford Borough ..	94	48	52
Edgewater Borough	61	20	31
Emerson Borough	19	0	4
Englewood City	219	70	152
Englewood Cliffs Borough ..	2	2	2
Fairview Borough	125	26	44
Fort Lee Borough	85	25	61
Franklin Township	28	11	20
Garfield Borough	456	123	152

Bergen County—Continued.

NAME OF PLACE	B.	M.	D.
Glen Rock Borough	24	3	11
Hackensack Town	430	158	252
Harrington Park Borough ..	3	1	5
Hasbrouck Heights Boro ..	37	14	19
Haworth Borough	5	3	5
Hillsdale Township	26	1	21
Hohokus Borough	10	3	10
Hohokus Township	60	6	24
Leonia Borough	24	15	14
Little Ferry Borough	56	1	22
Lodi Borough	223	31	55
Lodi Township	17	0	5
Maywood Borough	24	5	8
Midland Township	26	5	28
Midland Park Borough ..	60	15	18
Montvale Borough	7	1	13
Moonachie Borough	19	6	13
North Arlington Borough ..	28	2	8
Northvale Borough	19	8	5
Norwood Borough	21	4	6
Oakland Borough	8	2	12
Old Tappan Borough	4	3	6
Orvil Township	13	3	7
Overpeck Township	108	46	41
Palisade Township	28	8	13
Palisade Park Borough ...	54	6	20
Park Ridge Borough	31	6	10
Ramsey Borough	27	5	17
Ridgefield Borough	26	8	14
Ridgewood Village	98	59	86
Riverside Borough	6	3	9
Rivervale Township	6	0	7
Rutherford Borough	123	52	72
Saddle River Borough ...	4	0	7
Saddle River Township ..	80	16	30
Teaneck Township	50	5	25
Tenafly Borough	44	18	30
Union Township	215	36	91
Upper Saddle River Boro ..	1	0	2
Wallington Borough	1	0	2
Washington Township ...	1	2	2
Westwood Borough	40	12	16
Woodcliff Borough	4	1	7
Woodridge Borough	30	1	10

*The death-rate in summer resorts is calculated on the basis of the resident population, whereas the actual population is often several times larger, and on account of this floating population and the large number of invalids in it, the death-rate is not a criterion of health conditions. This applies to all resort towns and others which follows in these statistics. Beginning July 1st last, the deaths of non-residents are charged to their places of residence. But that does not affect the above figures, which are for 1914.

BURLINGTON COUNTY.

Table with columns: NAME OF PLACE, B., M., D. Rows include Bass River Township, Beverly City, Burlington City, etc.

CAMDEN COUNTY.

Table with columns: NAME OF PLACE, B., M., D. Rows include Audubon Borough, Berlin Township, Camden City, etc.

*See page 215.

Camden County—Continued.

Table with columns: NAME OF PLACE, B., M., D. Rows include Voorhees Township, Waterford Township, Winslow Township, Wood Lynne Borough.

CAPE MAY COUNTY.

Table with columns: NAME OF PLACE, B., M., D. Rows include Avalon Borough, Cape May City, Cape May Point Borough, etc.

CUMBERLAND COUNTY.

Table with columns: NAME OF PLACE, B., M., D. Rows include Bridgeton City, Commercial Township, Deerfield Township, etc.

ESSEX COUNTY.

Table with columns: NAME OF PLACE, B., M., D. Rows include Belleville Township, Bloomfield City, Caldwell Borough, etc.

Essex County—Continued.

Table with columns: NAME OF PLACE, B., M., D. Rows include Montclair City, Newark City, North Caldwell Borough, etc.

TOTALS 15,377 5,378 8,250 GLOUCESTER COUNTY.

Table with columns: NAME OF PLACE, B., M., D. Rows include Clayton Borough, Deptford Township, East Greenwich Township, etc.

HUDSON COUNTY.

Table with columns: NAME OF PLACE, B., M., D. Rows include Bayonne City, East Newark Borough, Guttenberg Town, etc.

HUNTERDON COUNTY.

Table with columns: NAME OF PLACE, B., M., D. Rows include Alexandria Township, Bethlehem Township, Bloomsbury Borough, etc.

MERCER COUNTY.

Table with columns: NAME OF PLACE, B., M., D. Rows include East Windsor Township, Ewing Township, Hamilton Township, etc.

MIDDLESEX COUNTY.

Table with columns: NAME OF PLACE, B., M., D. Rows include Cranbury Township, Dunellen Borough, East Brunswick Township, etc.

Middlesex County—Continued.

NAME OF PLACE	MORRIS COUNTY.		
	B.	M.	D.
New Brunswick City	691	347	492
N. Brunswick Township	2	0	8
Perth Amboy City	1298	548	571
Piscataway Township	54	12	31
Raritan Township	25	7	29
Roosevelt Borough	358	111	110
Sayreville Township	263	22	68
South Amboy City	195	64	104
S. Brunswick Township	57	12	22
South River Borough	283	199	112
Spottswood Borough	14	6	6
Woodbridge Township	324	42	162

MONMOUTH COUNTY.

NAME OF PLACE	MORRIS COUNTY.		
	B.	M.	D.
Allenhurst Borough	6	4	9
Allentown Borough	3	5	21
*Asbury Park City	220	195	175
Atlantic Township	14	2	8
Atlantic Highlands Boro	31	24	22
Avon Borough	14	9	9
Belmar Borough	38	22	32
Bradley Beach Borough	49	29	35
Deal Borough	9	4	2
Eatontown Township	23	13	28
Englishtown Borough	9	2	17
Fair Haven Borough	23	12	26
Farmingdale Borough	7	5	10
Freehold Borough	73	51	44
Freehold Township	22	7	29
Highlands Borough	39	15	24
Holmdel Township	18	5	8
Hopewell Township	29	11	40
Keyport Borough	67	45	55
*Long Branch City	343	128	312
Manalapan Township	25	4	16
Manasquan Borough	15	15	16
Marlboro Township	11	3	20
Matawan Borough	31	22	23
Matawan Township	34	6	30
Middletown Township	86	39	98
Millstone Township	13	3	17
Monmouth Beach Borough	1	1	0
Neptune Township	124	29	104
Neptune City Borough	9	1	7
Ocean Township	20	8	25
Raritan Township	25	7	37
Red Bank Borough	157	91	117
Rumson Borough	31	13	27
Seabright Borough	32	4	11
Shrewsbury Township	32	10	25
Spring Lake Borough	50	12	62
Upper Freehold Township	51	9	38
Wall Township	51	23	39
West Long Branch Boro	11	3	14

*See page 215.

MORRIS COUNTY.

NAME OF PLACE	MORRIS COUNTY.		
	B.	M.	D.
Boonton City	104	56	81
Boonton Township	5	3	5
Butler Borough	60	27	38
Chatham Borough	43	9	29
Chatham Township	5	0	8
Chester Township	20	2	17
Denville Township	15	5	18
Dover Town	230	100	68
Florham Park Borough	4	0	3
Hanover Township	69	27	230
Jefferson Township	20	6	20
Madison Borough	109	51	59
Mendham Borough	39	6	18
Mendham Township	2	0	2
Montville Township	25	6	21
Morris Township	23	4	27
Morristown Town	271	110	264
Mt. Arlington Borough	4	0	4
Mt. Olive Township	11	4	22
Netcong Borough	70	11	28
Passaic Township	29	16	32
Pegannock Township	36	14	21
Randolph Township	24	3	38
Rockaway Borough	56	25	40
Rockaway Township	39	3	44
Roxbury Township	38	17	46
Washington Township	22	7	26
Wharton Borough	59	10	29

OCEAN COUNTY.

NAME OF PLACE	MORRIS COUNTY.		
	B.	M.	D.
Barnegat City Borough	2	3	5
Bay Head Borough	6	5	3
Beach Haven Borough	9	0	4
Berkeley Township	10	5	10
Brick Township	30	4	22
Dover Township	33	18	43
Eagleswood Township	7	6	4
Harvey Cedars Borough	0	0	0
Island Heights Borough	2	4	2
Jackson Township	11	1	15
Lacey Township	9	3	7
*Lakewood Township	71	51	70
Lavalette Borough	0	0	0
Little Egg Harbor Twp.	13	2	5
Long Beach Township	2	1	1
Manchester Township	12	4	7
Mantoloking Borough	0	0	0
Ocean Township	3	6	3
Plumstead Township	17	9	24
Point Pleasant Beach Boro	20	18	20
Seaside Heights Borough	2	1	2
Seaside Park Borough	3	1	2
Stafford Township	5	7	10
Tuckerton Borough	14	7	11
Union Township	11	4	13

BUREAU OF VITAL STATISTICS.

PASSAIC COUNTY.

NAME OF PLACE	MORRIS COUNTY.		
	B.	M.	D.
Acquackanonk Township	452	101	154
Haledon Borough	24	65	21
Hawthorne Borough	50	14	23
Little Falls Township	62	20	25
North Haledon Borough	10	1	7
Passaic City	2093	1369	863
Paterson City	2507	1392	1814
Pompton Township	100	23	65
Pompton Lakes Borough	18	14	13
Prospect Park Borough	48	20	37
Totowa Borough	16	18	15
Wayne Township	27	13	20
West Milford Township	35	10	28
West Paterson Borough	9	1	9

SALEM COUNTY.

NAME OF PLACE	MORRIS COUNTY.		
	B.	M.	D.
Alloway Township	24	7	25
Elmer Borough	15	7	21
Elsinboro Borough	1	0	3
Lower Alloway's Crk Twp.	20	2	12
Lower Penns Neck Twp.	31	3	32
Mannington Township	14	5	25
Oldmans Township	29	18	20
Penns Grove Borough	63	31	26
Pilesgrove Township	28	13	23
Pittsgrove Township	38	6	25
Quinton Township	19	6	16
Salem City	143	72	115
Upper Penns Neck Twp.	16	4	3
Upper Pittsgrove Township	25	7	20
Woodstown Borough	28	20	30

SOMERSET COUNTY.

NAME OF PLACE	MORRIS COUNTY.		
	B.	M.	D.
Bedminster Township	15	5	8
Bernards Township	87	22	40
Bound Brook Borough	160	47	70
Branchburg Township	15	8	10
Bridgewater Township	16	3	24
Franklin Township	26	16	29
Hillsborough Township	47	8	30
Millstone Borough	4	5	3
Montgomery Township	22	8	43
North Plainfield Borough	111	52	63
North Plainfield Township	13	2	12
Peapack-Gladstone Borough	24	7	13
Raritan Borough	133	48	44
Rocky Hill Borough	12	5	8
Somerville Borough	109	49	89
South Bound Brook Boro	19	3	12
Warren Township	11	5	10

SUSSEX COUNTY.

NAME OF PLACE	MORRIS COUNTY.		
	B.	M.	D.
Andover Borough	5	5	8
Andover Township	4	1	3
Branchville Borough	11	8	17
Byram Township	5	2	13
Frankford Township	72	27	16
Franklin Borough	8	1	44
Fredon Township	1	3	7
Green Township	12	3	6
Hampton Township	9	4	13
Hardyston Township	40	13	28
Hopatcong Borough	2	0	1
Lafayette Township	11	1	7
Montague Township	6	6	6
Newton Township	93	53	57
Ogdensburg Borough	11	1	3
Sandsytown Township	15	6	14
Sparta Township	26	11	36
Stanhope Borough	19	9	19
Stillwater Township	19	8	7
Sussex Borough	28	18	14
Vernon Township	17	5	24
Walpack Township	5	3	5
Wantage Township	25	4	23

UNION COUNTY.

NAME OF PLACE	MORRIS COUNTY.		
	B.	M.	D.
Clark Township	6	1	11
Cranford Township	88	37	39
Elizabeth City	2190	748	1187
Fanwood Borough	16	2	8
Fanwood Township	28	2	15
Garwood Borough	53	7	14
Hillside Township	48	7	16
Kenilworth Borough	26	0	4
Linden Borough	41	6	18
Linden Township	63	10	34
Mountainside Borough	4	3	3
New Providence Borough	30	9	16
New Providence Township	10	2	63
Plainfield City	584	202	296
Rahway City	138	81	109
Roselle Borough	70	24	25
Roselle Park Borough	102	21	39
Springfield Township	34	11	16
Summit City	207	67	133
Union Township	62	6	32
Westfield Town	173	51	83

WARREN COUNTY.

NAME OF PLACE	MORRIS COUNTY.		
	B.	M.	D.
Allmuchy Township	25	7	6
Alpha Borough	108	23	25
Belvidere City	21	17	26
Blairstown Township	16	7	12

TABLE 2.—SHOWING NUMBER OF DEATHS FROM EACH OF THE CLASSIFIED CAUSES, BY COUNTIES, FOR THE YEAR 1914—Continued

	Atlantic	Bergen	Burlington	Camden	Cape May	Cumberland	Essex	Gloucester	Hudson	Hunterdon	Mercer	Middlesex	Monmouth	Morris	Ocean	Passaic	Salem	Somerset	Sussex	Union	Warren	State total
Diarrhea and enteritis (Under 2 years).....	104	60	84	163	8	21	466	28	482	8	116	260	51	39	9	191	20	23	14	149	26	2,278
Diarrhea and enteritis (2 years and over).....	105	23	21	28	8	11	84	8	96	3	18	22	15	15	3	21	4	4	7	20	4	429
Ankylostomiasis.....	106																					
Intestinal parasites.....	107																					
Appendicitis and Typhlitis.....	108	6	13	17	1	5	55	66	2	2	14	1	11	8	3	34	2	3	3	22	1	273
Hernias, intestinal obstructions.....	109	11	4	10	19	3	47	3	64	3	17	8	14	10	2	15	2	3	2	9	4	247
Other diseases of the intestines.....	110	9	3	2	7	2	19	2	21	2	11	5	4	4	1	13	1	4	1	4	5	117
Acute yellow atrophy of the liver.....	111	1	1	1	1	1	1	1	2	1	1	1	1	1	1	1	1	1	1	1	1	13
Hydatid tumor of the liver.....	112																					16
Cirrhosis of the liver.....	113	14	29	10	17	4	96	5	118	5	10	11	12	9	4	34	1	3	2	13	4	396
Biliary calculi.....	114	2	5	1	3	2	27	3	17	1	7	3	1	1	1	6	1	3	1	2	4	16
Other diseases of the liver.....	115	7	4	12	2	2	16	3	25	1	1	3	8	5	1	16	1	3	1	2	4	83
Diseases of the spleen.....	116																					109
Simple peritonitis (nonpuerperal).....	117	1	2	2		1	1	3	3	2	2	2	3	1	1	1	1	1	1	2	2	4
Other diseases of the digestive system (cancer and tuberculosis excepted).....	118																					21
Acute nephritis.....	119	12	20	11	42	4	9	7	106	6	5	26	1	1	1	1	1	7	2	26	1	27
Bright's disease.....	120	108	100	60	183	35	60	533	42	530	47	142	72	161	85	29	170	25	18	20	101	482
Chyluria.....	121																					2,579
Other diseases of the kidneys and annexa.....	122	3	2	1	1	1	21	1	10	1	4	3	2	5	2	7	1	1	1	2	1	65
Calculi of the urinary passages.....	123	1	1	1	1	1	4	1	6	1	2	2	1	2	1	1	1	1	1	1	1	24
Diseases of the bladder.....	124																					59
Other diseases of the urethra, urinary abscesses, etc.....	125																					5
Diseases of the prostate.....	126	2	6	1	3	1	2	1	9	1	4	1	2	2	3	1	4	1	1	2	1	81
Nonvenereal diseases of the male genital organs.....	127																					5
Uterine hemorrhage (nonpuerperal).....	128																					2
Uterine tumor (noncancerous).....	129	4	1	1		1	10	1	6	4	1	2	1	1	4	1	1	1	1	2	1	3
Other diseases of the uterus.....	130	5	3	3	1	1	17	2	6	3	3	1	2	4	2	2	5	2	1	2	1	37
Cysts and other tumors of the ovary.....	131																					39
Salpingitis and other diseases of the female genital organs.....	132	1	1	7		2	6		7		3	2	2	1	1	2	1	1	1	3	1	40

Nonpuerperal diseases of the breast (cancer excepted).....	133	1	3	1	3	3	7	1	1	1	1	2	1	1	1	1	1	1	1	1	1	21	
Accidents of pregnancy.....	134	1	3	1	3	3	7	1	1	1	1	2	1	1	1	1	1	1	1	1	1	40	
Puerperal hemorrhage.....	135	2	1	1	1	1	6	1	8	1	2	2	1	2	1	4	1	1	1	1	1	31	
Other accidents of labor.....	136	6	7	4	21	1	30	1	37	15	15	7	4	4	1	15	1	5	5	5	4	30	
Puerperal septichemia.....	137	2	8	3	12	1	17	3	20	2	6	5	4	3	1	12	1	2	14	1	1	118	
Puerperal albuminuria and convulsions.....	138	2	1	1	2	2	5	5	5	1	1	1	1	1	1	1	1	1	1	1	1	21	
Puerperal phlegmonia alba dolens, embolus, sudden death.....	139	2	1	1	2	2	5	5	5	1	1	1	1	1	1	1	1	1	1	1	1	4	
Following childbirth (not otherwise defined).....	140																					4	
Puerperal diseases of the breast.....	141																					46	
Gangrene.....	142																					13	
Furuncle.....	143	1	2	3	2	2	8	1	4	1	2	1	5	3	2	2	1	1	2	3	1	29	
Acute abscess.....	144	1	1	2	3	3	5	5	5	1	1	1	1	1	1	4	1	1	1	1	1	46	
Other diseases of the skin and annexa.....	145	1	1	1	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1	29	
Diseases of the bones (tuberculosis excepted).....	146	2	5	1	1	1	16	17	17	2	2	3	2	3	2	6	3	2	1	2	1	63	
Diseases of the bones (tuberculosis and rheumatism excepted).....	147																					3	
Amputations.....	148																					3	
Other diseases of the organs of locomotion.....	149	1																				3	
Congenital malformations (stillbirths not included).....	150	19	17	15	41	4	82	11	113	6	28	29	12	3	3	23	3	5	8	19	6	478	
Other diseases peculiar to early infancy.....	151	52	91	55	109	4	37	404	20	354	18	118	121	54	61	173	21	16	13	108	32	1,974	
Lack of care.....	152	13	23	7	15	6	4	115	6	80	3	34	28	18	15	2	40	4	3	4	29	4	453
Scalds.....	153	23	14	18	5	15	49	7	61	8	11	17	18	4	22	14	13	7	18	9	363	10	
Suicide by poison.....	154	3	3	2	3	3	21	1	27	1	12	3	3	2	11	1	1	2	3	3	109	98	
Suicide by asphyxia.....	155	5	6	6	6	3	30	1	40	2	6	3	2	2	11	8	1	3	3	4	1	82	
Suicide by hanging or strangulation.....	156	1	2	3	1	2	9	1	15	2	4	3	2	2	5	1	3	1	1	1	1	34	
Suicide by drowning.....	157	1	2	3	1	2	8	1	15	2	4	3	2	3	2	8	1	3	1	1	1	82	
Suicide by firearms.....	158	5	8	3	4	3	23	3	32	7	4	6	5	3	8	2	1	1	1	1	1	135	
Suicide by cutting or piercing instrument.....	159	2	2	2	2	2	6	6	6	7	4	1	1	1	1	1	1	1	1	1	1	30	
Suicide by jumping from a high place.....	160	1	1	1	1	1	3	3	3	3	3	1	1	1	1	1	1	1	1	1	1	11	
Suicide by crushing.....	161																					4	
Other suicides.....	162	2	2	2	2	2	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	4	
Poisoning by food.....	163	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Other acute poisonings.....	164	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Conflagration.....	165	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	22	
Runns (conflagration excepted).....	166	9	7	6	16	2	46	1	61	3	19	15	10	9	2	23	2	6	2	25	3	270	
Amputation of (diseasous) knees (conflagration excepted).....	168	6	8	2	1	2	44	1	44	1	2	2	9	4	1	16	1	4	1	10	2	155	
Accidental drowning.....	169	9	24	13	18	9	10	26	15	70	2	26	9	7	14	8	4	5	23	2	5	341	

TABLE 3.—SHOWING OCCUPATIONS OF DECEDENTS IN CITIES HAVING OVER 5,000 INHABITANTS, FOR THE YEAR 1914.—Continued

CITIES.	Musicians.	Nurses.	Painters.	Paperhangers.	Photographers.	Physicians.	Plumbers.	Porters, etc.	Potters.	Printers.	Railroad employes.	Real estate and insurance.	Rubber Workers.	Sailors.	Salesmen.	Shipbuilders.	Shoemakers.	Silk workers.	Stone cutters.	Tailors.	Tanners.	Teachers.	Telegraphers.	Tile workers.	Trunks makers.	Undertakers.	Upholsterers.	Walters.	Watchmakers.	Weavers.	Wheelwrights.	Wire workers.	All other occupations.	All other professions.	All other trades.			
Morristown.	5	3	4	2	1	1	3	7	2	10	19	12	1	3	36	1	29	2	12	6	20	4	1	1	1	1	1	6	1	2	6	2	2	2	1	1		
Newark.	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
New Brunswick.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
North Plainfield.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Nutley.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Orange.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Paterson.	3	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Passaic City.	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Perth Amboy.	4	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Phillipsburg.	3	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Plainfield.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Princeton.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Rahway.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Red Bank.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ridge wood.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Roosevelt.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Rutherford.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Salem City.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Somerville.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
South Amboy.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
South Orange.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Summit.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Town of Union.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Trenton.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Vineland.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Westfield.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
West Hoboken.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
West New York.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
West Orange.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

TABLE 3½.—POPULATION OF THE COUNTIES OF NEW JERSEY AND OF MUNICIPALITIES HAVING 5,000 INHABITANTS OR OVER FOR THE CENSUS YEARS 1900, 1905 AND 1910 AND ESTIMATED POPULATION FOR 1914.

	1900	1905	1910	1914
Atlantic County	46,402	59,862	71,894	81,520
Atlantic City	27,838	37,593	46,150	52,996
Hammonton				5,691
Bergen County	78,441	100,003	138,002	168,401
Englewood	6,233	7,922	9,924	11,526
Garfield		5,092	10,213	14,310
Hackensack.	9,443	11,098	14,050	16,412
Ridge wood		5,218	7,045	8,565
Rutherford.				8,567
Burlington County	58,241	62,042	66,565	70,153
Bordentown	4,110	4,073	4,250	4,392
Burlington	7,392	8,038	8,336	8,574
Camden County	107,643	121,555	142,029	158,408
Camden City	75,935	83,363	94,538	103,478
Gloucester City	6,540	8,055	9,462	10,588
Cape May County	13,201	17,390	19,745	21,629
Cumberland County	51,193	52,110	55,153	57,587
Fridgeton	13,913	13,624	14,209	14,677
Millville	10,583	11,884	12,451	12,905
Vineland				5,833
Fassex County	359,053	409,928	512,886	595,232
Bloomfield	9,668	11,668	15,070	17,792
Last Orange	21,506	25,175	34,371	41,798
Irvington	5,255	7,130	11,877	15,635
Montclair.	13,962	16,370	21,550	25,694
Newark	246,070	283,289	347,469	393,813
Nutley				7,171
Orange	24,141	26,101	29,630	32,453
South Orange				6,880
West Orange	6,880	7,872	10,980	13,486
Gloucester County	31,605	34,477	37,368	39,681
Hudson County	386,048	449,879	537,231	607,113
Bayonne	32,722	42,262	55,545	66,171
Guttenberg				6,514
Harrison	10,590	12,823	14,498	15,838
Hoboken	59,364	65,468	70,321	74,209
Jersey City	206,433	232,699	267,779	295,843
Kearny	10,596	13,601	18,659	22,705
Town of Union	15,187	17,005	21,023	24,237
West Hoboken	23,091	29,082	35,403	40,460
West New York	5,267	7,196	13,560	18,651
Hunterdon County	34,507	33,258	33,569	33,818
Lambertville		5,016	4,657	4,370
Mercer County	95,365	110,516	125,657	137,779
Princeton.		6,029	5,136	4,422
Trenton	73,307	84,180	96,815	106,923
Middlesex County	79,762	97,036	114,426	128,338
New Brunswick	20,006	23,153	23,388	23,592
Perth Amboy	17,699	25,895	32,121	37,102
Roosevelt				5,786
South Amboy	6,349	6,258	7,007	7,606
Monmouth County	82,057	87,919	94,734	100,186
Asbury Park			10,150	14,649
Long Branch	8,872	12,183	13,298	14,190
Red Bank	5,428	6,263	7,398	8,306
Morris County	65,156	67,934	74,704	80,120
Dover	5,938	6,353	7,468	8,360
Morristown	11,267	12,146	12,507	12,796
Ocean County	19,747	20,880	21,318	21,668

TABLE 4.—SHOWING OCCUPATIONS OF DECEDENTS IN COUNTIES, EXCLUSIVE OF CITIES OVER 5,000 INHABITANTS, FOR THE YEAR 1914—Continued.

COUNTIES.	Musicians.	Nurses.	Painters.	Paperhangers.	Photographers.	Physicians.	Pumpmakers.	Porters, etc.	Potters.	Printers.	Railroad employes.	Real estate and insurance.	Rubber workers.	Sailors.	Salesmen.	Shipbuilders.	Shoemakers.	Silk workers.	Stone cutters.	Tailors.	Tanners.	Teachers.	Telegraphers.	Tile workers.	Tinsmiths.	Trunkmakers.	Undertakers.	Upholsterers.	Waiters.	Watchmakers.	Weavers.	Wheelwrights.	Wire workers.	All other occupations.	All other professions.	All other trades.					
Atlantic.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Bergen.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Burlington.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Camden.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cape May.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Cumberland.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Essex.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Gloucester.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hudson.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Hunterdon.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Mercer.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Middlesex.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Monmouth.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Morris.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Ocean.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Passaic.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Salmon.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Somerset.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Sussex.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Union.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Warren.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

TABLE 4½.—SANITARY DISTRICTS IN WHICH DEATHS FROM TYPHOID FEVER OCCURRED DURING THE YEAR 1914, WITH POPULATION, NUMBER OF DEATHS, SOURCE OF WATER SUPPLY AND NATURE OF DRAINAGE.

NAME OF SANITARY DISTRICT	Population, census 1910	Number of deaths from typhoid fever	Water supply	Drainage
Asbury Park City	10,150	1	Public	Sewers
Atlantic City	46,150	11	Public	Sewers
Bass River Township	685	1	Domestic	No sewers
Bayonne City	55,545	2	Public	Sewers
Belmar Borough	1,433	1	Public	Sewers
Bernards Township	4,608	1	Partial	No sewers
Bradley Beach Borough	1,807	1	Public	Sewers
Bridgeton City	14,209	4	Public	Sewers
Butler Borough	2,265	1	Public	No sewers
Camden City	94,538	15	Public	Sewers
Cape May City	2,471	1	Public	Sewers
Centre Township	3,200	1	Domestic	No sewers
Cinnaminson Township	1,266	1	Partial	No sewers
Delran Township	1,031	1	Domestic	No sewers
Dennis Township	1,751	1	Domestic	No sewers
Dover Township	2,452	1	Domestic	No sewers
East Orange City	34,371	2	Public	Sewers
Elizabeth City	73,409	4	Public	Sewers
Fairview Boro	2,441	1	Public	Sewers
Freehold Borough	3,233	1	Public	Sewers
Gloucester City	9,462	1	Public	Sewers
Guttenberg Town	5,647	1	Public	Sewers
Hackensack Town	14,050	3	Public	Sewers
Harrison Town	14,498	1	Public	Sewers
Hightstown Borough	1,579	1	Public	Sewers
Hoboken City	70,324	12	Public	Sewers
Holland Township	1,699	1	Domestic	No sewers
Jersey City	267,779	23	Public	Sewers
Kearny Town	18,659	1	Public	Sewers
Landis Township	6,435	1	Domestic	No sewers
Laurel Springs Borough	1	1	Public	No sewers
Long Branch City	13,298	3	Public	Sewers
Milltown Borough	1,584	1	Public	Sewers
Millville City	12,451	2	Public	Sewers
Morristown Town	12,507	8	Public	Sewers
Neptune Township	5,551	3	Public	Sewers
Newark City	347,469	26	Public	Sewers
New Brunswick City	23,388	3	Public	Sewers
Northampton Township	5,652	6	Public	Sewers
North Bergen Township	15,662	1	Public	Sewers
Orange City	29,630	4	Public	Sewers
Passaic City	54,773	6	Public	Sewers
Paterson City	125,600	7	Public	Sewers
Paulsboro Borough	2,121	1	Public	No sewers
Pensauken Township	4,169	1	Public	No sewers
Berth Amboy City	32,121	7	Public	Sewers
Phillipsburg Town	13,903	3	Public	Sewers
Risegrave Township	1,786	1	Domestic	No sewers
Riscataway Township	3,523	1	Partial	No sewers
Plainfield City	20,550	2	Public	Sewers
Pleasantville Borough	4,390	1	Public	No sewers
Princeton Borough	5,136	1	Public	Sewers
Red Bank Borough	7,398	1	Public	Sewers
Roosevelt Borough	5,786	1	Public	Sewers
Rumson Borough	1,449	1	Public	Sewers
South Amboy City	7,007	1	Public	Sewers
South Harrison Township	694	1	Domestic	No sewers
Spring Lake Borough	553	1	Public	Sewers
Swedesboro Borough	1,477	1	Public	Sewers
Tenafly Borough	2,756	1	Public	No sewers
Town of Union	21,023	1	Public	Sewers
Trenton City	96,815	18	Public	Sewers
Union Township (Ber. Co.)	4,076	1	Public	Sewers
Upper Freehold Township	2,053	1	Domestic	No sewers
Vineyard Borough	5,282	1	Public	Sewers
Wall Township	3,817	1	Domestic	No sewers
Weehawken Township	11,228	4	Public	Sewers
West Orange Town	10,380	1	Public	Sewers
Woodbury City	4,642	1	Public	Sewers

TABLE 5.—SHOWING AGES AT DEATH AND OCCUPATIONS OF DECEDENTS FROM

	Farmers.	Firemen.	Fishermen.	Florists, etc.	Foundrymen.	Glassblowers.	Glassworkers.	Grinders, etc.	Grocers.	Halters.	Hotel keepers.	Housekeepers and housewives.	Ice-men.
Consumption													
10 to 15	11	2	1	4	3	1	1	1	1	1	1	1	1
15 to 20	1	1	1	1	1	1	1	1	1	1	1	1	1
20 to 30	1	1	1	1	1	1	1	1	1	1	1	1	1
30 to 40	1	1	1	1	1	1	1	1	1	1	1	1	1
40 to 50	1	1	1	1	1	1	1	1	1	1	1	1	1
50 to 60	1	1	1	1	1	1	1	1	1	1	1	1	1
60 to 70	1	1	1	1	1	1	1	1	1	1	1	1	1
70 to 80	1	1	1	1	1	1	1	1	1	1	1	1	1
80 to 90	1	1	1	1	1	1	1	1	1	1	1	1	1
Over 90	1	1	1	1	1	1	1	1	1	1	1	1	1
Totals	52	13	2	15	14	4	4	17	6	22	12	949	1
Cancer													
10 to 15	1	1	1	1	1	1	1	1	1	1	1	1	1
15 to 20	1	1	1	1	1	1	1	1	1	1	1	1	1
20 to 30	1	1	1	1	1	1	1	1	1	1	1	1	1
30 to 40	1	1	1	1	1	1	1	1	1	1	1	1	1
40 to 50	1	1	1	1	1	1	1	1	1	1	1	1	1
50 to 60	1	1	1	1	1	1	1	1	1	1	1	1	1
60 to 70	1	1	1	1	1	1	1	1	1	1	1	1	1
70 to 80	1	1	1	1	1	1	1	1	1	1	1	1	1
80 to 90	1	1	1	1	1	1	1	1	1	1	1	1	1
Over 90	1	1	1	1	1	1	1	1	1	1	1	1	1
Totals	73	2	3	15	4	1	3	2	9	7	10	893	1
Suicide													
10 to 15	1	1	1	1	1	1	1	1	1	1	1	1	1
15 to 20	1	1	1	1	1	1	1	1	1	1	1	1	1
20 to 30	1	1	1	1	1	1	1	1	1	1	1	1	1
30 to 40	1	1	1	1	1	1	1	1	1	1	1	1	1
40 to 50	1	1	1	1	1	1	1	1	1	1	1	1	1
50 to 60	1	1	1	1	1	1	1	1	1	1	1	1	1
60 to 70	1	1	1	1	1	1	1	1	1	1	1	1	1
70 to 80	1	1	1	1	1	1	1	1	1	1	1	1	1
80 to 90	1	1	1	1	1	1	1	1	1	1	1	1	1
Over 90	1	1	1	1	1	1	1	1	1	1	1	1	1
Totals	19	1	2	2	1	1	1	4	2	2	2	76	3
Diseases of the nervous system and of the organs of sense.													
10 to 15	1	1	1	1	1	1	1	1	1	1	1	1	1
15 to 20	1	1	1	1	1	1	1	1	1	1	1	1	1
20 to 30	1	1	1	1	1	1	1	1	1	1	1	1	1
30 to 40	1	1	1	1	1	1	1	1	1	1	1	1	1
40 to 50	1	1	1	1	1	1	1	1	1	1	1	1	1
50 to 60	1	1	1	1	1	1	1	1	1	1	1	1	1
60 to 70	1	1	1	1	1	1	1	1	1	1	1	1	1
70 to 80	1	1	1	1	1	1	1	1	1	1	1	1	1
80 to 90	1	1	1	1	1	1	1	1	1	1	1	1	1
Over 90	1	1	1	1	1	1	1	1	1	1	1	1	1
Totals	184	7	4	14	8	3	4	1	6	9	12	783	1
Diseases of the circulatory system.													
10 to 15	1	1	1	1	1	1	1	1	1	1	1	1	1
15 to 20	1	1	1	1	1	1	1	1	1	1	1	1	1
20 to 30	1	1	1	1	1	1	1	1	1	1	1	1	1
30 to 40	1	1	1	1	1	1	1	1	1	1	1	1	1
40 to 50	1	1	1	1	1	1	1	1	1	1	1	1	1
50 to 60	1	1	1	1	1	1	1	1	1	1	1	1	1
60 to 70	1	1	1	1	1	1	1	1	1	1	1	1	1
70 to 80	1	1	1	1	1	1	1	1	1	1	1	1	1
80 to 90	1	1	1	1	1	1	1	1	1	1	1	1	1
Over 90	1	1	1	1	1	1	1	1	1	1	1	1	1
Totals	249	8	3	39	9	4	7	10	28	22	21	1734	1

CERTAIN SELECTED CAUSES IN NEW JERSEY FOR THE YEAR 1914.—Continued.

Janitors, etc	Japanners.	Jewelers.	Laborers.	Laundresses.	Laundrymen.	Lawyers.	Leather workers.	Letter Carriers.	Linemen.	Litholeum workers.	Locksmiths.	Machinists.	Managers, etc.	Manufacturers.	Masons.	Merchants	Milkmen.	Millers.	Miners.	Musicians.
19	1	11	433	5	2	5	18	3	2	1	1	45	32	9	37	48	3	5	7	7
14	4	98	5	2	7	21	17	6	14	36	2	1	1	1	1	1	1	1	1	1
7	3	44	1	2	3	8	5	5	3	13	1	1	1	1	1	1	1	1	1	1
13	1	6	188	3	7	10	19	16	11	17	53	3	5	1	6	1	1	1	1	6
2	1	14	1	1	1	5	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	6	38	1	1	1	8	11	3	6	8	13	7	3	6	13	1	1	1	1	1
15	9	67	2	2	3	6	9	10	10	17	35	10	10	10	38	1	1	1	1	1
11	2	61	1	1	5	5	3	1	1	3	13	1	1	1	3	1	1	1	1	1
41	17	382	5	3	17	21	31	1	1	52	44	34	38	127	1	4	3	4	3	4

TABLE 5.—SHOWING AGES AT DEATH AND OCCUPATIONS OF DECEDENTS FROM

	Occupations												
	Farmers.	Firemen.	Fishermen.	Florists, etc.	Foundrymen.	Glassblowers.	Glassworkers.	Grinders, etc.	Grocers.	Hatters.	Hotel keepers.	Housekeepers and housewives.	Ice-men.
Diseases of the respiratory system (Consumption and pneumonia excepted.)	10 to 15.												
	15 to 20.												
	20 to 30.												
	30 to 40.												
	40 to 50.												
	50 to 60.												
	60 to 70.												
	70 to 80.												
80 to 90.													
Over 90.													
Totals.	11	1	1	1	1	1	1	1	1	1	1	13	
Diseases of the digestive system.	10 to 15.												
	15 to 20.												
	20 to 30.												
	30 to 40.												
	40 to 50.												
	50 to 60.												
	60 to 70.												
	70 to 80.												
80 to 90.													
Over 90.													
Totals.	25	2	4	1	1	1	1	3	3	2	319	1	
Diseases of the genito-urinary system and adnexa.	10 to 15.												
	15 to 20.												
	20 to 30.												
	30 to 40.												
	40 to 50.												
	50 to 60.												
	60 to 70.												
	70 to 80.												
80 to 90.													
Over 90.													
Totals.	52	5	5	11	4	2	3	2	9	10	13	616	
Pneumonia.	10 to 15.												
	15 to 20.												
	20 to 30.												
	30 to 40.												
	40 to 50.												
	50 to 60.												
	60 to 70.												
	70 to 80.												
80 to 90.													
Over 90.													
Totals.	124	11	7	11	6	4	4	10	16	18	1066	1	
Violent deaths. (Suicide excepted.)	10 to 15.												
	15 to 20.												
	20 to 30.												
	30 to 40.												
	40 to 50.												
	50 to 60.												
	60 to 70.												
	70 to 80.												
80 to 90.													
Over 90.													
Totals.	71	17	13	11	7	2	6	1	7	1	3	236	

CERTAIN SELECTED CAUSES IN NEW JERSEY FOR THE YEAR 1914.—Continued.

	Causes																					
	Janitors, etc.	Japanners.	Jewelers.	Laborers.	Laundresses.	Laundrymen.	Lawyers.	Leather workers.	Letter carriers.	Linemen.	Linoleum workers.	Locksmiths.	Machinists.	Managers, etc.	Manufacturers.	Masons.	Merchants.	Milkmen.	Millers.	Miners.	Musicians.	
Diseases of the respiratory system (Consumption and pneumonia excepted.)	10 to 15.																					
	15 to 20.																					
	20 to 30.																					
	30 to 40.																					
	40 to 50.																					
	50 to 60.																					
	60 to 70.																					
	70 to 80.																					
80 to 90.																						
Over 90.																						
Totals.	4		2	20	1		1	1	1		1	1	6	1			3	3	1		1	
Diseases of the digestive system.	10 to 15.																					
	15 to 20.																					
	20 to 30.																					
	30 to 40.																					
	40 to 50.																					
	50 to 60.																					
	60 to 70.																					
	70 to 80.																					
80 to 90.																						
Over 90.																						
Totals.	5	2	64	1		1	3	1	1		1	15	6	2	5	14	1	1	1	1	1	
Diseases of the genito-urinary system and adnexa.	10 to 15.																					
	15 to 20.																					
	20 to 30.																					
	30 to 40.																					
	40 to 50.																					
	50 to 60.																					
	60 to 70.																					
	70 to 80.																					
80 to 90.																						
Over 90.																						
Totals.	15	6	126	4	3	6	9	1	1			18	20	8	13	30	1	1	1	1	2	
Pneumonia.	10 to 15.																					
	15 to 20.																					
	20 to 30.																					
	30 to 40.																					
	40 to 50.																					
	50 to 60.																					
	60 to 70.																					
	70 to 80.																					
80 to 90.																						
Over 90.																						
Totals.	26	1	7	217	3	1	5	7	3	2	1	32	30	12	17	70	1	3			1	
Violent deaths. (Suicide excepted.)	10 to 15.																					
	15 to 20.																					
	20 to 30.																					
	30 to 40.																					
	40 to 50.																					
	50 to 60.																					
	60 to 70.																					
	70 to 80.																					
80 to 90.																						
Over 90.																						
Totals.	17	7	234	5	1	3	8					2	26	17	8	16	37	2		4		

TABLE 5.—SHOWING AGES AT DEATH AND OCCUPATIONS OF DECEDENTS FROM

All other diseases and causes of death.	Occupations														
	Agents.	Architects.	Artists.	Bakers.	Bankers, etc.	Barbers.	Bartenders, etc.	Blacksmiths	Boatmen.	Boiler makers.	Bookkeepers.	Brass and Iron workers.	Brick makers.	Butchers.	Button makers.
10 to 15.															
15 to 20.															
20 to 30.	1	1													
30 to 40.	1	1													
40 to 50.	1		1												
50 to 60.	1		1												
60 to 70.	1														
70 to 80.					1										
80 to 90.	1														
Over 90.															
Totals.....	6	1	2	2	2	8	17	10	10	1	10	7	10		2

CERTAIN SELECTED CAUSES IN NEW JERSEY FOR THE YEAR 1914.—Continued.

Cause	FACTORY EMPLOYES.	
	Male.	Female.
Chauffeur.	1	1
Chemists.		
Cigar makers.	1	
Civil engineers.		
Clergymen.		
Clerks.	11	26
Constables and policemen.	1	1
Contractors and carpenters.	6	4
Cooks.	9	3
Coopers.	1	1
Dentists.	1	1
Dressmakers.	4	4
Drivers, etc.	15	6
Druggists.	1	1
Dyers.		
Editors and journalists.	1	1
Electricians.	1	1
Engineers.	1	1
Engravers.	1	1
Expressmen.	1	1
Male.	1	4
Female.	1	1
Totals.....	12	12

TABLE 5.—SHOWING AGES AT DEATH AND OCCUPATIONS OF DECEDENTS FROM

All other diseases and causes of death.	Occupations												
	Farmers.	Firemen.	Fishermen.	Florists, etc.	Foundrymen.	Glassblowers.	Glassworkers.	Grinders, etc.	Grocers.	Hatters.	Hotel keepers.	Housekeepers and housewives.	Ice-men.
10 to 15.	2											1	
15 to 20.	10												
20 to 30.	7	1	1	1									
30 to 40.	11	2	1	1									
40 to 50.	13	1	1	1	1								
50 to 60.	14	1	1	2	1								
60 to 70.	18	1	1	1	1	3		6					
70 to 80.	16	1	1	1	1	1		1	2				
80 to 90.	1									1			
Over 90.	8											55	
Totals.....	99	5	4	5	5	10	1	13	4	7	1140	1	

CERTAIN SELECTED CAUSES IN NEW JERSEY FOR THE YEAR 1914.—Continued.

Causes	Occupations																				
	Janitors, etc.	Japanners.	Jewelers.	Laborers.	Laundresses.	Laundrymen.	Lawyers.	Leather workers.	Letter Carriers.	Linemen.	Linoleum workers.	Locksmiths.	Machinists.	Managers, etc.	Manufacturers.	Masons.	Merchants.	Milkmen.	Millers.	Miners.	Musicians.
12				10																	
1				24																	
1				33	1																
5				36	1																
3				33																	
5				28																	
3				28																	
1				25																	
3				9																	
1				3																	
12	1	7	199	2	1	4	6	3	1	1	21	23	2	5	41	1	2	4	5		

TABLE 6.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN ASBURY PARK.	AGE PERIODS.					
	Under one month.	Under 1 year "not including under 1 mo."	AGE PERIODS.			
			1 to 4	5 to 9	10 to 14	15 to 20
Typhoid fever	1					
Tuberculosis of the lungs	28					
Syphilis	37	1		1	2	
Cancer and other malignant tumors of the stomach, liver, intestines, rectum	40				1	
Cancer and other malignant tumors of other organs or of organs not specified	41					
Diabetes	45					
Cerebral hæmorrhage, apoplexy	50					
Paralysis without specified cause	64	1				
General paralysis of the insane	66					
Acute endocarditis	67					
Organic diseases of the heart	78		1			
Angina pectoris	79			1		
Diseases of the arteries, atheroma aneurysm, etc.	80					
Embolism and thrombosis	81					
Acute bronchitis	82					
Chronic bronchitis	89	1				
Bronchopneumonia	90					
Pneumonia	91	1				
Diseases of the pharynx	92	2				
Other diseases of the stomach (cancer excepted)	100	4	1			
Diarrhoea and enteritis (Under 2 years)	103					
Diarrhoea and enteritis (2 years and over)	104	1				
Appendicitis and typhlitis	105	6				
Acute nephritis	108					
Bright's disease	119					
Other diseases of the kidneys and annexa	120					
Puerperal septichæmia	122					
Following childbirth (not otherwise defined)	137					
Congenital malformations (stillbirths not included)	140					
Congenital debility, icterus and sclerema	150					
Other diseases peculiar to early infancy	151	6				
Suicide by asphyxia	152	4				
Poisoning by food	156					
Conflagration	164					
Traumatism by other crushing (vehicles, railroad, land-slides, etc.)	166	1				
Total deaths, 175.	175					

Death-rate 11.95.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914.

AGE PERIODS.											SEX.		NATIVITY.		SOCIAL CONDITION.				
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.
2	1	2	1	3	3	1	2	2				11	7	17	1	10	1	6	2
												1	3	1	1	1			
												2	2	2	2	1	1		
	1				1	2	1					4	1	4	1	2	1	2	
	1				1	5	1	4				4	2	10	2	2	3	7	
												1	1	1	1	1			
												1	2	3	3	1	1		
	1	1	3		1	6	5	3	3			8	15	18	5	10	4	1	1
												1	1	2	1	1			
												1	1	1	1	1			
												3	11	10	4	3	2	9	
												1	1	1	1	1			
												1	1	1	1	1	1		
												1	1	1	1	1	1		
												3	7	9	1	3	6	1	
												1	1	1	1	1	2	4	
												3	3	5	2	1	2	4	
												1	1	1	1	1	6		
												1	1	1	1	1	1		
												2	2	4	4	3			
												1	1	1	1	1	1		
												14	9	19	4	16		1	
												1	1	1	1	1	1	7	
												1	1	1	1	1	1		
												1	1	1	1	1	1		
												4	9	9	5	9	5		
												1	1	1	1	1	1		
												1	1	1	1	1	1		
												1	2	3	1	1	1		

TABLE 11.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES,
THE YEAR ENDING

DEATHS IN BRIDGETON.	AGE PERIODS.						
	Under one month.	Under 1 year "not including under 1 mo."	1	5	10	15	20
			to 4	to 9	to 14	to 19	to 24
Senility.....	154						
Suicide by firearms.....	159						
Suicide by cutting or piercing instruments.....	160						
Burns (conflagration excepted).....	167						
Accidental drowning.....	169			1	1		
Traumatism by firearms.....	170						
Traumatism by fall.....	172	1			1		
Traumatism by machines.....	174						
Traumatism by other crushing (vehicles, railroad, land-slides, etc.).....	175		1	2			
Excessive cold.....	178						

Total deaths, 242. Death-rate 16.49.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR
DECEMBER 31, 1914—Continued.

AGE PERIODS.												SEX.		NATIVITY.		SOCIAL CONDITION.			
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.
					2	1	2	1	1			4	3	4	1	2	1	4	1
					1							1	1	1		1			
	1				1							3	1	3		1	2		
												1	1	1			1	1	
					1				1			1	1	2	1	1	1	1	
1	1			1							3	3	3	6	1	1	5		1

TABLE 15.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN EAST ORANGE.	AGE PERIODS.					
	Under one month.	Under 1 year, "not including under 1 mo."				
		1 to 4	5 to 9	10 to 14	15 to 19	20 to 24
Senility.....	154					
Suicide by poison.....	155					
Suicide by asphyxia.....	156					
Suicide by hanging or strangulation.....	157					
Other acute poisonings.....	165					
Burns (conflagration excepted).....	167	1				
Absorption of deleterious gases (conflagration excepted).....	168					
Traumatism by fall.....	172			1		
Traumatism by other crushing (vehicles, railroad, land-slides, etc.).....	175					
Homicide by firearms.....	182					

Total deaths, 373. Death-rate, 8.94.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914—Continued.

AGE PERIODS.											SEX.		NATIVITY.		SOCIAL CONDITION.				
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.
				1		1		2	3			2	2		5	1		4	
1				1				1				1	1	2		1	2		
								1				1	1	1		1			
								1				1	1	1		1			
								1				1	2	2	2	1	1	1	
								1				1	2	1	1	1	1	1	
1			2			1						3	2	2	1	3	1		
												1	1	1	1	1			

TABLE 16.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN ELIZABETH.	AGE PERIODS.						
	Under one month.	Under 1 year, "not including under 1 mo."	1	5	10	15	20
			to 4	to 9	to 14	to 19	to 24
Typhoid fever.....	1						1
Measles.....	6						
Scarlet fever.....	7	5	10	1			1
Whooping cough.....	8	4	4	2			
Diphtheria and croup.....	9	12	5				
Influenza.....	10	10					
Dysentery.....	14						
Erysipelas.....	18						1
Purulent infection and septichæmia.....	20						1
Tetanus.....	24						
Pellagra.....	26	1					
Tuberculosis of the lungs.....	28		2				9
Acute miliary tuberculosis.....	29	1		1	7		
Tuberculous meningitis.....	30						
Abdominal tuberculosis.....	31	5	12	1			
Pott's disease.....	32		1	1			
Syphilis.....	37						
Cancer and other malignant tumors of the buccal cavity.....	39	2					
Cancer and other malignant tumors of the stomach, liver.....	40						
Cancer and other malignant tumors of the peritonæum, intestines, rectum.....	41						
Cancer and other malignant tumors of the female genital organs.....	42						
Cancer and other malignant tumors of the breast.....	43						
Cancer and other malignant tumors of the skin.....	44						
Cancer and other malignant tumors of other organs or of organs not specified.....	45	1	1		1		
Acute articular rheumatism.....	47						
Chronic rheumatism and gout.....	48						1
Diabetes.....	50						
Leuchæmia.....	53						
Anæmia, chlorosis.....	54						
Other general diseases.....	55						
Alcoholism (acute or chronic).....	56						
Encephalitis.....	60						
Simple meningitis.....	61		1				
Including: Cerebrospinal fever.....	61A	1	1				
Locomotor ataxia.....	62						
Other diseases of the spinal cord.....	63						
Cerebral hæmorrhage, apoplexy.....	64						1
Paralysis without specified cause.....	66						1
General paralysis of the insane.....	67						
Epilepsy.....	69						
Convulsions of infants.....	71	1	2				1
Other diseases of the nervous system.....	74						
Diseases of the ears.....	76						
Pericarditis.....	77						1
Acute endocarditis.....	78						1
Organic diseases of the heart.....	79						
Angina pectoris.....	80	1	2	4	4	4	
Diseases of the arteries, atheroma aneurysm, etc.....	81						
Embolism and thrombosis.....	82						
Diseases of the veins (varices, hæmorrhoids, phlebitis, etc.).....	83						
Diseases of the lymphatic system (lymphangitis, etc.).....	84						
Diseases of the larynx.....	87						
Acute bronchitis.....	89	5	1				
Chronic bronchitis.....	90	2	3				
Bronchopneumonia.....	91	3	19	6			
Pneumonia.....	92	1	14	8	3	1	3
Pleurisy.....	93		2	3			1

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914.

AGE PERIODS.											SEX.		NATIVITY.		SOCIAL CONDITION.				
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.
1	1											2	2	3	1	2	2		
6												6	10	16			16		
7												9	4	6			6		
8												9	8	15			17		
9												11	5	14			16		
10												1		2			1		
14												1		3			1		
18												3		2			2		
20												1		1			1		
24												1		1			1		
26												1		1			1		
28												1		2			1		
29												9	11	9	14	6	2	1	
30												1		1			1		
31												1		1			1		
32												15	4	18	1	1	18		
37												2		2			2		
39												2		1			1		
40												3		3			3		
41												14	16	13	17	19	5	6	
42												4	3	4	3	6	1		
43												7	5	2	4		3		
44												5	3	2	3	1	1		
45												1		1			1		
47												16	7	7	16	12	6	5	
48												3	3	3	3	1	3	2	
50												2		1	1	1	1		
53												6	10	10	6	8	5	3	
54												3		3		3			
55												3	4	4		3	1		
56												3		1		2		1	
60												2	1	2		1		1	
61												2		2		1			
61A												1		1		1			
62												2	1	3		1			
63												1		1		1			
64												1	3	3	1	3	1		
66												30	30	30	30	25	8	23	1
67												1	4	5	1	1		4	
69												1	1	1	1	1			
71												1	1	1	1	2			
74												2	1	3			3		
76												1	1	2		1			
77												2		2		2			
78												1		1		1			
79												1	11	10	12	8		2	
80												2	2	3	7	12	8		
81												67	73	69	71	64	37	39	
82												1	3	3	1	1	3	3	
83												19	13	19	13	8	3	21	
84												1	1	1	1	1			
87												3		2		1			
89												1	1	2		2		1	
90												9	4	9		4	10		
91												2	4	2		4	2	2	
92												19	18	32		3	33	1	
93												49	43	57	35	29	40	23	

TABLE 21.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN HACKENSACK.	AGE PERIODS.					
	Under one month.	Under 1 year, "not including under 1 mo."				
			1 to 4	5 to 9	10 to 14	15 to 20
Senility	154					
Suicide by firearms	159					
Suicide by cutting or piercing instruments	160					
Suicide by crushing	162					
Conflagration	166					
Burns (conflagration excepted)	167		2		1	
Absorption of deleterious gases (conflagration excepted)	168					
Accidental drowning	169			1	1	
Traumatism by fall	172			1		
Traumatism by other crushing (vehicles, railroad, land-slides etc)	175					2
Homicide by other means	184					

Total deaths, 252. Death-rate, 15.35.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914—Continued.

AGE PERIODS.											SEX.		NATIVITY.		SOCIAL CONDITION.					
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.	
					1	1		1		1		1	1		2				1	1
1						1							1		1		1			
1													3		1		1			
	1											1			1					
					1							3	3	3	3	1	2	3		
			1			2						4	1	4	1	1	2	2		
					1							1						1	1	

TABLE 27.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN KEARNY.	AGE PERIODS.					
	Under one month.	Under 1 year, "not including under 1 mo."	AGE PERIODS.			
			1 to 4	5 to 9	10 to 14	15 to 20	20 to 24
Bright's disease	120					1
Other diseases of the kidneys and annexa	122					
Diseases of the bladder	124					
Puerperal septichæmia	137					1
Congenital malformations (stillbirths not included)	150	5				
Congenital debility, icterus and sclerema	151	18	3			
Other diseases peculiar to early infancy	152	3				
Senility	154					
Suicide by poison	155					1
Suicide by hanging or strangulation	157					
Suicide by firearms	159					
Other suicides	163					
Accidental drowning	169			1	1	
Traumatism by firearms	170				1	
Traumatism by fall	172		1	1		
Traumatism by other crushing (vehicles, railroad, land-slides etc.)	175		1		2	
Effects of heat	179					
Electricity (lightning excepted)	181					
Cause of death not specified or ill-defined	189	1				

Total deaths, 307 Death-rate, 13.52

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914—Continued.

AGE PERIODS.												SEX		NATIVITY.		SOCIAL CONDITION.			
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.
1			1	1	1	2	4	5	3			11	7	11	7	11	1	6	
								2	1			3	1	1		1		2	
												3	2	5	1		1		
												11	10	21			21		
								1	1			3	2	3			3		
	1											2		2			2		
		1										1		1	1	1			
			1		1							1		1			1		
					1				1			1		3	1	1	2		1
							3		1			1	2	4	2	2	2	2	
1	1	1	1		2							7	2	6	3	5	3		1
1								1				1		1			1		
												1		1			1		

TABLE 29.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN LONG BRANCH.	AGE PERIODS.					
	Under one month.	Under 1 year, "not including under 1 mo."	1 to 5		10 to 20	
			to 4	to 9	to 14	to 19	to 24
Congenital malformations (stillbirths not included)	150					
Congenital debility, icterus and sclerema	151					
Other diseases peculiar to early infancy	152					
Senility	154					
Suicide by firearms	159					
Burns (conflagration excepted)	167		1	1		
Absorption of deleterious gases (conflagration excepted)	168				1	1
Accidental drowning	169					
Traumatism by firearms	170			1		
Traumatism by fall	172				1	
Traumatism by machines	174					
Traumatism by other crushing (vehicles, railroad, land-slides, etc.)	175					1 3
Homicide by firearms	182					1
Homicide by cutting or piercing instruments	183					1
Homicide by other means	184	1				
Cause of death not specified or ill-defined	189		1			1

Total deaths, 312. Death-rate, 21.99.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914—Continued.

AGE PERIODS.												SEX.		NATIVITY.		SOCIAL CONDITION.				
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.	
												6	1	1						
												2	1	2						
										1		1	1	4	1					
	1	1		1				1				1	5	4	1					
	2	1	3	2				1				8	1	4	2	2	2			1
												1	1	1	4	5	2			
												4	1	3	2	3	1			
												1	1	1	2	1				
	1											1		1		3				
	1		3	1				3	1			13		10	3	6	5	2		
												1	1	2		1	1			
												2			1		1			
												1		2	1	1	2			
												1	1	1	1	2	2			

TABLE 31.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN MONTCLAIR.	AGE PERIODS.						
	Under one month.	Under 1 year, "not including under 1 mo."	AGE PERIODS.				20 to
			1 to 4	5 to 9	10 to 14	15 to 19	
Congenital malformations (stillbirths not included)	2	1					
Congenital debility, icterus and sclerema	17	19					
Other diseases peculiar to early infancy	11						
Senility						1	
Suicide by poison						1	
Suicide by asphyxia						1	
Burns (conflagration excepted)			1	4			
Absorption of deleterious gases (conflagration excepted)						1	
Accidental drowning			1				
Traumatism by fall							
Traumatism by machines							
Traumatism by other crushing (vehicles, railroad, land-slides, etc)				1		1	
Homicide by other means						1	
Other external violence			1				

Total deaths, 359. Death-rate, 13.97.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914—Continued.

AGE PERIODS.												SEX.		NATIVITY.		SOCIAL CONDITION.				
25 to	30 to	35 to	40 to	45 to	50 to	55 to	60 to	70 to	80 to	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.	
												1	2	3				3		
												16	20	36				36		
												5	6	11				11		
												2	2	1						2
												1	1	1	1					
												1	4	5		1		1		
												1	1	1				1		
												1	1	1				1		
												1	1	2				1	1	
												1	1	1		1				
												5	1	3	3	3		3		
1												1	1	2				2		
												1	1	1				1		

TABLE 32.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN MORRISTOWN.	AGE PERIODS.						
	Under one month.	Under 1 year, "not including under 1 mo."	1	5	10	15	20
			to 4	to 9	to 14	to 19	to 24
Other accidents of labor	136						
Puerperal septichæmia	137						
Puerperal albuminuria and convulsions	138						2
Gangrene	142						
Congenital malformations (stillbirths not included)	150						
Congenital debility, icterus and sclerema	151	11	10				
Other diseases peculiar to early infancy	152	4					
Senility	154						
Suicide by poison	155						
Suicide by firearms	159						
Burns (conflagration excepted)	167		2				1
Absorption of deleterious gases (conflagration excepted)	168						
Accidental drowning	169		1	1			
Traumatism by firearms	170				1		1
Traumatism by fall	172						
Traumatism by other crushing (vehicles, railroad, land-slides, etc)	175		1				1
Homicide by firearms	182						
Homicide by other means	184	1					

Total deaths, 264. Death-rate, 20.63.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914—Continued.

AGE PERIODS.													SEX.		NATIVITY.		SOCIAL CONDITION.			
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.	
1													1	1		1				
	2												3	3		3				
		1											2	1		1				
													1	1		1				
									1				1	1		1				
									4				3	10		21			21	
													3	1		4			4	
				1									4	3		1		1	3	
													1	1		1				
													2	1		1				
													1	1		1				
													2	1		2			3	
													1	1		1				
													2	1		1			2	
										1			3	1		4			2	
													1	1		1			1	
													7	6		1		4	2	
													1	1		1			1	
													1	1		1			1	

TABLE 33.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN NEWARK.	AGE PERIODS.						
	Under one month.	Under 1 year, "not including under 1 mo."	1	5	10	15	20
			to 4	to 9	to 14	to 19	to 24
Typhoid fever	1		4	3	5	2	
Measles	20	50	3				
Scarlet fever	3	26	10	6	3	1	
Whooping cough	7	17	11				
Diphtheria and croup	9	10	55	16			
Including: Croup	9A	1					
Influenza	10	2	1		1		
Dysentery	14						
Erysipelas	18	8	3	1	1	1	
Other epidemic diseases	19	1					
Purulent infection and septicaemia	20	1	1	1	1	1	
Tetanus	24		1				
Mycoses	25						
Tuberculosis of the lungs	28	3	7	3	7	42	
Acute miliary tuberculosis	29	1		3	1	2	
Tuberculous meningitis	30	8	25	5	4	2	
Abdominal tuberculosis	31	2	2				
Pott's disease	32	3		1	1	1	
White swellings	33						
Tuberculosis of other organs	34	1	1				
Disseminated tuberculosis	35						
Rickets	36	3	1				
Syphilis	37	1	6				
Gonococcus infection	38					1	
Cancer and other malignant tumors of the buccal cavity	39			1			
Cancer and other malignant tumors of the stomach, liver	40						
Cancer and other malignant tumors of the peritoneum, intestines, rectum	41				1	2	
Cancer and other malignant tumors of the female genital organs	42			1			
Cancer and other malignant tumors of the breast	43		2	8	6	8	
Cancer and other malignant tumors of the skin	44	1	1	3	3	3	
Cancer and other malignant tumors of other organs or of organs not specified	45	1	3	1		2	
Other tumors (tumors of the female genital organs excepted)	46						
Acute articular rheumatism	47		6	2	3		
Chronic rheumatism and gout	48	1	1	3		1	
Diabetes	50			2	1	1	
Exophthalmic goitre	51	3	4	1	5	11	
Leuchæmia	53	1		2			
Anæmia, chlorosis	54	2	1	1		2	
Other general diseases	55	2		2	1	2	
Alcoholism (acute or chronic)	56	1					
Chronic lead poisoning	57	3	5	10	8	3	
Encephalitis	60						
Simple meningitis	61	1					
Including: Cerebrospinal fever	61A	3	6	1	2		
Locomotor ataxia	62						
Other diseases of the spinal cord	63	2	1				
Cerebral hæmorrhage, apoplexy	64						
Softening of the brain	65	1	2	2	14	10	
Paralysis without specified cause	66						
General paralysis of the insane	67						
Other forms of mental alienation	68						
Epilepsy	69	1					
Convulsions of infants	71	8	3				
Chorea	72						
Neuralgia and neuritis	73						
Other diseases of the nervous system	74	2	1				
Diseases of the ears	76	1					

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914.

AGE PERIODS.											SEX.		NATIVITY.		SOCIAL CONDITION.				
25 to	30 to	35 to	40 to	45 to	50 to	55 to	60 to	70 to	80 to	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.
1	1	1	2	5	1			1				16	10	20	6	8	17	1	
2												41	34	73	2	2	73		
												32	17	43	6	1	48		
												11	17	28			28		
		1						2				39	47	83	3		85	1	
												1		9			1		
			2	1	1	1	1	1	1			8	4	9	3	6	4	2	
												6	1	6			7		
		1		1	3	2	1	3	3	1		24	6	22	8	9	17	4	
												1		1			1		
				1	1	2		1				6	5	10	1	4	6	1	
												1		1			1		
												1		1					
81	89	102	80	64	69	33	27	11	3			480	218	444	254	330	292	75	1
												5	6	9			8		
												30	18	38	10	3	45		
		1	3			2	1					9	4	11	2	4	9		
												4	3	5	2	1	6		
		1										1		1		2	2		
												3	1	2	2	1	2	1	
		1										3	1	4		1	2	1	
												1		1		1	4		
												14	5	13	6	8	10	1	
												1		2		2			
												9	2	8	3	7	3	1	
		2	3	3	8	10	24	18	43	20	4	69	67	49	87	76	13	47	
		3	1	5	7	5	25	7	1			25	32	29	28	30	8	19	
														29					
														21	30	4	16		
		1										1	20	16	6	16	1	5	
												6	1	4	3	2	5		
														28	27	32	12	11	
												21	34	28	2	3			
												8	18	16	10	8	12	6	
												3	3	3	7	3	3	3	1
												38	37	29	46	45	10	20	
												1		2		3			
												6	6	5	7	5	5	2	
												5	8	11	2	6	4	3	
												4	4	5	1	4	4		
												33	5	24	14	13	19	3	3
												2		2		2			
												4		4		4			
												9		14	1	15			
												9	4	12	1	1	12		
												4		3		3			
												6		5	2	5	2	4	
												105	106	89	122	87	24	98	2
												3	3	2	2	1			
												3	5	1	5	1	1	2	
												2	2	2	7	2	2	2	
												6	6	4	6	4	1	1	
												7	7	4	3	2	6	1	
												4	4	2	2	1	1	1	
												4	3	3	1	4	3	1	
												3	5	6	2	6	4	1	
												6	4	7	4	2	4	1	
												4	1	1	4	1	1		

TABLE 33.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN NEWARK.	AGE PERIODS.						
	Under one month.	Under 1 year, "not including under 1 mo."	1	5	10	15	20
			to 4	to 9	to 14	to 19	to 24
Pericarditis.....	77						
Acute endocarditis.....	78		2	4	1		1
Organic diseases of the heart.....	79	1	1	8	9	9	10
Angina pectoris.....	80						
Diseases of the arteries, atheroma aneurysm, etc.....	81						
Embolism and thrombosis.....	82		1				1
Diseases of the veins (varices, hæmorrhoids, phlebitis, etc.).....	83						
Diseases of the lymphatic system (lymphangitis, etc.).....	84		2	2			
Hæmorrhage; other diseases of the circulatory system.....	85	1					
Diseases of the larynx.....	87		1				
Diseases of the thyroid body.....	88			2			
Acute bronchitis.....	89	15	25	9			1
Chronic bronchitis.....	90		1		8	1	1
Bronchopneumonia.....	91	18	111	117	8	4	2
Pneumonia.....	92	12	59	77	15	8	5
Pleurisy.....	93		2	1			13
Pulmonary congestion, pulmonary apoplexy.....	94						
Gangrene of the lung.....	95						
Asthma.....	96		1				
Other diseases of the respiratory system (tuberculosis excepted).....	98		1				
Diseases of the pharynx.....	100		2	3			
Diseases of the œsophagus.....	101						2
Ulcer of the stomach.....	102				1		
Other diseases of the stomach (cancer excepted).....	103		3			1	
Diarrhœa and enteritis (Under 2 years).....	104	31	294	61			1
Diarrhœa and enteritis (2 years and over).....	105		9	6	1		
Appendicitis and typhlitis.....	108		2	4	1	2	
Hernias, intestinal obstructions.....	109	1	6	2	1		1
Other diseases of the intestines.....	110	1	1	1			1
Acute yellow atrophy of the liver.....	111						1
Cirrhosis of the liver.....	113						
Biliary calculi.....	114	3	6	6	7	10	6
Other diseases of the liver.....	115		1	4	4	3	3
Diseases of the spleen.....	116			1	1	4	2
Other diseases of the digestive system (cancer and tuberculosis excepted).....	118	1	1	2	1	1	
Acute nephritis.....	119		2	9	3	1	2
Bright's disease.....	120			4	1	2	4
Other diseases of the kidneys and annexa.....	122	2	1	2		1	7
Calculi of the urinary passages.....	123						1
Diseases of the bladder.....	124						
Other diseases of the urethra, urinary abscess, etc.....	125						
Diseases of the prostate.....	126						
Uterine tumor (noncancerous).....	129						
Other diseases of the uterus.....	130		3	1	1	3	5
Cysts and other tumors of the ovary.....	131						
Salpingitis and other diseases of the female genital organs.....	132		2	1	1	1	1
Accidents of pregnancy.....	134						
Puerperal hæmorrhage.....	135						
Other accidents of labor.....	136						1
Puerperal septichæmia.....	137						2
Puerperal albuminuria and convulsions.....	138						6
Puerperal phlegmasia alba dolens, embolus, sudden death.....	139						3
Following childbirth (not otherwise defined).....	140						2
Gangrene.....	142						
Furuncle.....	143						
Acute abscess.....	144						1
Other diseases of the skin and annexa.....	145						1
Diseases of the bones (tuberculosis excepted).....	146	2	2	2	2	2	2

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914—Continued.

AGE PERIODS.											SEX.	NATIVITY.		SOCIAL CONDITION.					
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.		Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.
3	5	6	4	7	8	10	12	10	3	7	3	1	29	42	22	34	17	13	
19	15	32	28	36	50	58	120	108	40	7		275	286	292	269	272	107	181	1
												5	10	5	10	9			
		1	1	4	2	9	10	29	56	31	2	73	72	76	69	59	9	75	2
												3	11	7	5	2	7		
												1	2	1	2		3		
												1	1	1	1	1			
												2	1	3	2	1			
												2	2	2	2	2	1		
												26	47	58	15	6	52	15	
												12	17	15	14	10	3	16	
												159	145	272	32	18	269	17	
												255	188	310	133	158	228	54	3
												15	7	10	8	6	8	4	
												6	3	6	3	5	4		
												1	1	1	1	1			
												6	4	4	6	3	1	6	
												2	3	1	1	1			
												6	3	8	1	1	7	1	
												1	1	1	1	1			
												3	4	4	8	15	7	2	
												11	13	16	8	15	7	2	
												9	14	19	4	7	12	4	
												210	176	382	4	386			
												29	26	33	22	11	28	16	
												26	18	29	15	22	19	3	
												18	23	25	16	16	8	1	
												5	8	8	5	2	8	3	
												2	2	2	1	1			
												46	17	32	31	36	13	14	
												4	17	8	13	3	5		
												4	7	7	4	3	3	5	
												1	1	1	1	1			
												5	3	6	2	4	2		
												36	28	43	21	30	25	9	
												206	188	187	207	206	51	132	5
												10	5	10	5	8	6	1	
												4	1	1	3	2	1	1	
												9	1	4	6	6	1	3	
												10	1	4	2	1	1	1	
												9	2	6	4	5	2	4	
												6	7	7	2	6	2	1	
												5	4	2	3	5	1	1	
												5	5	5	5	3	1	1	
												6	4	2	1	1	1		
												6	2	2	6	6	6	9	
												5	5	3	5	5	1		
												23	9	14	22	1			
												13	4	4	12	1			
												5	2	3	5	1			
												1	1	1	1	1			
												1	1	1	1				
												1	1	1	1				
												1	1	1	1				
												2	2	2	1	1	1	1	
												2	2	2	1	1	1	2	
												8	6	11	3	3	10	1	

TABLE 33.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN NEWARK.	AGE PERIODS.						
	Under one month.	Under 1 year "not included under 1 mo."	1	5	10	15	20
			to 4	to 9	to 14	to 19	to 24
Other diseases of the organs of locomotion	149						
Congenital malformations (stillbirths not included)	150	41	13				
Congenital debility, icterus and sclerema	151	241	46				
Other diseases peculiar to early infancy	152	70	1				
Senility	154						
Suicide by poison	155				1		
Suicide by asphyxia	156					4	
Suicide by hanging or strangulation	157					2	
Suicide by drowning	158						
Suicide by firearms	159					1	
Suicide by cutting or piercing instruments	160					1	
Suicide by jumping from a high place	161						
Poisoning by food	164			1			
Other acute poisonings	165	1	2				
Conflagrations	166					1	
Burns (conflagration excepted)	167		1	17	4	1	1
Absorption of deleterious gases (conflagration excepted)	168	2	4	1		1	2
Accidental drowning	169			3	5	4	
Traumatism by firearms	170			1			
Traumatism by fall	172			1	2	1	5
Traumatism by machines	174					3	2
Traumatism by other crushing (vehicles, railroad, landslides, etc)	175			6	7	5	3
Excessive cold	178						6
Effects of heat	179						
Lightning	180						
Electricity (lightning excepted)	181					1	1
Homicide by firearms	182						1
Homicide by cutting or piercing instruments	183						
Homicide by other means	184	3			1	1	
Other external violence	186					1	1
Cause of death not specified or ill-defined	189			4	2		

Total deaths, 5,830. Death-rate, 14.62.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914—Continued.

AGE PERIODS.											SEX.		NATIVITY.		SOCIAL CONDITION.				
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.
1												26	28	1					
												146	141	54					
												51	20	237					54
												10	22	71					287
												10	22	14	18	4			71
												8	8	7	8	9	1		1
												17	8	9	16	11			9
												6	4	4	2	3			6
												4	1	1	4	3			2
												18	9	9	12	5			3
												6	6	3	4	2			1
												5	5	4	1	1			1
												4	3	5	2	2			4
												3	4	4	3	5			2
												14	19	30	3	26			13
												23	12	20	15	10			12
												19	1	10	10	13			6
												55	23	41	37	22			21
												9	9	5	4	4			2
												51	9	40	20	20			7
												3	3	1	2	1			1
												3	3	2	4	2			1
												1	1	1	1	1			1
												3	3	2	4	2			1
												3	3	4	4	5			1
												1	1	1	1	1			1
												8	4	9	3	6			1
												3	3	2	1	2			1
												2	4	1	1	5			1
												2	4	6	6	6			1

TABLE 34.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN NEW BRUNSWICK.	AGE PERIODS.					
	Under one month.	Under 1 year, "not including under 1 mo."				
			1 to 4	5 to 9	10 to 14	15 to 24
Uterine tumor (noncancerous).....	129					
Cysts and other tumors of the ovary.....	131					
Salpingitis and other diseases of the female genital organs.....	132					
Other accidents of labor.....	136					1
Puerperal septicemia.....	137					
Puerperal albuminuria and convulsions.....	138					
Gangrene.....	142					
Acute abscess.....	144					
Other diseases of the skin and annexa.....	145	1				
Diseases of the bones (tuberculosis excepted).....	146					1
Congenital malformations (stillbirths not included).....	150	6	2			
Congenital debility, icterus and sclerema.....	151	22	14			
Other diseases peculiar to early infancy.....	152	5	1			
Lack of care.....	153	1				
Senility.....	154					
Suicide by poison.....	155					1
Suicide by hanging or strangulation.....	157					
Suicide by firearms.....	159					
Burns (conflagration excepted).....	167		2			
Accidental drowning.....	169				2	
Traumatism by firearms.....	170			1		
Traumatism by fall.....	172		3	1	1	
Traumatism by other crushing vehicles, railroad, land-slides, etc).....	175		1		2	1
Homicide by firearms.....	182					
Homicide by cutting or piercing instruments.....	183					
Other external violence.....	186					
Cause of death not specified or ill-defined.....	189					

Total deaths, 492. Death-rate, 20.85.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914—Continued.

AGE PERIODS.											SEX.		NATIVITY.		SOCIAL CONDITION.					
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.	
1	1											1		1		1				
1	1											1		1		1				
1												2		2		2				
		2	2									2		2		2				
				1					1			1		1		1		1		
												1		1		1				
												3		5		8				
												25	11	36			36			
												5	1	6			6			
						1	1	2	1	1		1		1			6			
												1	5	3	3				5	
					1		1					1		1		1		1		
												1	1	1		2		1		
1												4		3		1		2		
		1					1					1		2		1		2		
												3		2		1		2		
1		1			1			1	1			1		1		1		2		
												6	4	6		4	2	5	2	1
1	1		1		3							8	2	5		5	3	4	1	2
1	1											2		2		2		1		
		1										1		1		1				
												1		1		1				
1												1	2		2		1			

TABLE 37.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN ORANGE.	AGE PERIODS.					
	Under one month.	Under 1 year "not including under 1 mo."	1	5	10	15
			to 4	to 9	to 14	to 19	to 24
Bright's disease	120					
Other diseases of the kidneys and annexa	122					
Diseases of the prostate	126					
Other diseases of the uterus	130					
Cysts and other tumors of the ovary	131					
Salpingitis and other diseases of the female genital organs	132					
Puerperal septichæmia	137					2
Puerperal albuminuria and convulsions	138					
Gangrene	142					
Furuncle	143					
Diseases of the bones (tuberculosis excepted)	146					1
Congenital malformations (stillbirths not included)	150	4	2	2		
Congenital debility, icterus and sclerema	151	15	4			
Other diseases peculiar to early infancy	152	8				
Senility	154					
Suicide by poison	155					
Suicide by asphyxia	156					
Suicide by hanging or strangulation	157					
Suicide by drowning	158					
Suicide by firearms	159					
Suicide by jumping from a high place	161					
Burns (conflagration excepted)	167	1	1			
Absorption of deleterious gases (conflagration excepted)	168	1	1			
Traumatism by fall	172		1			1
Traumatism by machines	174					
Traumatism by other crushing (vehicles, railroad, land-slides, etc.)	175					1
Effects of heat	179					
Homicide by other means	184					

Total deaths, 521. Death-rate, 16.05.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914—Continued.

AGE PERIODS.													SEX.		NATIVITY.		SOCIAL CONDITION.			
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over	Not stated	Male	Female	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.	
1	1	1	1	7	2	4	11	5	3			16	20	24	12	25	6	5		
					1		2					3		2	1	3	1			
							3		1			4		3	1	3				
1		1										1	2	2		3		2		
1		1										1	2	2		2				
								1				1		1	1	1				
	1											1		1	1	1				
												2		2					1	
												4	4	8			1			
												14	5	19			19			
												5	3	8			8			
												1	2	2			2			
												1	1	1			1			
												1	1	1			1			
												1	1	1			1			
												1	1	1			1			
												2	2	3			3			
												2	2	2			2			
												1	3	4			4			
												1	3	4			3			
												1		1			1			
												5		4			3			
												1		1			1			

TABLE 39.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN PATERSON.	AGE PERIODS.					
	Under one month.	Under 1 year, "not including under 1 mo."	1	5	10	15
			to 4	to 9	to 14	to 19
			20	24		
Typhoid fever.....	1					3
Measles.....	6					
Scarlet fever.....	7					
Whooping cough.....	8					
Diphtheria and croup.....	9					
Influenza.....	10					
Dysentery.....	14					
Erysipelas.....	18					
Purulent infection and septchæmia.....	20					
Pellagra.....	26					
Tuberculosis of the lungs.....	28					
Acute miliary tuberculosis.....	29					
Tuberculous meningitis.....	30					
Abdominal tuberculosis.....	31					
Pott's disease.....	32					
White swellings.....	33					
Tuberculosis of other organs.....	34					
Rickets.....	36					
Syphilis.....	37					
Cancer and other malignant tumors of the buccal cavity.....	39					
Cancer and other malignant tumors of the stomach, liver.....	40					
Cancer and other malignant tumors of the peritonæum, intestines, rectum.....	41					
Cancer and other malignant tumors of the female genital organs.....	42					
Cancer and other malignant tumors of the breast.....	43					
Cancer and other malignant tumors of other organs or of organs not specified.....	45					
Acute articular rheumatism.....	47					
Chronic rheumatism and gout.....	48					
Diabetes.....	50					
Exophthalmic goitre.....	51					
Leuchæmia.....	53					
Anæmia, chlorosis.....	54					
Other general diseases.....	55					
Alcoholism (acute or chronic).....	56					
Chronic lead poisoning.....	57					
Encephalitis.....	60					
Simple meningitis.....	61					
Including: Cerebrospinal fever.....	61A					
Locomotor ataxia.....	62					
Other diseases of the spinal cord.....	63					
Cerebral hæmorrhage, apoplexy.....	64					
Softening of the brain.....	65					
Paralysis without specified cause.....	66					
General paralysis of the insane.....	67					
Other forms of mental alienation.....	68					
Epilepsy.....	69					
Convulsions of infants.....	71					
Neuralgia and neuritis.....	73					
Other diseases of the nervous system.....	74					
Other diseases of the eyes and their adnexa.....	75					
Diseases of the ears.....	76					
Pericarditis.....	77					
Acute endocarditis.....	78					
Organic diseases of the heart.....	79					
Angina pectoris.....	80					
Diseases of the arteries, atheroma aneurysm, etc.....	81					
Embolism and thrombosis.....	82					
Hæmorrhage; other diseases of the circulatory system.....	85					
Diseases of the larynx.....	87					
Acute bronchitis.....	89					
Chronic bronchitis.....	90					
Bronchopneumonia.....	91					
Pneumonia.....	92					
Pleurisy.....	93					

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914.

AGE PERIODS.											SEX.		NATIVITY.		SOCIAL CONDITION.							
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 64	65 to 69	70 to 74	75 to 79	80 to 84	Over 90.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.	
5	2													5	2	5	2			5		
9														9	2	12				13		
11														11	1	1				1		
4														4	4	4				8		
11														11	10	20				20		
2														2	2	1				1		
1														1	1	3				1		
1														1	1	1				1		
1														1	1	4				4		
18	26	19	15	15	10	11	4	1						88	62	96	54	70	64	16		
2	2													3	3	3	1	2				
1														1	1	1				2		
1														1	1	2				1		
1														1	1	1				1		
2	1	1												6	3	7				7		
1														2	2	2				1		
1														2	2	13	37	26	3	20	1	
1														5	13	8	10	10	2	6		
1														20	12	8	13	2	5			
1														9	4	5	5	2	2			
3														13	11	9	15	14	3	7		
6														6	5	4	8		3	3		
1														1	1	1	1	1	1			
3														13	13	14	12	4	10			
1														2	2	2						
1														2	2	1	1	1	1			
1														2	3	2	3	1	1			
1														4	4	3	1	2	2			
1														3	3	2	1	2				
1														1	1	2	1	2				
1														2	2	1	1	1	2			
1														2	6	10	1	1	11			
1														2	3	3	2	1	4			
1														2	2	2	2	2	1	4		
1														3	3	3	1	2	2			
1														1	1	2	1	2				
1														2	2	1	1	1	2			
1														2	6	10						
1														3	3	3	2	1	1			
1														1	1	2	1	1	2			
1														2	2	1	1	1	2			
1														1	1	2	2	1	2			
1														1	1	2	2	1	2			
1														1	1	2	2	1	2			
3	3	6	13	18	19	23	62	49	19	3			122	117	88	151	116	38	85	3	1	
1														1	1	1	4	3	2			
1														26	26	17	35	22	4	25	1	
1														2	2	3	1	2	1	1		
1														1	1	1	1	1				
2														1	2	3			3			
2														8	11	14	5	6	7	6		
2														5	9	6	8	5	2	7		
5	7	4	7	8	15	16	16	17	1				39	35	55	19	13	50	11			
2	1												66	70	77	59	57	23				
10													10	6	12	4	7	8				

TABLE 39.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN PATERSON.	AGE PERIODS.						
	Under one month.	Under 1 year, "not including under 1 mo."	1	5	10	15	20
			to 4	to 9	to 14	to 19	to 24
Pulmonary congestion, pulmonary apoplexy.	94						
Asthma.	96						
Other diseases of the respiratory system (tuberculosis excepted).	98					1	
Other diseases of the mouth and annexe.	99			1			
Diseases of the pharynx.	100		1		1	1	
Diseases of the esophagus.	101						
Ulcer of the stomach.	102					2	
Other diseases of the stomach (cancer excepted).	103		1				
Diarrhoea and enteritis (Under 2 years).	104	4	65	10			
Diarrhoea and enteritis (2 years and over).	105		2	4	4	2	
Appendicitis and typhlitis.	108		1			5	
Hernias, intestinal obstructions.	109	1	1		1	1	
Other diseases of the intestines.	110						
Acute yellow atrophy of the liver.	111						
Hydatid tumor of the liver.	112						
Cirrhosis of the liver.	113						
Biliary calculi.	114					1	
Other diseases of the liver.	115						
Simple peritonitis (nonpuerperal).	117						
Other diseases of the digestive system (cancer and tuberculosis excepted).	118				2	1	
Acute nephritis.	119			1			
Bright's disease.	120			1	2	2	
Other diseases of the kidneys and annexe.	122						
Diseases of the prostate.	126						
Uterine tumors (noncancerous).	129						
Other diseases of the uterus.	130						
Cysts and other tumors of the ovary.	131						
Accidents of pregnancy.	134					1	
Puerperal hemorrhage.	135						
Puerperal septichemia.	137				2		
Puerperal albuminuria and convulsions.	138				3		
Acute abscess.	144						
Other diseases of the skin and annexe.	145	1	1				
Diseases of the bones (tuberculosis excepted).	146			1			
Congenital malformations (stillbirths not included).	150	13					
Congenital debility, icterus and sclerema.	151	57	27				
Other diseases peculiar to early infancy.	152	19	3				
Lack of care.	153	1					
Senility.	154						
Suicide by poison.	155				1	1	
Suicide by asphyxia.	156						
Suicide by hanging or strangulation.	157				2		
Suicide by drowning.	158						
Suicide by firearms.	159						
Suicide by cutting or piercing instruments.	160						
Poisoning by food.	164				1		
Other acute poisonings.	165						
Conflagration.	166						
Burns (conflagration excepted).	167	1	3	1		1	
Absorption of deleterious gases (conflagration excepted).	168		1			1	
Accidental drowning.	169		1		1		
Traumatism by fall.	172		1	2		1	
Traumatism by machines.	174					1	
Traumatism by other crushing (vehicles, railroad, land-slides, etc.).	175		2	3	1	2	
Injuries by animals.	176					3	
Effects of heat.	179				1		
Electricity (lightning excepted).	181						
Homicide by cutting or piercing instruments.	183						
Homicide by other means.	184						
Fractures (cause not specified).	185						
Other external violence.	186						
Cause of death not specified or ill-defined.	189		3				

Total deaths, 1,814. Death-rate, 13.25.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914.—Continued.

AGE PERIODS.											SEX.		NATIVITY.		SOCIAL CONDITION.				
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.
							2	1	2			2	1		3	1			
							2	2				3	1		4	1			
							1	1				1	1	2		2			
	1	2					1	1				1	1	1					
			1					1				5	2	4					
		1	2					1				1	1	1	3	3	4		
				2				1				4	3	3	3	5	1	1	
					1		2	2				4	3	6	4	5	6	1	
		2	1		2	1	1	3	4	1		3	7	7	7	7	7	1	
	2	2	1		2	1	1	3	3	1		5	5	12	10	6	7	6	
												16	12	21	7	5	20	2	
												9	1	7	7	6	4	1	
												2	2	4	7	6	2		
												10	9	1	1	2			
												4	4	5	14	12	7		
												5	5	3	7	5	1		
												1	1	1		1			
												1	1	1		1			
	2	2	1		1	6	1	3	5	3		19	11	15	15	11	10	9	
	4	2	5	2	8	13	7	29	21	14		47	62	46	63	48	18	43	
												1	2	3	3	3			
												7	3	3	4	4	3		
													3	3	2	2	1		
													1	1	1	1			
													4	4	3	3			
													3	2	2	3			
													3	3	3	3			
													7	7	7	7			
													1	1	1	1			
													4	4	3	2			
													1	1	1	1			
													2	2	2	2			
													5	6	7	4			
													7	6	2	2			
													2	1	3	3			
													13	7	13	7			
													1	1	1	4			
													23	4	16	11			
													1	1	8	11			
													1	1	1	1			
													1	1	1	1			
													1	1	1	1			
													1	1	1	1			
													1	1	1	1			
													1	1	1	1			
													2	3	3	3			

TABLE 40.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN PERTH AMBOY.	AGE PERIODS.					
	Under one month.	Under 1 year, "not including under 1 mo."				
			1 to 4	5 to 9	10 to 14	15 to 20
Other diseases of the liver.....	115					
Diseases of the spleen.....	116					
Simple peritonitis (nonpuerperal).....	117					
Acute nephritis.....	119	1	2	2	1	
Bright's disease.....	120					
Other diseases of the kidneys and annexa.....	132					
Salpingitis and other diseases of the female genital organs.....	132					
Puerperal hæmorrhage.....	135					1
Puerperal septicæmia.....	137					1
Diseases of the bones (tuberculosis excepted).....	146					
Congenital malformations (stillbirths not included).....	150	10	1			
Congenital debility, icterus, and sclerema.....	151	29	12			
Other diseases peculiar to early infancy.....	152	13				
Senility.....	154					
Suicide by poison.....	155					1
Suicide by hanging or strangulation.....	157					
Suicide by drowning.....	158					
Burns (conflagration excepted).....	167					1
Absorption of deleterious gases (conflagration excepted).....	168		2			1
Accidental drowning.....	169					1
Traumatism by fall.....	172					1
Traumatism by machines.....	174	1				1
Traumatism by other crushing (vehicles, railroad, land-slides, etc.).....	175		2	1		2
Excessive cold.....	178					
Effects of heat.....	179					
Homicide by cutting or piercing instruments.....	183					1
Homicide by other means.....	184					
Other external violence.....	186					
Cause of death not specified or ill-defined.....	189	1	6			

Deaths, 571. Death-rate, 15.39.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914—Continued.

AGE PERIODS.												SEX.		NATIVITY.		SOCIAL CONDITION.			
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.
			1					1				1	1	1		1		1	
					1							1	1	1		1		1	
		1	3									3	8	9		4		7	
	2	4	1	3	1	1	5	2	1			2	10	6	12	13	2	2	
								1				1	1	1					
		1										1	1	1					
	2	1	2									2	4	2	4				
												1	6	2					
												4	10	10					
												22	19	41					
												7	6	13					
									2			2	2	13					
												1	1	2		1			
												1	1	1		1			
												2	1	2		1			
												7	1	2		2			
												5	1	2		4			
												1	1	1		4			
												13	1	7		7			
	1		2	1	2		1	1				1	1	1		5			
												3				1			
												2				1			
												1				1			
	1	1										1	1			1			
												5	2	7		7			

TABLE 42.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES,
THE YEAR ENDING

DEATHS IN PLAINFIELD.	AGE PERIODS.					
	Under one month.	Under 1 year "not including under 1 mo."	1 to 4	5 to 9	10 to 14	15 to 20
Accidents of pregnancy.....	134					1
Puerperal albuminuria and convulsions.....	138					1
Acute abscess.....	144					1
Diseases of the bones (tuberculosis excepted).....	146		1			
Congenital malformations (stillbirths not included).....	150					
Congenital debility, icterus and sclerema.....	151	1				
Other diseases peculiar to early infancy.....	152	7				
Senility.....	154					
Suicide by hanging or strangulation.....	157					
Suicide by firearms.....	159					
Suicide by cutting or piercing instruments.....	160					
Burns (conflagration excepted).....	167		1			
Absorption of deleterious gases (conflagration excepted).....	168					
Accidental drowning.....	169		1			
Traumatism by fall.....	172				1	
Traumatism by other crushing (vehicles, railroad, land-slides, etc.).....	175					

Total deaths, 296. Death-rate, 13.32.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR
DECEMBER 31, 1914—Continued.

AGE PERIODS.												SEX.		NATIVITY.		SOCIAL CONDITION.				
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.	
1		1										1	3	2		1	3			
												1	1	1			1			
												2	1	3			3			
												10	7	17			17			
												5	2	7			7			
								1				1	1	1					1	
	1											1	2	1		1	1		1	
	1	1										1	1	1		1		1	1	
								1				1	1	1		1		1		
									1			1	1	1		1		1		
												2	1	2		1	1	1	1	
												2	1	2		1	1	1	1	
	3						1					4		4		3	1			

TABLE 46.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

	AGE PERIODS.					
	Under one month.	Under 1 year, "not including under 1 mo."				
			1 to 4	5 to 9	10 to 14	15 to 20
DEATHS IN RIDGEWOOD.						
Diphtheria and croup.....	9		1			
Tuberculosis of the lungs.....	28				2	2
White swellings.....	33					
Cancer and other malignant tumors of the stomach, liver	40					
Cancer and other malignant tumors of the peritonæum,	41					4
intestines, rectum.....						
Acute articular rheumatism.....	47					
Diabetes.....	50					
Simple meningitis.....	61		1			
Cerebral hæmorrhage, apoplexy.....	64					
Acute endocarditis.....	78					
Organic diseases of the heart.....	79			1	2	1
Diseases of the arteries, atheroma aneurysm, etc.	81				3	7
Embolism and thrombosis.....	82		1			4
Diseases of the larynx.....	87	1			1	1
Acute bronchitis.....	89					
Pneumonia.....	92		1			
Pulmonary congestion, pulmonary apoplexy.....	94				3	3
Other diseases of the stomach (cancer excepted).....	103				1	1
Diarrhœa and enteritis (Under 2 years).....	104		1			
Diarrhœa and enteritis (2 years and over).....	105					
Appendicitis and typhlitis.....	108				1	
Hernias, intestinal obstructions.....	109					
Cirrhosis of the liver.....	113				2	1
Biliary calculi.....	114				1	1
Acute nephritis.....	119			1	1	1
Bright's disease.....	120					
Congenital debility, icterus and sclerema.....	151		1			1
Suicide by hanging or strangulation.....	157	3			1	1
Traumatism by other crushing (vehicles, railroad, land-	175				1	1
slides, etc.).....						

Total deaths, 86. Death-rate, 13.10.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914.

AGE PERIODS.											SEX.		NATIVITY.		SOCIAL CONDITION.				
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.
1	1	1	1	1		1						3	7	1	3	4	1	6	
							1	1				2	1	1	2	2	1		
				1				1				1	2	1	3	4	1		
						1		1				1	1	1	1	1	1		
							1	1	1			1	2	3	2	1	2	1	
		1					3	7	4			1	7	9	7	3	2	11	
								1	1			1	2	2	2	1	2	2	
										1		1	1	1	1	1	1		
							3	3	6			8	5	7	6	3	6	1	
								1				1	1	1			1	1	
												1	1	1			1	1	
												1	1	1	1		1	1	
												1	2	3	2	3	3		
												1	1	1	1	1	1	3	
							1	1				1	1	1	1	2	1	2	
	1	1						1				4		3	1	2	2		

TABLE 52.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN SOUTH ORANGE.	AGE PERIODS.					
	Under one month.	Under 1 year "not included under 1 mo."	1 to 4	5 to 9	10 to 14	15 to 24
Whooping cough	8					
Tuberculosis of the lungs	28	1	1			
Tuberculous meningitis	30			1		
Cancer and other malignant tumors of the stomach, liver, intestines, rectum	40					
Cancer and other malignant tumors of the breast	41					
Chronic rheumatism and gout	43					
Diabetes	48					
Other diseases of the spinal cord	50			1		
Cerebral hæmorrhage, apoplexy	63				1	
Convulsions of infants	64					
Acute endocarditis	71		1			
Organic diseases of the heart	78		1			
Angina pectoris	79					
Diseases of the arteries, atheroma aneurysm, etc	80					
Pneumonia	81					
Diarrhœa and enteritis (Under 2 years)	92	1	1	1		
Diarrhœa and enteritis (2 years and over)	104					
Acute nephritis	105					
Bright's disease	119					
Diseases of the prostate	120					
Congenital debility icterus and sclerema	126					
Traumatism by other crushing (vehicles, railroad, land-slides, etc)	151	1				
	175					

Total deaths, 54. Death-rate, 7.85.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1914.

AGE PERIODS.												SEX.		NATIVITY.		SOCIAL CONDITION.				
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	Over 90.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.	
1	2	1	1			1						4	2	2		5		2		
				1			1	1					1	1			1	1		
													3	2	1				2	
							1						1	2					2	
									2				2	1	1				2	
												1	2	1	1				1	
												1	3	3				1	2	
												2	4	1	1				3	
												1	1	2	2			1	1	
												1	3	2	2			1	3	
												1	1	1	1				1	
												6	4	5	5	4	4	2	2	
												1	1	1				1		
												1	1	1				1		
												1	1	1	1				1	
												1	1	1	1				2	
												1	1	1	1				1	
												1	1	1	1				1	
												1	1	1	1				1	
												1	1	1	1				1	

TABLE 55.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES.
THE YEAR ENDING

DEATHS IN TRENTON.	AGE PERIODS.					
	Under one month.	Under 1 year, "not including under 1 mo."	AGE PERIODS.			
			1 to 4	5 to 9	10 to 14	15 to 20
Traumatism by firearms	170					1
Traumatism by fall	172	1		1		1
Traumatism in mines and quarries	173					
Traumatism by machines	174					
Traumatism by other crushing (vehicles, railroad, land-slides, etc)	175		2	2	1	2
Injuries by animals	176					4
Lightning	180					
Homicide by firearms	182					1
Homicide by cutting or piercing instruments	183					
Other external violence	186					1
Ill-defined organic disease	187					1
Cause of death not specified or ill-defined	189		1			

Total deaths, 1,912 Death-rate, 17.88

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR
DECEMBER 31, 1914.

AGE PERIODS.											SEX.		NATIVITY.		SOCIAL CONDITION.					
25 to 29	30 to 34	35 to 39	40 to 44	45 to 49	50 to 54	55 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Not stated.	Male.	Female.	United States.	Elsewhere.	Married.	Single.	Widowed.	Not stated.	
1	2	1	2	1	3	2	2	2	3			13	8	15	6	12	1	4	5	
1	1	1	1	1	1	1						5		3	2	5				
6	2	3	1	3	2	1	2					28	3	16	15	14	13		4	
1												1		1			1			
1	1	1	1									1	1	1			1			
1	1	2	1	1								2		1	1	2	1		1	
						1						2		2	5	3	2	1		1
												1	1	1	1	1	1			
												1	1	1	1	1	1			

List of Licensed Health Officers and Sanitary Inspectors.

Following is a list of the persons who have successfully passed the examination provided for in the act approved April 18th, 1903:

HEALTH OFFICERS.

†Budd H. Obert.....Asbury Park.	†John T. McClure.....Harrison.
Hiram Williams, M.D.....Passaic.	Lewis O. Tayntor.....Montclair.
Alex. Marcy, Jr., M.D.....Riverton.	John J. Haley, M.D.....Gloucester City.
†Wm. S. Green, M.D.....Paterson.	†John Hall.....Long Branch.
Walter Taylor, M.D.....Jersey City.	John S. Wilson.....Bridgeton.
Maria M. Vinton, M.D.....East Orange.	Hyman I. Goldstein, M.D.....Camden.
†Edward Gulon, M.D.....Atlantic City.	†E. Irving Cronk, M.D.....New Brunswick.
†Fred W. Sell, M.D.....Rahway.	John L. Lund, M.D.....Perth Amboy.
Howard L. Baumgartner.....Asbury Park.	†Charles McNabb.....Bound Brook.
Lewis L. Sharp, M.D.....Palmyra.	J. C. Loper, M.D.....Bridgeton.
Ferdinand N. Sauer, M.D.....Jersey City.	Henry C. James, M.D.....Mays Landing.
†George T. Tracy, M.D.....Beverly.	†A. M. Heron, M.D.....Lakewood.
†Chester H. Wells.....Montclair	George H. Taylor, M.D.....Maplewood.
†Duncan W. Blake, Jr., M.D., Gloucester City.	L. F. Meloney, M.D.....Clifton.
Samuel D. Mayhew, M.D.....Bridgeton.	†I. N. Griscom, M.D.....Ocean City.
†John O'Brien, Jr.....Montclair.	†James L. Ollif.....Plainfield.
†James A. Exton, M.D.....Arlington.	†Harriet O. Mattison.....Plainfield.
Frank H. Streightoff.....Montclair.	†Lester Hamblet.....Asbury Park.
G. W. Fithian, M.D.....Perth Amboy.	†John H. Winslow, M.D.....Vineland.
†Henry MacDonald.....Newark.	Grant P. Curtis, M.D.....Town of Union.
Leon R. Thurlow.....Plainfield.	Robert N. Hoyt.....Summit.
†Edward B. Rogers, M.D.....Collingswood.	J. Scott MacNutt.....Orange.
†J. I. Hoverder, M.D.....Atco.	William D. Sayre, M.D.....Red Bank.
W. U. Kurtz, M.D.....Asbury Park.	William A. Westcott, M.D.....Berlin.
William W. Brooke, M.D.....Bayonne.	H. W. Ingling, M.D.....Freehold.
John K. Adams, M.D.....Orange.	Fred H. Stover.....Boston, Mass.
†Thomas J. Duffield.....Asbury Park.	Nelson Elliott, M.D.....Passaic.
Henry D. Abbott, M.D.....Bayonne.	William M. Barnes, M.D.....Milburn.
Eugene H. Sullivan.....Orange.	John A. C. Tull, M.D.....Ventnor.
†J. Alex. Browne, M.D.....Paterson.	William C. Craig, M.D.....Ridgewood.
Perkins Boynton.....Little Falls.	Charles B. Bleasby, M.D.....Garfield.
Ellsmore Sutes, M.D.....Bridgeton.	Jostah Meigh, M.D.....Bernardsville.
Marcus W. Newcomb, M.D.....Burlington.	George T. Palmer.....Trenton.
Charles P. Eaton.....Jersey City.	Carl T. Pomeroy.....Plainfield.
†V. M. D. Marcy, M.D.....Cape May.	Fritz M. Arnolt.....Hackensack.
†Milton L. Somers, M.D.....Atlantic City.	†Joseph C. Saile.....Bloomfield.
†Harry H. Pettit, M.D.....Ridgewood.	†William J. Willsey.....New Brunswick.
†John T. Connolly.....Bayonne.	†Frank A. Frederick, Sr.....West Hoboken.
†Charles J. Larkey.....Bayonne.	Frank A. Frederick, Jr.....West Hoboken.
†T. Lee Adams.....Ocean City.	†Morris Farkas, M.D.....West Orange.
†R. H. Parsons, M.D.....Mount Holly.	†A. S. Fell, M.D.....Trenton.
Jay E. Kilpatrick.....Montclair.	Alfred A. Mutter, M.D.....Arlington.
William Schuler.....Orange.	W. R. Rieck, M.D.....Arlington.
William G. Schaufler, M.D.....Lakewood.	Max Colton.....New Brunswick.
†William H. Shipps, M.D.....Bordentown.	†John G. Taylor.....Dover.
Morris W. Clouse, M.D.....Kearny.	F. M. Hoffman, M.D.....New Brunswick.
†Joseph J. Craven, M.D.....Jersey City.	George W. Finke, M.D.....Hackensack.
Selskar M. Gunn.....Orange.	Talbot Reed, M.D.....Atlantic City.
Joseph Payne, M.D.....Midland Park.	†Frank J. Osborne.....Montclair.
†Jay G. Foose.....Montclair.	†James E. Brooks.....Glen Ridge.
John J. Broderick, M.D.....Jersey City.	Richard Bew, M.D.....Atlantic City.
Henry H. Brinkerhoff, M.D.....Jersey City.	†Nathan A. Cohen, M.D.....Wildwood.
†George W. Lawrence, M.D.....Lakewood.	†William Morris.....Roselle Park.
†James J. Hagan.....Jersey City.	†N. J. Randolph Chandler.....Plainfield.
†Charles S. Mills, M.D.....Riverton.	Elias J. Marsh, M.D.....Paterson.
†Joseph Wantoch, M.D.....Carteret.	A. I. Goehrig.....Trenton.
†William H. Iszard, M.D.....Camden.	†Edward P. Essertier, M.D.....Hackensack.
Ralph O. Clock, M.D.....Burlington.	†John N. Ryan, M.D.....Passaic.
Fred A. Stetter.....Asbury Park.	Alexander Weir, Jr.....West Hoboken.
Charles S. Brady, M.D.....Town of Union.	†T. Dudley Ballinger.....Princeton.
†H. T. Partree, M.D.....Eatontown.	†Henry V. Amerman.....Kearny.

†In the service of the local board of health.

‡Deceased.

Emery Marvel, M.D. Atlantic City.
 William H. Schmidt, M.D. Atlantic City.
 Joseph V. Bergin, M.D. Paterson.
 Charles J. Merrell. Bound Brook.
 Gobin Stair. Jersey City.
 Collis H. Case. Plainfield.
 Stanley H. Nichols, M.D. Long Branch.
 Roy G. Perham, M.D. Hasbrouck Heights.
 †Frank H. Edsall, M.D. Jersey City.
 Ellen B. Smith, M.D. Salem.
 T. A. Clay, M.D. Paterson.
 Arthur G. Wigley. New Brunswick.
 †R. Clifford Erickson. Long Branch.
 Philip Morris, C.E. Passaic.
 Maximilian Jakoby, M.D. Chrome.
 Gordon G. Walton, M.D. Paterson.
 †Ralph L. Huttenloch. Montclair.

Morton W. Huttenloch. Montclair.
 †Chas. A. Griffin, D.V.M. Orange.
 †William B. Palmer. Orange.
 William J. Whalen, M.D. Paterson.
 Edward R. Hunter, M.D. Delanco.
 Chas. A. Keating, M.D. Paterson.
 Louis J. Richards. Elizabeth.
 W. Brand Smith. Belleville.
 John J. Casey. Montclair.
 Martin E. Alpers. Plainfield.
 Samuel S. DeCou. Dover.
 David N. Rappoport, M.D. Trenton.
 William Veenstra, M.D. Philadelphia, Pa.
 Chas. V. Craster, M.D. Paterson.
 Shirley W. Wynne, M.D. Rosebank, N. Y.
 Henry J. Spalding, M.D. New York City.
 Wm. L. Holt, M.D. Union Hill.
 Maplewood.

Stanley S. Williams. Newark.
 Patrick J. Brogan. Newark.
 Samuel Bachman. Newark.
 †Sadie H. Layton. Asbury Park.
 †Frank A. Frederick. West Hoboken.
 Andrew Carney, Jr. North Plainfield.
 †John J. Belbey. Morristown.
 Gustavus E. Freideman. Newark.
 †Ralph L. Huttenloch. Montclair.
 William McKeon. Paterson.
 †H. W. Hartman, M.D. Keyport.
 †John T. McClure, Jr. Harrison.
 Adolph O. Elsassner. Newark.
 John Q. Larkin. Jersey City.
 H. L. Harley, M.D. Pleasantville.
 Frederick W. Nichols. Newark.
 †George C. Leo. Washington.
 Clarence I. Palmer. Newark.
 Fritz M. Arnolt. Albany, N. Y.
 B. F. Seaman, M.D. Raritan.
 George A. West. Raritan.
 C. P. Deyoe, M.D. Ramsey.
 J. Alonzo Beek, M.D. Gloucester City.
 Frederick A. Stetter. Asbury Park.
 Edward A. Cleary. Newark.
 Thomas P. Walsh. Newark.
 Thomas F. Boles. Newark.
 †William B. Palmer. Orange.
 Frank Brouwer, M.D. Toms River.
 Thomas J. Carter. Newark.
 †Charles A. Keating, M.D. Paterson.
 †Wm. C. Allen. Trenton.
 †Edward L. Titus. Trenton.
 Lloyd M. Van Ness. New Brunswick.
 Max J. Colton. New Brunswick.
 †Henry V. Amerman. Kearny.
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 Milton E. Baxter. Jersey City.
 †N. J. R. Chandler. Plainfield.
 †Richard H. L. Osthoff. Bogota.
 M. William O'Gorman, M.D. Jersey City.
 William D. Pelan. Trenton.
 Charles F. Martin. Newark.
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 Collis H. Case. Plainfield.
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 Harry E. Watt. New Brunswick.
 †Harry M. Hitchner. Salem.
 Richard Jackson. Newark.
 John P. Corrigan. Newark.

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 William Van Loo. Paterson.
 †John H. Concannon. Woodbridge.
 Fred J. Anderson. Hoboken.
 J. Frank Summers. Hoboken.
 Wallace M. Gill. Salem.
 Joseph Whalley. Perth Amboy.
 John H. Rowland. Passaic.
 William F. Kearney. New Brunswick.
 Thomas A. Tonge. Paterson.
 Henry J. Seymour. Paterson.
 George R. Sees. Roselle Park.
 Harry K. Berry. Atlantic City.
 Ruth S. Sickler. Paterson.
 J. F. Travers. Salem.
 Leo G. Duffy. New Brunswick.
 Robert A. Buhler. Newark.
 Patrick J. Hennessy. Belmar.
 John J. Casey. Jersey City.
 Gilbert C. Leigh. Plainfield.
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 Edward S. Rogers. Asbury Park.
 S. Alton Burk. Trenton.
 Adolph E. Hoernig. Atlantic City.
 Helen E. Forbes, R.N. Newark.
 Fred S. Bootay, M.D. Morristown.
 Albert Van Eerde, M.D. Belleville.
 William R. Smith, M.D. Hawthorne.
 Timothy J. Scott. Roselle Park.
 James A. Howard. Summit.
 John Morlot. Trenton.
 H. Wesley Jack. Paterson.
 A. M. Grier. Collingswood.
 Paul Scott. Penns Grove.
 Wm. Tompkins, Jr. Penns Grove.
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 Abraham J. Newman, M.D. Princeton.
 Edward W. McGiverin, M.D. Jersey City.
 Hilliard L. Lockwood, M.D. Jersey City.
 Cullen B. Maxson, M.D. Jersey City.
 John P. Stout, M.D. Jersey City.
 Elmer M. Mount, Jr., M.D. Jersey City.
 Frank J. McLoughlin, M.D. Jersey City.
 Daniel J. Donohue, M.D. Jersey City.
 Burdick Decker. Paterson.
 James E. Rich. Trenton.

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 †George W. Gilmore. Newark.
 †C. Robertson, M.D. Jersey City.
 †John T. McClure. Harrison.
 †John G. Taylor. Dover.
 †Charles E. Bellows. Bridgeton.
 Albert E. Geissler. Kearny.
 Thomas Ainge. Lansing, Mich.
 Charles S. Voorhis. Palmyra.
 †Lewis E. Boutillier. Newark.
 †Joseph C. Salle. Bloomfield.
 †Casper Benz. Newark.
 Robert W. Meeker. Plainfield.
 †John K. Bennett, M.D. Gloucester City.
 William H. Addis. Plainfield.
 William W. Heberton, M.D. South Orange.
 Eric Ordell. Newark.
 John Greaves. Jersey City.
 John E. Rowe, D.V.S. Summit.
 George N. Smith. Newark.
 †Frank Dencklan. Plainfield.
 J. H. C. Hunter. Dover.
 Chauncey V. Bunnell. Jersey City.
 †Charles F. Conrad. Newark.
 Percy W. Sipp. Newark.
 †H. S. Winterhalter. Bayonne.
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 W. J. E. Seder. Newark.
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 David R. Thompson. Delaware City, Del.
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 Charles W. Harreys, M.D. Ridgewood.
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 †Lyndon E. Tuttle, M.D.V. Bernardsville.
 †James L. Ollif. Plainfield.
 J. J. Reason, M.D. Carteret.
 †Alfred C. Benedict, M.D. South Orange.
 †John H. Winslow, M.D. Vineland.
 †Harry R. Ingalls. Asbury Park.
 Edward F. Flynn. Newark.
 †Elvia Scott. South Orange.
 Harris Day, M.D. Chester.
 A. I. Goehrig. Trenton.
 Harry E. Moffet. Newark.
 Irvin C. Dakin. Newark.
 William Gleuck, Jr. Newark.
 Fred S. Ball, M.D. Lakewood.
 †Felix McGee. Millburn.
 Charles E. Divine. Newark.
 †Charles McNabb. Bound Brook.
 James J. Waters. Newark.

†John L. Lund, M.D. Perth Amboy.
 Edward Mulvaney, M.D. Jersey City.
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 †J. L. Ebbels. Montclair.
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 Joseph R. Bartlett. Atlantic City.
 Frank V. Wilkinson. Newark.
 John F. Boylan. Bayonne.
 Leavett F. Kelley. Newark.
 Chas. E. Messerschmidt. Newark.
 Samuel Denton. Bayone.
 Thomas E. Reynolds. Atlantic City.
 Claudis E. McNeeney, M.D. Jersey City.
 Philip Morris, C.E. Passaic.
 James A. Woods. Atlantic City.
 Newton De Baun. Hackensack.
 Fred C. Harris. Jersey City.
 Richard Savage. Orange.
 Bernard F. O'Hara. Jersey City.
 Christian Petry. Jersey City.
 Garrett E. St. John. Newark.
 Henry F. Kneller. Newark.
 George C. Nicol. Jersey City.
 William A. Webber. Orange.
 George Scales. Rahway.
 John Levine. Newark.
 John A. Kelly. Newark.
 Nathan Aronson. Newark.
 Obadiah S. Cole. Newark.
 Herbert A. Stine. Plainfield.
 James Weldon. Jersey City.
 Dennis E. Gavin. North Plainfield.
 John A. Donovan. Newark.
 Eugene M. Syrett. Montclair.
 Edwin E. Taber. Long Branch.
 †John A. Mangon. Dover.
 †Lester J. Hamblet. Asbury Park.
 Clarence A. Lamont. Asbury Park.
 †Alex. M. Heron, M.D. Lakewood.
 Abram A. Lydecker, M.D. Haledon.
 Howard H. Huffert. Newark.
 †Sylvester Utter, M.D. Paterson.
 F. Wm. Stahuber. Trenton.
 †William Morris. Roselle Park.
 John W. Garey. Atlantic City.
 James P. McNair. Paterson.
 Thomas J. Steele. Jersey City.
 Walter B. Delaney. Jersey City.
 John C. Harnett. Jersey City.
 Henry A. Bonyngze, M.D. Ridgewood.
 †C. H. W. Van Seiver. Burlington.
 †Frank S. Harris. Salem.

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 †Franklin P. Vanlier. Woodstown.
 †Joseph J. Clickenger. Irvington.
 †J. C. Shinn, M.D. Jamesburg.
 George Wildman. Belmar.
 John M. Bense. Pleasantville.

George S. Everet. Linden.
 Frederick J. Dyer. Grantwood.
 John C. Clayton, M.D. Freehold.
 Robert Ballagh. Hackensack.
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SANITARY INSPECTORS OF THIRD CLASS.

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 †Robert A. Hirner. Woodbridge.
 Robert Dickson. Fair Haven.
 T. Nelson Lillagore. Ocean Grove.
 William B. Smith. Belleville.
 Adrian Hommel. Asbury Park.
 William B. Davis. Morris Plains.

†J. N. Fowler. Port Norris.
 Charles Butcher, M.D. Heislerville.
 John J. Bennett. Belleville.
 Joseph G. Coleman, M.D. Hamburg.
 †Fred D. Hurley. Asbury Park.
 Ellis W. Crater, M.D. Oceanport.
 Geo. W. Earl. Mt. Tabor.

†In the service of the local board of health.

†In the service of the local board of health.

MEAT INSPECTORS.

†G. F. Harker, D.V.S. Trenton. Willet H. Cooper, D.V.S. Trenton.
 †Richard W. Hewitt, D.V.S. Camden. †Albert T. Sellers, D.V.S. Camden.

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 Arthur McRoberts. Jersey City. Clarence H. Rider. Jersey City.
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 Henry F. Kneller. Newark. Geo. D. White, Jr. Newark.
 Herman C. Albers. Jersey City. Thomas J. Steele. Jersey City.
 Matthew P. Casey. Jersey City. Samuel J. Shultise, Jr. New Brunswick.

MILK AND FOOD INSPECTORS.

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 Charles M. Whelan. Trenton. Joseph M. Loeffler. Newark.
 †William F. Brode. Atlantic City. George M. Crawley, Jr. Newark.
 †Thomas D. Clark. Woodbury. Conrad C. Hoffmeier. West Hoboken.
 Edward J. Kelly. Jersey City. J. Elmer Deppe. Newark.
 Thomas F. Harris. Orange. Robert B. Murphy. Ridgewood.
 †G. H. Soult. Ridgewood. Newton DeBaun. Hackensack.
 Henry A. W. Smith. Ocean City. Alex. Weir, Jr. West Hoboken.
 Hugh F. Parle. Jersey City. Richard T. Bagg. Vineland.
 R. LeRoy Skillman. Newark. Joseph Lendner. West New York.
 Andrew McGookin, Jr. Newark. John Nolan. Bayonne.
 Frederick W. Nichols. Newark. Vincent Ahlemeyer. Jersey City.
 Luke J. Devine. Elizabeth. Charles Munzing. Jersey City.
 James Barnard. Trenton. Michael Saul. Newark.
 Frank H. Fitzgeorge. Trenton. John J. Waters. Jersey City.
 †George F. Shafer. Hackensack. R. C. Adamson, Jr. Long Branch.
 Charles F. West. Gloucester City. Irving J. Demarest. Westwood.
 Bernard B. Reiley. New Brunswick. Patrick J. Ryan. Wallington.
 P. W. Borrows. Ridgewood Park. Patrick J. Hennessy. Jersey City.
 Arthur G. Reeves. Cape May City. Hubbard Ferguson. Ridgewood.
 James H. Kiernan. Jersey City. Joseph P. Lee. Jersey City.
 Edward A. Sullivan. Newark. B. H. Scoy. Atlantic City.
 Gustave A. Albiez. Newark. Samuel Powell. Roselle Park.
 William F. Specht, Jr. Atlantic City. William Maloney. Jersey City.
 Jacob Kull. Newark. William C. Banta. Ridgewood.
 Peter A. Degnan. Newark. Fred Henniger. Jersey City.
 David Entwistle. Jersey City. Robert J. Fair. Gloucester City.
 Tunis Looli. Lodi. Michael A. Shanahan. Jersey City.
 James A. Marnell. Hoboken. Richard J. O'Crowley, Jr. Newark.
 Rudolph Riemenschneider. Town of Union. Harry A. Wilkins. Newark.
 W. J. Lafge. Vineland. George S. Webb. Wildwood.
 Charles Steller. Town of Union. Lewis Barnett. Millville.
 Martin D. Karl. Garfield. James C. Wegham. Wildwood.
 Adam J. Hammer. Elizabeth. Sidney S. Craythorn. Beverly.
 Leavett F. Kelly. Newark. George H. Northam. Long Branch.
 Eugene Lau. Newark. Charles J. Dignum. West Orange.
 W. George Lambert. Riverside. James F. Mulhall. East Orange.
 Martin V. Driscoll. Jersey City. Alfred T. England. Haddonfield.
 Herbert J. Mason. Vineland. Charles Kunz. West Orange.
 Charles F. Shaw. Collingswood. Thomas J. Dowling. Orange.
 William F. Ziegler. West Hoboken. Anthony H. Sachs. Carlstadt.
 Archibald A. Kafar, Jr. Bordentown. Oscar J. Verhoek. Irvington.
 Edward A. Dugan. Gloucester City. Hugo W. Bobertz. Elizabeth.
 Cornelius V. Carty. East Rutherford. Harry L. McIntyre. Hammondtown.
 Frederick J. Dyer. Grantwood. John B. Reeves. Haddon Heights.
 Frank S. Kieritt. Passaic. Joseph Fleming. West Orange.
 G. E. Bangs. West Hoboken. Joseph Whalley. Passaic.

†In the service of the local board of health.

‡Deceased.

Robert J. Walker, Jr. Atlantic City. Chas. W. Feeny. Paterson.
 Charles S. Wilmot. Haddon Heights. C. H. Weller. Hightstown.
 William S. Mooney. Jersey City. Patrick J. Monaghan. Newark.
 Robert Ewans. Guttenberg. Raymond W. Pettibone. Philadelphia, Pa.
 Warren Mack. East Orange. Thos. W. Higgins. Jersey City.
 Leslie H. Williams. East Orange. Geo. W. Van Varick. Clifton.
 Joseph E. Keeton. East Orange. Frank Miller. Newark.
 Herbert L. de Nourie. East Orange. Wm. H. Helm, Jr. Belmar.
 George W. Lang. East Orange. Marcus L. Eisele. Newark.
 Anthony S. Ruddy. East Orange. David M. Elin. Newark.
 Joseph J. Norton. East Orange. Robt. F. Morgan, Jr. Newark.
 Joseph F. Hourigan. Hoboken. Anthony P. Ciardi. Nutley.
 Henry F. Metzger. Jersey City. Wm. C. Beuler. Bergenfield.
 John H. Kerr. Perth Amboy. James McTague. Jersey City.
 John O'Shea. West New York. Alfred B. Rooney. Jersey City.
 Herbert A. Buzzard. Audubon. Edward F. Murphy. North Bergen.
 William J. Dorney. Newark. Robert A. McGuire. Perth Amboy.
 George T. Haines. Ventnor. James F. Hefferty. New Brunswick.
 Arthur A. Hulse. South Amboy. Louis V. Ziegler. Ridgewood Park.
 John L. Campbell. Hammondtown. Francis Cumiskey. Guttenberg.
 Charles Reeve. Long Branch. Thos. W. Bradley. Edgewater.
 John Campbell. Paterson. John Wodder. Perth Amboy.
 Joseph P. Cochran. Ventnor. John F. Kilkenny. Morristown.
 †Michael H. Healy. Lyndhurst. Geo. M. Mortenson. South Amboy.
 Benj. M. Cohen. Newark. John Specht. Newark.
 Maurice Huckman. Newark. Thos. Vail. South Amboy.
 Louis Marengi. Roselle Park. Wm. J. Kelton. Audubon.
 Howard Frey. Red Bank. Henry J. Babcock. Caldwell.
 A. E. Irwin. Atlantic Highlands.

†In the service of the local board of health.

List of Sanitary Districts.

With names and addresses of Officers.

CITIES.

Absecon, Atlantic county; population, 781. Martin Spickerman, President; Dr. Samuel Johnson, Clerk and Registrar; Dr. C. C. Allen, Inspector.

Asbury Park, Monmouth county; population, 10,150. Howard De Leroy, Commissioner of Public Safety; B. H. Obert, Health Officer; F. A. Stetter and Jas. Ten Broeck, Inspectors.

***Atlantic City**, Atlantic county; population, 46,150; Commission Form of Government. E. H. Coward, M.D., Health Officer.

Bayonne, Hudson county; population, 55,545. Henry Wilson, President; C. C. Slesman, Clerk; John T. Connelly, Health Officer; H. S. Winterhalter, Inspector.

***Beverly**, Burlington county; population, 2,140. Harry Woolman, Clerk and Registrar.

Bordentown, Burlington county; population, 4,250. James S. Gilbert, President; Jos. R. Malone, Clerk and Registrar; C. D. Mendenhall, Health Officer; Amos Thorn, Inspector.

Bridgeton, Cumberland county; population, 14,209. Frank S. McKee, President; Sidney O'Williams, Secretary; Chas. E. Bellows, Inspector.

Burlington, Burlington county; population, 8,336. Dr. J. B. Cassady, President; Walter W. Marrs, Clerk and Registrar; C. H. W. Van Sciver, Health Officer and Sanitary Inspector.

Camden, Camden county; population, 94,538. Henry H. Davis, M.D., President; Eugene B. Roberts, Clerk; Wm. D. Brown, Registrar; John F. Leavitt, M.D., Health Officer; Wm. H. Iszard, M.D., Inspector; H. B. Francis, Plumbing Inspector.

Cape May City, Cape May county; population, 2,471. Dr. A. L. Leach, President; Wm. Porter, Clerk; Thos. W. Millett, Registrar; Dr. V. M. D. Marcy, Health Officer and Inspector.

East Orange, Essex county; population, 34,371. Ralph H. Hunt, President; Helen H. De Marest, Clerk; John Hall, Registrar and Health Officer; Wm. T. Bowman, Inspector.

Egg Harbor City, Atlantic county; population, 2,181. August A. Breder, President; Wm. Morgenwick, Jr., Registrar.

Elizabeth, Union county; population, 73,409. John W. Whelan, President; John F. Kenah, Clerk and Registrar; Louis J. Richards, Health Officer.

Englewood, Bergen county; population, 9,924. Wm. C. Tucker, C.E., President; John C. Onderdonk, Clerk; Robert Jamieson, Registrar; Valentine Ruck, M.D., Health Officer; John A. Manson, Inspector.

Gloucester City, Camden county; population, 9,462. Harlan S. Miner, President; Allen W. Redfield, Clerk; John F. Lenny, City Clerk; Dr. J. Alonzo Beek, Health Officer; Robert J. Fair, Plumbing Inspector.

Hoboken, Hudson county; population, 70,324. Dr. Jos. F. H. Stack, Commissioner; Joseph S. Tucker, Clerk and Registrar; John Beronio, Health Officer; Fred Anderson, Milk Inspector.

Jersey City, Hudson county; population, 267,779; Frank H. Edsall, Superintendent of Health; J. J. Craven, Assistant Superintendent; J. J. Hagen, Health Officer; A. McRoberts, Chief Milk Inspector; Edward Keller, Chief Plumbing Inspector.

Lambertville, Hunterdon county; population, 4,657. Louis C. Williams, M.D., President; James H. Reynolds, Clerk and Registrar; Charles S. Closson, Inspector.

Long Branch, Monmouth county; population, 13,298. Dr. Paul Kahn, President; Winfield R. Warwick, Clerk and Registrar; R. C. Errickson, Health Officer.

***Margate City**, Atlantic county; population, 129; James Boice, Clerk.

Millville, Cumberland county; population, 12,451. Dr. F. V. Wade, Vice President; H. L. Thomas, Clerk; John S. Horton, Registrar; Frank Bullock, Sr., Health Officer; Dr. H. G. Miller, M.D., Inspector.

*No report received.

Newark, Essex county; population, 347,469; William S. Disbrow, M.D., President; William J. Buehler, Secretary; Charles V. Craster, M.D., Health Officer.

***New Brunswick**, Middlesex county; population, 23,388; Elmer J. McMurry, Secretary and Registrar.

Northfield City, Atlantic county; population, 866. Wm. Oxley, President; A. R. Vickers, Clerk and Registrar.

***Orange**, Essex county; population, 29,630; F. J. Osborne, Health Officer and Registrar.

Passaic, Passaic county; population, 54,773; Mayor George N. Segar, President; Helen B. Smith, Clerk; Z. A. Van Houten, Registrar and City Clerk; John N. Ryan, M.D., Health Officer; Joseph Whalley, Plumbing Inspector; J. Payne Lowe, D.V.S., Veterinary Inspector.

Paterson, Passaic county; population, 125,600. Edmund B. Randall, President; Tunis Kivett, Clerk; Chas. S. Gall, Registrar; Thomas A. Clay, M.D., Health Officer; James Fitzpatrick, Chief Inspector; William H. MacDonald, Chief Plumbing Inspector.

Perth Amboy, Middlesex county; population, 32,121. H. H. Petz, President; Wilbur La Roe, Secretary and Registrar; Wm. J. Willsey, Health Officer; John H. Kerr, Plumbing Inspector; F. D. Wilhelm, Sanitary Inspector.

Plainfield, Union county; population, 20,550. Dr. Thos. S. Davis, President; Dr. H. D. Corbuser, Secretary; Harriet O. Mattison, Registrar and Assistant Health Officer; N. J. Randolph Chandler, Health Officer; Wm. Addis, Sr., Inspector.

Port Republic City, Atlantic county; population, 405. John Barton, President; D. B. Fielder, Clerk; J. C. Champin, Registrar; Mark Adams, Health Officer; W. C. Vansant, Inspector.

Rahway, Union county; population, 9,337. John T. Brickell, President; Chas. H. Lambert, Clerk and Registrar; Fred W. Sell, M.D., Health Officer; Fred J. Mix, Inspector.

***Salem**, Salem county; population, 6,614. Geo. Kirk, Clerk and Registrar.

Sea Isle City, Cape May county; population, 551. R. C. Scott, M.D., President; Irving Fitch, Clerk and Registrar.

Somer's Point, Atlantic county; population, 604. Wm. Heimbach, President; Walter A. Smith, Clerk and Registrar.

South Amboy, Middlesex county; population, 7,007. Louis S. Dill, President; Wm. R. Thompson, Clerk; Robert P. Mason, Registrar; Chas. S. Buckelew, Inspector.

Summit, Union county; population, 7,500. W. H. Lawrence, Jr., M.D., President; T. S. Duffield, Clerk, Registrar and Health Officer; T. J. Scott, Inspector.

Trenton, Mercer county; population, 96,815; Board of Commissioners. Howard H. Ely, Registrar; A. S. Fell, Health Officer; G. F. Harker, Meat Inspector; Frank H. Fitzgeorge, Plumbing Inspector; J. W. Maple, Milk Inspector; Wm. C. Allen, Chief Sanitary Inspector.

Ventnor City, Atlantic county; population, 491. Adolph E. Apel, President; James G. Scull, Clerk and Registrar; Richard Bew, M.D., Health Officer; Wm. B. Hawkins, Inspector.

Wildwood, Cape May county; population, —; *Commission Government. N. A. Cohen, Health Officer.

Woodbury, Gloucester county; population, 4,642. Dr. H. B. Diverty, President; William E. Keat, Clerk; A. A. Starr, Registrar; Joshua Dawson, Health Officer; Thomas D. Clark, Inspector.

BOROUGHES.

Allendale, Bergen county; population, 937. G. M. Parkhurst, M.D., President; Ambrose K. Merrill, Clerk; N. J. Braun, Inspector.

Allenhurst, Monmouth county; population, 306. Thomas Thedford, President; Charles K. Savage, Clerk and Registrar.

***Allentown**, Monmouth county; population, 634. H. M. Anderson, M.D., Clerk.

Alpha, Warren county; population, —. Lee C. Salisbury, President; Cleveland M. Rhen, Clerk and Registrar; Whitfield Shipman, Health Officer.

*No report received.

Alpine, Bergen county; population, 377. Wm. T. Opdyke, President; L. H. Tavernier, Clerk, Registrar and Inspector; C. A. Richardson, M.D., Health Officer, Closter.

Andover, Sussex county; population, 884. D. M. Gardner, President; W. E. Wilson, Clerk; Samuel H. Wilson, Registrar.

Atlantic Highlands, Monmouth county; population, 1,645. Rev. Geo. W. Gardner, President; W. T. Franklin, Clerk and Registrar; John R. Snediker, Health Officer and Inspector.

Audubon, Camden county; population, 1,343. John Yardley, President; T. Jos. Williams, Clerk and Registrar; Robt. E. Morrell, Sr., Health Officer; Wm. J. Kelton, Plumbing Inspector.

Avalon, Cape May county; population, 230. C. K. Johnson, President; R. W. Rosenbaum, Clerk and Registrar.

Avon, Monmouth county; population, 426. Dr. F. G. Angeny, President; John Supple, Clerk and Registrar; John Hart, Health Officer and Inspector.

Barnegat City, Ocean county; population, 70. Willis Sculthorp, President; Wm. H. Bailey, Clerk; Dr. J. H. Frick, Registrar; A. D. Applegate, Health Officer; Chas. Anderson, Inspector.

Bay Head, Ocean county; population, 281. A. J. Eiseman, President; Julius Foster, Jr., Clerk and Registrar; Frank Ferry, Jr., Inspector.

***Beach Haven**, Ocean county; population, 272. Herbert Willis, M.D., Clerk and Inspector; Samuel S. Andrews, Registrar.

***Belmar**, Monmouth county; population, 1,433. Chas. O. Hudnut, Clerk and Registrar.

Bergenfield, Bergen county; population, 1,991. Hervyn Pratt, President; A. H. Rombough, Clerk; John W. Radford, Registrar; Wm. C. Bencler, Inspector.

Bloomsbury, Hunterdon county; population, 600. George Hawk, President; J. A. Stone, Clerk and Registrar; Dr. James A. Betts, Inspector.

Bogota, Bergen county; population, 1,125. Frank R. Wesley, President; John F. Hill, Clerk and Registrar; R. H. L. Osthoff, Health Officer and Inspector.

Bound Brook, Somerset county; population, 3,970. Geo. Packer, President; Wm. Schure, Clerk; Chas. W. McNabb, Registrar; Dr. C. R. G. Fisher, Health Officer.

***Bradley Beach**, Monmouth county; population, 1,807. Chas. H. Gant, Clerk and Registrar.

***Branchville**, Sussex county; population, 663. John A. McCarrick, Clerk and Registrar.

***Brigantine City**, Atlantic county; population, 67. E. R. Smith, Registrar.

Butler, Morris county; population, 2,265. E. P. Smithyman, President; Samuel K. Owen, D.D.S., Clerk; Allan Looker, Registrar, Bloomingdale; Dr. Wm. P. Thorne, Health Officer.

Caldwell, Essex county; population, 2,236. H. C. Steinhof, President; W. J. Gray, Clerk; J. J. Van Order, Registrar; C. H. Wells, Health Officer; H. J. Babcock, Inspector.

Cape May Point, Cape May county; population, 162. A. B. Schellenger, President; Chas. Markley, Clerk; H. H. Busse, Registrar; Dr. John T. Huff, Health Officer; Edward Berrell, Inspector.

Carlstadt, Bergen county; population, 3,807. Louis Cuneo, President; Rudolph Rayner, Clerk and Registrar; Dr. Paul Obrien, Health Officer; Anthony Sachs, Inspector.

Chatham, Morris county; population, 1,874. Bert A. Prager, M.D., President; J. Thomas Scott, Clerk and Registrar; John J. McCormack, Inspector; Geo. L. Kelley, Plumbing Inspector.

Chesilhurst, Camden county; population, 346. Clarence G. Glatner, President; J. F. Humphries, Clerk and Registrar.

***Clayton**, Gloucester county; population, 1,926.

Cliffside Park, Bergen county; population, 3,394. E. H. Hellstern, President, Hudson Heights; O. R. McElwain, Clerk and Registrar; E. C. Hellstein, Health Officer; Fred Dyer, Inspector, Grantwood.

***Clinton**, Hunterdon county; population, 836. Geo. Hall, Clerk and Registrar.

Closter, Bergen county; population, 1,483. J. F. M. Updike, President; Alfred Anderson, Clerk and Registrar.

*No report received.

Collingswood, Camden county; population, 4,795. Geo. B. Whedden, President; C. C. Powell, Clerk and Registrar; Edw. B. Rogers, M.D., Health Officer; Edw. S. Sheldon, M.D., Inspector.

Cresskill, Bergen county, population, 550. H. G. Meyer, President; Walter J. Dean, Clerk; John McGuire, Registrar; Dr. J. B. W. Lansing, Health Officer, Tenafly; Geo. Taufer, Inspector, Cresskill.

Deal, Monmouth county; population, 273; Robert Offenbach, President, Elberon; James Carroll, Clerk and Registrar, Deal Beach.

Delford, Bergen county; population, 1,005. J. D. Hoffmire, President; W. G. Wray, Clerk; J. S. Voorhis, Registrar; Dr. S. A. Vandewater, Health Officer and Inspector.

Demarest, Bergen county; population, 560. Watson J. Mosier, President; George V. Morton, Secretary and Registrar.

Dumont, Bergen county; population, 1,783. A. B. Spiegelglass, President; Fred Kleppe, Secretary and Registrar; Geo. F. Shafer, Health Officer and Sanitary Inspector, Hackensack.

Dunellen, Middlesex county; population, 1,990. Dr. Thos. H. Platt, President; W. S. Frederick, Clerk; Chas. A. Coriell, Sr., Registrar; W. N. Appgar, Inspector.

East Newark, Hudson county; population, 3,163. Zepla Knowles, President; E. J. McKenna, Clerk; J. A. McDonald, Registrar; Dr. W. B. McGlenon, Health Officer; John Keenan, Inspector.

East Rutherford, Bergen county; population, 4,275. Fred Taylor, President; R. Bischoff, Clerk and Registrar; C. V. Carty, Health Officer and Inspector.

Edgewater, Bergen county; population, 2,655. Dr. Charles F. Buckley, President; Arthur J. Carleton, Clerk, Counsel and Registrar; George W. Allison, Health Officer.

Elmer, Salem county; population, 1,167. Wm. H. Ward, President; F. M. Stites, Clerk and Health Officer; Evan S. Prickett, Registrar.

Emerson, Bergen county; population, 767. Chapin Petty, President; Henry I. Marshall, Clerk and Health Officer.

Englewood Cliffs, Bergen county; population, 410. Dr. C. E. G. Forst, President; Marie G. Langdon, Clerk, Registrar and Health Officer.

Englishtown, Monmouth county; population, 468. William Brassen, President; S. S. Johnson, Clerk; Walter Emmons, Registrar; Harvey Stults, Health Officer; Richard Pettit, Inspector.

Essex Fells, Essex county; population, 442. J. C. Sprigg, President; D. M. Wootton, Secretary; W. A. Briggs, Registrar.

Fair Haven, Monmouth county; population, ——. C. C. Smock, President; H. S. Allen, Clerk; Wm. Auchin, Sr., Registrar; Dr. J. H. Becker, Inspector.

Fairview, Bergen county; population, 2,441. Owen O'Connor, President, Cliffside; John S. Tracy, Clerk and Registrar; Fred Dyer, Health Officer and Inspector, Grantwood.

Fanwood, Union county; population, 471. F. W. Westcott, M.D., President and Inspector; Ray T. Munger, M.D., Clerk; Sam'l McAneny, Registrar; John Logon, Health Officer.

Farmingdale, Monmouth county; population, 416. Harry Hulsart, Clerk, Pro-tem.

Fieldsboro, Burlington county; population, 480. Frank Ferry, President; W. H. Errickson, Clerk and Registrar.

***Flemington**, Hunterdon county; population, 2,693. Barclay S. Fuhrman, Clerk.

Florham Park, Morris county; population, 558. Charles H. Genung, President, Madison, P. O.; Wm. V. Tunis, Clerk and Registrar, Madison P. O.; Dr. A. Dallas, Health Officer and Inspector.

Folsom, Atlantic county; population, 232. Joseph Linbach, President; Louis Schulze, Registrar; Charles Cunningham, Health Officer, Hammon-ton; Jacob Blazer, Jr., Inspector.

Fort Lee, Bergen county; population, 4,472. George Stabel, President; Palisade Fort Lee; Alfred Junghans, Clerk and Registrar; Dr. Max Wyler, Health Officer; Fred Dyer, Inspector, Grantwood.

***Franklin**, Sussex county; population, ——. James R. Stephens, Secretary, Franklin Furnace.

Frenchtown, Hunterdon county; population, 984. Hugh Taylor, President; E. J. Stryker, Clerk and Registrar; Dr. Q. E. Snyder, Inspector.

***Garfield**, Bergen county; population, 10,213. Louis Heinzman, Clerk and Registrar.

Garwood, Union county; population, 1,118. Otto Flammer, President; Burton M. Galloway, Clerk and Registrar; Andrew Carney, Jr., Health Officer and Plumbing Inspector, So. Plainfield; W. T. Froat, Sanitary Inspector.

Glen Ridge, Essex county; population, 3,260. H. C. Harris, M.D., President; James E. Brooks, Clerk, Registrar and Health Officer.

Glen Rock, Bergen county; population, 1,055. C. M. Viel, President; Geo. H. Lane, Clerk; H. C. Pennal, Registrar; Dr. Chas. Harreys, Health Officer, Ridgewood; Hubbard Ferguson, Plumbing Inspector, Glen Rock; Dr. W. F. Reynolds, Veterinary Inspector, Hackensack.

Haddonfield, Camden county; population, 4,142. Jos. K. Lippincott, President; Allen Clymer, Clerk and Registrar; W. H. Smith, M.D., Health Officer; Jos. W. Van Sier, Inspector.

Haddon Heights, Camden county; population, 1,452. Dr. Geo. W. Waters, President; W. H. Carney, Clerk; E. N. C. Davis, Registrar; E. R. Jenks, Health Officer; John R. Reeves, Inspector.

Haledon, Passaic county; population, 2,560. Otto Wedenmuller, President; Theo. B. Kegelman, Clerk and Registrar; A. A. Lydecker, M.D., Health Officer and Inspector.

Hampton, Hunterdon county; population, 914. W. Frank Fritts, President; Thos. J. Raber, Clerk and Registrar; Dr. T. B. Fulper, Health Officer and Inspector.

Harrington Park, Bergen county; population, 377. C. E. Cooper, President; C. J. Martin, Secretary and Treasurer; J. F. Hallenbeck, Registrar; C. A. Richardson, M. D., Health Officer and Inspector, Closter.

***Harvey Cedars**, Ocean county; population, 33. J. L. Fenimore, Registrar.

Hasbrouck Heights, Bergen county; population, 2,155. H. B. Vannote, President; W. J. Schweickert, Clerk and Registrar; Dr. Ray G. Perham, Health Officer; D. M. Davidson, Inspector.

Haworth, Bergen county; population, 588. P. R. Butterheim, President; Wm. D. Bullard, Clerk.

Hawthorne, Passaic county; population, 3,400. Paul A. Weiland, President; J. G. Whittaker, Clerk and Registrar; Joseph Payne, Health and Sanitary Officer, Midland Park; Richard Keefe, Asst. Sanitary Inspector.

Helmetta, Middlesex county; population, 661. James Deming, President; Robt. J. Franklin, Clerk; Andrew York, Registrar; J. C. Shinn, M. D., Health Officer, Jamesburg.

High Bridge, Hunterdon county; population, 1,545. P. W. Moore, President; A. B. Beavers, Clerk; S. M. Buck, Registrar; Edmund Eastwood, M. D., Health Officer and Inspector.

Highland Park, Middlesex county; population, 1,517. A. P. Daire, President; Wm. H. Holman, Clerk and Registrar; Dr. E. I. Clark, Health Officer; T. J. Lucas, Inspector.

Highlands, Monmouth county; population, 1,386. William H. Belge, President; William M. Hennessey, Clerk and Registrar; James J. Rowland, Health Officer; Jacob S. Hoffman, Inspector.

Hightstown, Mercer county; population, 1,879. Wm. M. Perrin, President; C. H. Weller, Clerk and Health Officer; Frank V. Jamison, Registrar; C. M. Franklin, M. D., Inspector.

Hohokus, Bergen county; population, 488. F. H. Howland; President; George Jackson, Secretary and Registrar; Wm. Tompkins, M. D. Health Officer; Wm. C. Banta, Inspector, Ridgewood.

Hopatcong, Sussex county; population, 146. T. B. Atterbury, President; Chas. O. Rafer, Clerk and Registrar; Philip J. Reule, Inspector; all of Landing.

Hopewell, Mercer county, population, 1,073. Robert P. Miller, President; Fred I. Sutphen, Clerk and Registrar.

***Island Heights**, Ocean county; population, 313. W. T. McKaig, Clerk and Registrar.

Jamesburg, Middlesex county; population, 2,075. Geo. A. Shultz, President; J. A. Thompson, Clerk; J. L. Suydam, M. D., Inspector.

Kenilworth, Union county; population, 779. Sanderson Ruth, President, John C. Heiny, Clerk; Charles Knudson, Registrar.

Keyport, Monmouth county; population, 3,582. Gustave Maurer, President and Plumbing Inspector; C. F. Tuthill, Clerk and Registrar; H. W. Hartman, M. D., Inspector.

Lavallette, Ocean county; population, 42. N. Joseph Englebert, President, Clerk and Registrar.

Leonia, Bergen county; population, 1,486. Dr. J. B. Edwards, President; H. M. Thompson, Clerk and Registrar; Dr. J. T. Wyckoff, Health Officer; Wm. P. Richards, Inspector.

Laurel Springs, Camden county; population, —. Philip C. Davey, Secretary.

Linden, Union county; population, 610. Philetus Smith, President; Clarence H. Smith, Secretary and Registrar; Fred'k. W. Sell, Health Officer.

Linwood, Atlantic county; population, 602. Henry S. Scull, President; Daniel L. Sutton, Secretary; James Farish, Registrar.

Little Ferry, Bergen county; population, 2,541. Joseph Seve, President; Louis Brauer, Clerk and Registrar; Edward Segenfried, Inspector.

Lodi, Bergen county; population, 4,138. J. W. Lane, President; G. H. Van Vorst, Clerk and Registrar; Dr. H. H. Brevort, Inspector; Dr. J. H. Bakelaar, Veterinary Inspector.

Longport, Atlantic county; population, 118. Board of Commissioners.

Madison, Morris county; population, 4,658. W. H. Barton, President; L. Dusenberry, Clerk; S. Fred Burnett, Registrar and Inspector.

Manasquan, Monmouth county; population, 1,582. Alonzo Mount, President; Robert M. Marks, Registrar and Inspector.

Mantoloking, Ocean county; population, —.

Matawan, Monmouth county; population, 1,646.

Maywood, Bergen county; population, 889. Henry Heck, President; G. M. Fetzer, Clerk and Registrar; Dr. Frank Freeland, Health Officer; R. H. L. Osthoff, Inspector, Bogota.

Mendham, Morris county; population, 1,129.

Merchantville, Camden county; population, 1,996. J. D. Lawrence, M. D., President; John W. Mickle, Clerk and Registrar; Wm. H. Linderman, Health Officer and Inspector.

Metuchen, Middlesex county; population, 2,138. C. P. Hull, Clerk.

Middlesex, Middlesex county; population, —. W. B. Kurtz, Secretary, R. F. D. No. 1, Bound Brook.

Midland Park, Bergen county; population, 2,901. Robert B. Coyle, President; Jacob H. Olthius, Clerk and Registrar; James Payne, M. D., Health Officer and Inspector.

Milford, Hunterdon county; population, —. George R. Smith, President; Frank Vanderbelt, Clerk and Registrar; A. Arling Heil, Inspector.

Millstone, Somerset county; population, 157. Enoch M. Davis, President; William H. Polhemus, Clerk; E. M. Davis, Registrar; Dr. S. O. B. Taylor, M. D., Health Officer; William B. Banbridge, Inspector.

Milltown, Middlesex county; population, 1,584. C. W. Waddington, President; J. M. Brindle, Clerk; R. A. Harkins, Registrar; Dr. N. N. Forney, Inspector.

Monmouth Beach, Monmouth county; population, 485. Richard West, Clerk.

Montvale, Bergen county; population, 522. Jesse V. De Groff, President; W. B. Lawson, Clerk and Registrar.

Moonachie, Bergen county; population, 638. Oscar Bartseh, President, R. F. D. Box, Woodbridge; Daniel Saviello, Clerk and Registrar, R. F. D. 227, Woodbridge.

Mountainside, Union county; population, 362. Robert Laing, Registrar.

Mount Arlington, Morris county; population, 277. William P. Griffiths, President; James Levie, Clerk, Cyrus E. Cook, Registrar; Dr. Chas. D. Gordan, Health Officer; F. H. Tappan, Inspector.

Mount Taber, Morris county; population, —. A. O. Fitzgerald, President, 112 S. Orange Ave., Newark; R. A. Lawless, Clerk, 9 Emory Street, Jersey City.

National Park, Gloucester county; population, 325. Pennington B. Milligan, President; Wm. E. Beers, Clerk and Registrar.

***Neptune City**, Monmouth county; population, 488. Sharon F. Smith, Clerk and Registrar.

Netcong, Morris county; population, 1,532. John Kenneally President; J. P. Meade, Clerk and Registrar; T. H. Mahany, Health Officer and Inspector.

New Providence, Union county; population, 873. Louis Stahl, President, West Summit; William Woodruff, Clerk, Registrar and Sanitary Inspector, New Providence.

North Arlington, Bergen county; population, 437. John Paffendorf, President; John H. Shields, Clerk and Registrar; Dr. John W. Clarke, Health Officer; Fred W. Riepe, Inspector.

North Caldwell, Essex county; population, 595. Wm. Kusmaul, President and Registrar; Thomas H. Peer, Clerk.

North Haledon, Passaic county; population, 749. William J. Ellis, President; Frank A. Thornley, Clerk and Registrar; Dr. A. A. Lyndecker, Health Officer and Inspector.

North Plainfield, Somerset county; population, 6,117. J. V. E. Vanderhoff, President; A. H. Dundon, M. D., Secretary, Treasurer and Registrar; J. L. Ollef, Inspector.

Northvale, Bergen county; population, —. Nick Herring, President; Emil Kober, Clerk; Arnold Kober, Registrar.

***North Wildwood**, Cape May county; population, 833. Chas. G. Glenn, Secretary, Ottens, P. O.

Norwood, Bergen county; population, 564. J. C. Palmer, Dr., President and Health Officer; Clifton Demarest, Clerk and Registrar.

Oakland, Bergen county; population, 568. Amos Hopper, President; Christian Barmehr, Clerk and Registrar; Dr. E. W. Hamilton, Inspector.

Oaklyn, Camden county; population, 653. Harry Vandergrift, President; Richard D. Early, Clerk and Registrar.

Ocean City, Cape May county; population, 1,950. Jos. G. Champion, Mayor, Commissioner of Public Safety; T. Lee Adams, Registrar and Health Officer; Charles Nabb, Inspector.

Ocean Grove, Monmouth county; population, —. A. E. Ballard, President; Dr. H. B. Alday, Secretary and Health Officer; Dr. Wm. Robinson, Inspector.

***Old Tappan**, Bergen county; population, 305. Charles DeWolff, Clerk, Registrar and Inspector, Westwood, R. F. D. No. 1.

Palisade Park, Bergen county; population, 1,411. Louis J. Quad, President, Liberty Place; Walter G. Stevens, Clerk and Registrar, Central Blvd.; George Shafer, Health Officer and Inspector, Hackensack.

Park Ridge, Bergen county; population, 1,401. Dr. S. Alexander, President; T. G. Forbes, Clerk and Registrar; A. P. Post, Health Officer; Geo. F. Shafer, Inspector, Hackensack.

Paulsboro, Gloucester county; population, 2,121. C. B. Stackhouse, President; Jacob Ballinger, Clerk; Howard W. Miller, Registrar.

Peapack, Gladstone, Somerset county; population, —. Wm. D. Vanderbeck, President, Gladstone; F. H. Ludlow, Clerk and Registrar, Peapack.

Pemberton, Burlington county; population, 797. Mayor B. T. Cranmer, President; J. J. Brander, Clerk and Registrar.

Pennington, Mercer county; population, 722. Dr. Edgar Hart, President; Charles M. Titus, Clerk; Henry L. Laning, Registrar; Frank A. Blackwell, Inspector.

Penns Grove, Salem county; population, 2,118. C. L. Flemings, President; Harry L. Blohm, Clerk and Registrar.

Pitman, Gloucester county; population, 1,950. Dr. M. T. Lummis, President and Registrar; J. E. Broome, Clerk.

Pleasantville, Atlantic county; population, 4,390. H. C. Thomas, President; T. F. Crawford, Clerk and Registrar; Dr. H. L. Harley, Health Officer and Inspector.

Point Pleasant Beach, Ocean county; population, 1,003. C. W. Dampman, President; H. C. Shoemaker, Jr., Clerk, Registrar and Health Officer; Joseph Elbersson, Inspector.

***Pompton Lakes**, Passaic county; population, 1,060. I. J. Sharr, Registrar.

Princeton, Mercer county; population, 5,136. Joseph E. Raycroft, M. D., President; W. B. Howe, Clerk; T. Dudley Ballinger, Registrar and Health Officer; T. W. Margerum, Inspector.

Prospect Park, Passaic county; population, 2,719. George Boer, President; Lambertus Touw, Clerk and Registrar; Abram A. Lydecker, Health Officer and Inspector.

Ramsey, Bergen county; population, 1,667. H. R. Parvin, Clerk and Registrar.

Red Bank, Monmouth county; population, 7,398. Ernest A. Arend, President; Howard S. Higginson, Clerk and Registrar; Wm. D. Sayre, M. D., Health Officer and Inspector.

Ridgefield, Bergen county; population, 966. H. C. Brunner, President; F. D. Roylance, Clerk and Registrar, Morsmere; Geo. F. Shafer, Health Officer and Inspector.

Riverside, Bergen county; population, 736. Wm. V. Light, Clerk; River Edge, Jos. Weston, Registrar, North Hackensack.

Riverton, Burlington county; population, 1,788. E. C. Stoughton, President; Charles S. Mills, Clerk, Health Officer and Inspector; Charles G. Davis, Registrar.

Rockaway, Morris county; population, 1,902. Edward Ehlers, President; James B. May, Clerk; Wm. A. Parlman, Registrar; Chas. H. Hull, Inspector.

Rocky Hill, Somerset county; population, 502. Wm. N. Stults, President; C. R. Baldwin, Clerk and Registrar.

Roosevelt, Middlesex county; population, 5,786. R. Joseph Murphy, Clerk, Chrome; C. C. Sheridan, Registrar, Cartaret.

Roseland, Essex county; population, 486. Dr. J. C. Conover, President; E. A. Williams, Registrar.

Roselle, Union county; population, 2,725. John I. Howe, President; E. S. Waller, Clerk; Wm. Morris, Registrar and Health Officer, Roselle Park.

Roselle Park, Union county; population, 3,138. W. E. McClatchey, President; H. P. Ernest, Secretary and Registrar; Collis H. Case, Health Officer; Dr. W. R. Smith, Medical Inspector.

Rumson, Monmouth county; population, 1,449. V. A. Ligier, Secretary and Registrar, Oceanic.

Rutherford, Bergen county; population, 7,045. F. M. Buckles, President; H. Y. Blakiston, Clerk and Registrar; Geo. K. Thomas, Inspector.

Saddle River, Bergen county; population, 483. No board. Charles H. Merritt, Borough Clerk.

Seabright, Monmouth county; population, 1,220. Dr. D. H. Karp, President; John H. Eylis, Clerk and Registrar; Edward Pannacie, Health Officer; L. J. Fichter, Inspector.

Seaside Heights, Ocean county; population, —. Clyde G. Marcey, Borough Clerk.

Seaside Park, Ocean county; population, 101. Edw. N. Penn, President; H. P. Hoff, Clerk; Frank Brockway, Registrar; Frank Hewitt, Health Officer; Aaron Wilbert, Inspector.

Secaucus, Hudson county; population, 4,740. Thos. G. Sproul, President; Louis G. Asmussen, Clerk, Registrar, Health Officer and Inspector.

Somerville, Somerset county; population, 5,060. Aaron L. Stillwell, M. D., President; Wm. R. Sutphen, Clerk and Registrar; George D. Totten, Health Officer and Inspector.

South Bound Brook, Somerset county; population, 1,024. Isaac R. Thatcher, President; Peter Merlett, Clerk and Registrar.

South Cape May, Cape May county; population, 7. E. B. Martin, Clerk.

South River, Middlesex county; population, 4,772. James B. Armstrong, Clerk; James Black, Registrar.

Spotswood, Middlesex county; population, 623. John Bell, President; Louis E. Appleby, Clerk and Registrar; J. Otis Denelsbeck, M. D., Health Officer and Inspector.

Spring Lake, Monmouth county; population, 853. Dr. L. R. Knight, President; D. H. Hills, Clerk and Registrar.

Stanhope, Sussex county; population, 1,031. R. M. Lusch, President; J. J. Shaw, Clerk, Registrar, Health Officer and Inspector.

*No report received.

Stockton, Hunterdon county; population, 605. H. R. Van Horn, President; P. A. Shepherd, Registrar; Wm. Gabriel, Health Officer and Inspector.

***Surf City**, Ocean county; population, 40.

Sussex, Sussex county; population, 1,212. H. D. Van Gaasbeck, President; H. E. Wells, Clerk and Registrar; L. H. Fuller, Inspector.

Swedesboro, Gloucester county; population, 1,477. Dr. J. G. Halsey, President; W. H. Rieger, Clerk and Registrar; Dr. V. E. De Grofft, Inspector.

Tenafly, Bergen county; population, 2,756. J. J. Harring, M. D., President; J. M. MacKellar, M. D., Clerk; J. B. Lansing, M. D., Registrar and Inspector.

Totowa, Passaic county; population, 1,130. Otto Kuhnle, President; Frank Atkins, Clerk and Registrar; Charles A. Keating, M. D., Health Officer, 177 Ellison St., Paterson; Wm. Herbert Lowe, Veterinary Inspector, Trenton Ave., Paterson.

Tuckerton, Ocean county; population, 1,268. T. P. Price, President; Lewis A. Fiske, Clerk.

***Upper Saddle River**, Bergen county; population, 273. August Weiss, Secretary, P. O. Box 84, Munsey, N. Y.

***Verona**, Essex county; population, 1,675. Louis C. Miller, Secretary; Chas. T. Simonson, Registrar.

Vineland, Cumberland county; population, 5,282. Louis Basso, President; Ferd Koetz, Clerk and Registrar; Dr. J. Hayes Winslow, Health Officer; Walter H. Blake, Inspector.

Wallington, Bergen county; population, 3,448. Edward Taylor, President; James J. Brennan, Secretary and Registrar; P. J. Ryan, Plumbing Inspector.

Washington, Warren county; population, 3,567. F. J. La Pien, Clerk; L. C. Opdyke, Clerk; Geo. C. Losey, Inspector.

***Wenonah**, Gloucester county; population, 645. H. S. Leap, Clerk and Registrar.

West Caldwell, Essex county; population, 494. Marcus Crane, President; C. A. Harrison, Clerk and Registrar.

West Cape May, Cape May county; population, 844. W. H. Smith, President; F. R. Hughes, M. D., Clerk; T. W. Reeves, Registrar.

West Long Branch, Monmouth county; population, 879. Frank A. Poole, President; R. R. Hughes, Clerk and Registrar; Edwin E. Tabour, Health Officer; Chas. G. Clark, Plumbing Inspector.

West Paterson, Passaic county; population, —. John Dowling, President; D. L. Hughes, Clerk and Registrar. W. J. Whalen, M. D., Health Officer, 387 Main St., Paterson, N. J.

Westwood, Bergen county; population, 1,870. J. Mussen, Jr., President; N. Cleveland, Clerk and Registrar.

Wharton, Morris county; population, 2,983. John H. Williams, President; John A. Birmingham, Clerk; John Kernick, Registrar; John McDonald, Health Officer.

Wildwood Crest, Cape May county; population, 103. Richard Scampton, President; E. B. Fagan, Clerk and Registrar; T. Cross, Inspector.

***Woodbine**, Cape May county; population, 2,399. J. Guthman, Clerk and Registrar.

Woodliffe, Bergen county; population, 470. John H. Wortendyke, President; G. J. Wortendyke, Clerk and Registrar.

Woodlynne, Camden county; population, 500. A. Heppard, President; Christian Dupont, Clerk and Registrar; C. V. Davis, Plumbing Inspector.

Wood Ridge, Bergen county; population, 1,043. Ernest Schnetter, President; Joseph F. Beck, Clerk and Registrar.

Woodstown, Salem county; population, 1,613. Henry V. Foster, President; Wm. B. Foster, Clerk and Registrar; J. M. Husted, M. D., Health Officer.

TOWNS.

Belleville, Essex county; population, 9,891. Dr. H. B. Vail, President; John F. Flanagan, Clerk; John H. Coeyman, Registrar; W. Brand Smith, Health Officer and Inspector; Hugh J. Maguire, Plumbing Inspector.

***Belvidere**, Warren county; population, 1,764. George H. Weaver, Clerk and Inspector.

*No report received.

Bloomfield, Essex county; population, 15,070. James J. Thompson, President; Joseph C. Saile, Clerk, Registrar, Health Officer and Inspector.

***Boonton**, Morris county; population, 4,930. Frank N. Banta, Clerk and Registrar.

***Clinton**, Hunterdon county; population, —. George A. Hall, Clerk and Registrar.

Dover, Morris county; population, 7,468. E. J. Riedener, President; Wm. H. Toinking, Clerk; Wm. G. Hummil, Registrar; John G. Taylor, Health Officer and Inspector.

Freehold, Monmouth county; population, 3,233. E. D. Clayton, President; Alonzo Brower, Clerk, Registrar, Health Officer and Inspector.

Guttenberg, Hudson county; population, 5,647. John Neuss, President; Geo. Petrie, Clerk, Dr. E. W. Roberts, Health Officer; Robt. Evans, Inspector.

Hackensack, Bergen county; population, 14,050. A. A. Altschuler, President; Robert Ballagh, Clerk and Inspector; E. M. Johnson, Registrar; Dr. E. P. Essertier, Health Officer.

***Hackettstown**, Warren county; population, 2,715. A. G. Boettiger, Clerk.

Hammonton, Atlantic county; population, 5,088. C. R. Scullen, President; Dr. J. C. Bitler, Clerk and Registrar; Dr. Chas. Cunningham, Sanitary Inspector; John L. Campbell, Plumbing Inspector.

Harrison, Hudson county; population, 14,498. John T. Malone, President; Eugene A. Riordan, Secretary; John T. McClure, Health Officer.

Irvington, Essex county; population, 11,877. William L. Glorieux, Mayor; John W. Wehman, Clerk and Registrar; David H. Greene, Health Officer; Joseph K. Clickenger, Inspector; Joseph Sonnenberg, Plumbing Inspector.

Kearny, Hudson county; population, 18,659. A. A. Mutter, President; Alfred B. Anderson, Clerk; George R. Howe, Registrar; Henry V. Amerman, Inspector.

***Keyport**, Monmouth county; population, 3,554.

Montclair, Essex county; population, 21,550. Edward Winslow, President; A. Prescott Folwell, Secretary; Chester H. Wells, Registrar and Health Officer; Ralph L. Huttenboch, Inspector.

Morristown, Morris county; population, 12,507. John R. Burr, President; Mary C. Wilday, Clerk; Robert C. Caskey, Registrar and Secretary; John J. Belbey, Sanitary Inspector.

Newton, Sussex county; population, 4,467. Dr. Warren H. Smith, President; A. V. Mackerly, Clerk and Registrar; Ross McPeck, Inspector.

Nutley, Essex county; population, 6,009. Royal Langdon, M. D., President; George Hawksworth, Clerk and Registrar; E. E. Faith, Health Officer and Inspector.

Phillipsburg, Warren county; population, 13,903. Oscar E. Bates, President; J. Perdoe, Clerk and Registrar; Alma L. Williston, M. D., Health Officer and Inspector.

***Rariton**, Somerset county; population, 3,672. J. J. Bourke, Clerk.

Town of Union, Hudson county; population, 21,023. Wm. C. Reisenberger, President; Richard Specker, Clerk; Henry J. Spaulding, M. D., Sanitary Inspector; Chas. Steller, Plumbing Inspector.

Westfield, Union county; population, 6,420. J. B. Harrison, M. D., President; C. W. Harden, Clerk and Registrar; Geo. S. Laird, M. D., Health Officer; Andrew Carney, Jr., Inspector.

West Hoboken, Hudson county; population, 35,403. Louis A. Menegaux, President; Frank A. Frederick, Clerk, Registrar and Health Officer; C. C. Hoffmeier, Plumbing Inspector.

West New York, Hudson county; population, 13,560. Dr. W. A. Ryan, President; William McDowell, Clerk; Rudolph Kunze, Health Officer; Frederick Schneider, Inspector.

VILLAGES.

Ridgefield Park, Bergen county; population, —. Joseph Fletcher, President; Howard B. Ficken, Clerk and Registrar; C. H. Knox, M. D., Health Officer; George F. Shafer, Inspector.

Ridgwood, Bergen county; population, 5,416. Edward T. White, President; C. A. Demarest, Clerk; Wilbur Morris, Registrar; Dr. H. H. Pettit, Health Officer; Robert B. Murphy, Inspector.

*No report received.

South Orange, Essex county; population, 6,014. R. D. Freeman, M. D., President; J. Budd Smith, Secretary; A. C. Benedict, Registrar and Inspector.

TOWNSHIPS.

Aequackanonk, Passaic county; population, 11,869. Richard Berry, President; Edw. M. Yereance, Clerk; Richard Berry, Registrar; Jas. F. Sutton, Health Officer and Inspector, all of Clifton.

Alexandria, Hunterdon county; population, 1,045. Geo. B. Woolf, President; Wm. B. Wean, Clerk; both of Milford; Dr. F. S. Grim, Inspector, Baptisttown.

Allamuchy, Warren county; population, 642. William Grover, Andover, R. F. D., President; John D. Hann, Clerk; Geo. Hartman, Registrar; Dr. L. Cook Osmun, Health Officer, Hackettstown; Geo. Hartman, Inspector.

Alloway, Salem county; population, 1,533. John Crowley, President; Yorktown; H. M. Loveland, Registrar, Bridgeton, R. D. 8.; Dr. W. T. Good, Health Officer, Alloway.

***Andover**, Sussex county; population, 521. Wm. Iliff, Clerk and Registrar, Newton, R. F. D. No. 3.

***Atlantic**, Monmouth county; population, 1,205.

Bass River, Burlington county; population, 685. Wm. T. Cramer, President, New Gretna; Chelkley S. Cramer, Clerk and Registrar.

Bedminster, Somerset county; population, 2,375. Jacob Powelson, President; H. McMurtry, Clerk; both of Somerville, R. 3.

***Berkeley**, Ocean county; population, 597. Marcus B. Allen, Clerk, Bayville; Devine Butler, Registrar, Bayville.

Berlin, Camden county; population, 1,611. Dr. W. C. Raughley, President; O. X. F. Ottiger, Clerk and Registrar; Dr. F. O. Stern, Inspector.

Bernards, Somerset county; population, 4,608. Thomas Holmes, President; Jos. B. Kronenberg, Clerk and Registrar; Dr. J. Meigh, Health Physician; Dr. L. R. Hanbrick, Inspector and Health Officer; all of Bernardsville.

Bethlehem, Hunterdon county; population, 980. Nelson Bowlberg, President, Ashbury, R. F. D.; Wm. C. Riddle, Secretary, Bloomsbury, R. F. D., R. 1.

Beverly, Burlington county; population, 2,337. J. R. Maul, President; J. B. Carter, Clerk and Registrar; S. R. Maul, M. D., Health Officer; all of Delanco.

Blairstown, Warren county; population, 1,718. D. J. Shotwell, President; Jos. A. Dugan, Clerk and Registrar; all of Vail.

***Boonton**, Morris county; population, 428. Edmund H. Stickle, Clerk and Registrar, Boonton.

Bordentown, Burlington county; population, 608. C. D. Mendenhall, President and Health Officer; Samuel Johnson, Clerk and Inspector.

***Branchburg**, Somerset county; population, 970. August McCullough, Clerk and Registrar.

***Brick**, Ocean county; population, 2,177.

Bridgewater, Somerset county; population, 1,742. J. Albert Schneider, President, Martinville; John Slattery, Clerk and Registrar, Raritan; Dr. B. T. Seaman, Health Officer and Inspector, Raritan.

Buena Vista, Atlantic county; population, 2,723. Orville E. Searle, President, Vineland, R. F. D.; Douglas Reed, Newfield, R. F. D.; Orville E. Searle, Registrar.

Burlington, Burlington county; population, 1,220. Thos. P. Birkett, President; Thos. G. Gandy, Clerk and Registrar, Burlington; James McFarland, M. D., Health Officer; all of Burlington.

Byram, Sussex county; population, 1,055. George P. Hart, President; William Sickels, Registrar; both of Stanhope.

Caldwell, Essex county; population, 704. Henry Myers, President, Caldwell, R. 1.; Theodore Vincent, Registrar, Caldwell, R. 1.; Dr. E. E. Peck, Health Officer, Caldwell.

Cedar Grove, Essex county; population, 2,409. Lewis N. Bowden, President, Cedar Grove; H. B. Whitehouse, Secretary, Verona; A. B. Fritz, Registrar, Cedar Grove; C. H. Wells, Health Officer, 152 Midland Ave., Montclair.

*No report received.

Centre, Camden county; population, 3,200. Alfred P. Page, President, Barrington; John H. Jackson, Clerk and Registrar; Dr. Leslie C. Lyon, Health Officer; both of Magnolia.

Chatham, Morris county; population, 812. Louis A. Noe, President, Madison; J. Herbert Bebout, Clerk and Registrar.

Chester, Burlington county; population, 5,069. Wm. E. Darrell, President; F. G. Stroud, M. D., Clerk and Health Officer; Geo. W. Heaton, Registrar; all of Moorestown.

***Chester**, Morris county; population, 1,251. Charles Rinehart, Clerk and Registrar.

Chesterfield, Burlington county; population, 1,130. Chas. M. Bunting, President; Wm. Wallace, Registrar; both of Crosswicks.

Cinnaminson, Burlington county; population, 1,266. Howard G. Taylor, President, Riverton; George C. Frank, Clerk, Cinnaminson; Thomas E. Steele, Registrar, Palmyra; Dr. J. D. Janney, Inspector, Riverton.

Clark, Union county; population, 469. Andrew Gibson, President; Wm. J. Thompson, Clerk, Rahway, R. F. D. No. 1; Dr. Wm. E. Chadek, Inspector, Rahway.

Clementon, Camden county; population, 2,794. T. S. Fox, President, Laurel Springs, R. F. D.; Geo. N. Evans, Clerk and Registrar, Lindenwold; F. B. Cook, Health Officer and Inspector, Laurel Springs.

Clinton, Hunterdon county; population, 2,108. Wm. Gans, President; Bergen B. Berkaw, Clerk and Registrar; C. G. Boyer, M. D., Health Officer and Inspector; all of Annandale.

Commercial, Cumberland county; population, 2,604. Harrison Hollinger, President; Walter L. Sharp, Clerk and Registrar; J. N. Fowler, Inspector; all of Port Norris.

Cranbury, Middlesex county; population, 1,424. Wm. M. Cox, President; C. R. Wicoff, Registrar and Health Officer; Walter H. Havens, Inspector.

Cranford, Union county; population, 3,641. John W. Heins, President; Alfred H. Miller, Clerk and Inspector; Frank R. Swackhamer, Registrar.

Deerfield, Cumberland county; population, 3,311. E. R. Parvin, President, Registrar and Inspector; Dr. H. L. Cooper, Clerk.

Delaware, Camden county; population, 1,706. J. Watson Matlack, President; W. B. Jennings, Clerk, Health Officer and Inspector; Wm. Groff, Registrar; all of Haddonfield.

Delaware, Hunterdon county; population, 1,740. S. K. Rister, President, Stockton, R. D. 2; Harry Johnson, Clerk and Registrar; Dr. G. N. Best, Inspector; both of Rosemont.

Delran, Burlington county; population, 1,031. Wm. F. Krauderer, President; George Friday, Clerk and Registrar.

Dennis, Cape May county; population, 1,751. George Sayre, President; I. S. Townsend, Clerk and Registrar; both of Clermont; Eugena Way, M. D., Inspector, Dennisville.

Denville, Morris county; population, —. Geo. E. Parker, President; Dover, R. F. D.; Joseph Ellsworth, Clerk and Registrar, Denville.

Dentford, Gloucester county; population, 2,524. Jos. Cunningham, President, Westville; Arthur Jaggard, Clerk, Almonesson; Ellison K. Turner, Registrar, Health Officer and Inspector, of Sëwell.

Dover, Ocean county; population, 2,452. Lucien B. Gravatt, President; Theodore Fischer, Clerk and Registrar; Dr. Frank Brouwer, Health Officer and Inspector; all of Toms River.

Downe, Cumberland county; population, 1,519. A. P. Hickman, President, Dividing Creek; Sheppard Campbell, Registrar, Newport; Dr. F. B. Husted, Health Officer.

Eagleswood, Ocean county; population, 550. Harper G. Rulon, President; Philip R. Sprague, Clerk; both of West Creek.

Eastampton, Burlington county; population, 508. H. G. Nippins, President; Harry W. Githens, Clerk and Registrar; both of Smithville; Geo. W. Vanderveer, M. D., Mount Holly.

East Amwell, Hunterdon county; population, 1,203. Wm. O. Drake, President, Lambertville, No. 1; John J. Horn, Clerk and Registrar, Hopewell; Dr. P. C. Young, Health Officer and Inspector, Ringoes.

East Brunswick, Middlesex county; population, 1,602.

*No report received.

East Greenwich, Gloucester county; population, 1,406. Walter Owen, President; J. C. Dauson, Clerk; both of Mickleton; Mason Carter, Registrar; William Cook, Health Officer, both of Clarksboro.

East Windsor, Mercer county; population, 941. Chas. S. Lee, President, Hightstown; S. L. Mount, Registrar, Etra; Dr. C. M. Franklin, Health Officer and Inspector, Hightstown.

Eatontown, Monmouth county; population, 2,076. Chas. H. Campbell, President; Perry B. Cook, Clerk; Wm. T. Taylor, Registrar; Dr. E. W. Crater, Health Officer and Inspector, Oceanport.

Egg Harbor, Atlantic county; population, 1,110. R. H. Sheele, President, Idlewood; Wm. Hauenstein, Clerk and Registrar, Absecon, R. D.; Dr. Ernst Zille, Health Officer and Inspector, Scullville.

***Elk**, Gloucester county; population, 1,022. Harry C. Ivins, Clerk and Registrar, Aura.

Elsinboro, Salem county; population, 419. J. L. Smith, President; Franklin T. Ayares, Clerk; Wm. D. Griscom, Clerk; all of Salem.

Evesham, Burlington county; population, 1,408. Elmer Read, President; B. K. Brick, M. D., Clerk; W. F. Powell, Registrar; all of Marlton.

Ewing, Mercer county; population, 1,889. Wm. C. Clark, President, Prospect Heights; Wallace Lanning, Clerk and Registrar; Dr. E. B. Allen, Health Officer and Inspector, Trenton.

Fairfield, Cumberland county; population, 1,629. Jas. B. Mulford, President, Registrar and Health Officer; Chas. H. Nichols, Clerk; Harry E. Lore, Inspector; all of Fairton.

Fanwood, Union county; population, 1,616. Ira Gage Walker, President; Geo. H. Johnston, Clerk; both of Scotch Plains; Dr. F. W. Wescott, Health Officer and Inspector, Fanwood.

Florence, Burlington county; population, 4,731. Goodwin Donnelly, President; Byron Carty, Clerk and Registrar; Dr. David Baird, Health Officer and Inspector.

Frankford, Sussex county; population, 1,004. H. E. Riddel, M. D., President; J. W. Fountaine, Clerk; both of Branchville; Geo. W. Smith, Registrar, Augusta.

***Franklin**, Bergen county; population, 1,954. Daniel Snyder, Clerk and Registrar, Midland Park.

Franklin, Gloucester county; population, 2,603. Henry Finger, Jr., President, Franklinville; Chas. H. Lincoln, Clerk and Registrar; M. Miller, Health Officer; Dr. R. E. Buck, Inspector; all of Newfield.

Franklin, Hunterdon county; population, 1,099. G. Hoagland, President, Quakertown; Elwood Nixon, Clerk, Flemington; Morris H. Leaver, Health Officer and Inspector, Quakertown.

Franklin, Somerset county; population, 2,395. Van U. Voorhees, President, Bound Brook, R. F. D. No. 2; Cornelius Cadmus, Clerk and Registrar, Middlebush; Dr. J. H. Cooper, Inspector, East Millstone.

Franklin, Warren county; population, 1,585. Walter B. Godfrey, President, West Portal; C. H. Hoagland, Clerk and Registrar, Asbury.

Fredon, Sussex county; population, 457. Wm. Roy, President, Newton, No. 2; J. M. Budd, Clerk, Newton, No. 1; W. N. Westbrook, Registrar, Newton, No. 1; Dr. E. W. Sandis, Inspector, Stillwater.

Freehold, Monmouth county; population, 2,329. C. Arthur Burke, President, R. D. No. 4, Freehold; C. F. Dittmar, Clerk and Registrar; Dr. John C. Clayton, Health Officer and Inspector; all of Freehold.

Frelinghuysen, Warren county; population, 1,074. Al. L. Cook, President, Marksboro; J. E. Bowman, Clerk and Registrar, Blairstown; Dr. F. Rorback, Health Officer and Inspector, Johnsonburg.

Galloway, Atlantic county; population, 1,976. Richard Sooy, President, Oceanville; Chester Conover, Registrar, Oceanville; Dr. C. C. Allen, Health Officer, Absecon.

Glassboro, Gloucester county; population, 2,821. Harry L. Pierce, President; Burris T. Tomlin, Clerk and Registrar; Dr. E. M. Duffield, Health Officer; George Benninger, Inspector.

Gloucester, Camden county; population, 2,380. Charles Fill, President, Laurel Springs; Joseph R. Powell, Clerk and Registrar, Sickleville, R. F. D. 1; Dr. J. Anson Smith, Health Officer, Blackwood.

Green, Sussex county; population, 888. A. Hull, President, Huntsville; I. L. Labor, Clerk and Registrar, Tranquility; Dr. Gardner, Health Officer and Inspector, Andover.

*No report received.

Greenwich, Cumberland county; population, 1,145. George A. Loew, President; Ethan P. Glaspey, Clerk and Registrar.

Greenwich, Gloucester county; population, 874. Walter Mullen, President; Jacob M. Allen, Clerk and Registrar; both of Gibbstown; Robert Reeves, M. D., Inspector, Paulsboro.

Greenwich, Warren county; population, 904. Jacob R. Rush, President, Stewartsville; Wm. Sherrer, Clerk, Bloomsbury; F. W. Curtis, M. D., Inspector, Stewartsville.

Haddon, Camden county; population, 1,465. Alfred M. Matthews; J. Milford Ackley, Clerk and Registrar; both of Westmont; Edw. B. Rogers, M. D., Health Officer and Inspector, Collingswood.

Hamilton, Atlantic county; population, 2,271. Curtis Hazleton, President; Thompson G. Hoover, Clerk; Harry Jenkins, Registrar; Henry C. James, Health Officer; all of Mays Landing.

Hamilton, Mercer county; population, 7,899. Dr. F. B. Zandt, President, Hamilton Square, W. C. Rockhill Hart, Clerk, 409 Johnston Ave., Trenton; Harry M. Rogers, Registrar, Hamilton Square; James N. Reed, Health Officer and Inspector, 148 E. Washington St., Trenton.

Hampton, Sussex county; population, 671. I. D. Williams, President, Baleville; J. W. Thompson, Registrar, Newton; Dr. H. E. Riddell, Health Officer and Inspector, Branchville.

Hanover, Morris county; population, 6,228; R. V. D. Totten, M. D., President; Stanley H. Lyon, Clerk, Registrar, Health Officer and Inspector; all of Morris Plains.

***Hardwick**, Warren county; population, 405. Austin R. Mott, Clerk, Marksboro.

Hardyston, Sussex county; population, 5,210. Geo. W. Lewis, President, Stockholm; Edwin Theitge, Clerk; Nicholas Farber, Registrar; Dr. Thomas Pellett, Inspector; all of Hamburg.

***Harmony**, Warren county; population, 1,490.

Harrison, Gloucester county; population, 1,682. Walter Jones, President; Mullica Hill.

Hillsboro, Somerset county; population, 2,313.

Hillsdale, Bergen county; population, 1,072. Geo. W. Saul, President; John G. Hansen, Clerk and Registrar; both of Hillsdale; Geo. Shaffer, Health Officer and Inspector, Hackensack.

Hillside, Union county; population, —. J. Elliott Hall, President; John Leyser, Clerk and Registrar, Lyons Farms; F. H. Lovell, M.D., Maple Ave., Newark.

Hohokus, Bergen county; population, 1,881. Geo. Coe, President, Suffern, N. Y.; Albert Winter, Clerk and Registrar, Mahwah; Dr. C. P. De Yoe, Inspector, Ramsey.

***Holland**, Hunterdon county; population, 1,699. H. B. Vansyckel, Clerk and Registrar, Mt. Pleasant.

Holmdel, Monmouth county; population, 1,058. Aaron Morris, Chairman.

Hope, Warren county; population, 1,119. C. R. Westbrook, Registrar; Dr. Storm, Health Officer.

Hopewell, Cumberland county; population, 1,818. B. Frank Sharp, President; R. F. D. 2; C. E. Bowen, Clerk and Registrar, Shiloh; H. H. Fritts, M. D., Health Officer, Shiloh.

***Hopewell**, Mercer county; population, 3,171. Joseph R. Borroughs, Clerk, Pennington, R. F. D. No. 1.

Howell, Monmouth county; population, 2,703. Charles E. Ferry, President, Farmingdale; James W. Butcher, Clerk and Registrar, Freehold; Wm. P. Havens, M. D., Health Officer, Farmingdale.

***Hudson county**; population, 537,231. James L. Lynch, Secretary.

Independence, Warren county; population, 867. A. B. Leigh, President; F. W. Haggerty, Clerk; E. Y. Williams, Registrar.

Jackson, Ocean county; population, 1,325. Thos. Harker, Cassville; Atwood Horner, Clerk, Lakewood, R. D. 3; Dr. O. C. Thompson, Inspector, Lakewood.

***Jefferson**, Morris county; population, 1,303. Charles Chamberlain, Clerk and Registrar, Wharton, R. D. No. 2.

*No report received.

Kingwood, Hunterdon county; population, 1,265. D. R. Cline, President, Frenchtown; Wm. W. Case, Clerk and Registrar; F. S. Grim, Health Officer and Inspector; both of Baptistown.

Knowlton, Warren county; population, 1,556. Mahlon M. Kinney, President, Delaware; William B. Gilbert, Clerk and Registrar, Columbia; J. J. Vanscoten, Health Officer, Delaware, Kinney Transwe, Inspector, Columbia.

Lacey, Ocean county; population, 602. Dr. G. E. Wallace, President, Health Officer and Inspector; B. T. Mathews, Clerk and Registrar; all of Forked River.

Lafayette, Sussex county; population, 683. Edward Ackerson, President; William S. Vought, Clerk and Registrar.

Lakewood, Ocean county; population, 5,149. Jas. F. Conly, President; Geo. H. Hurlburt, Clerk; John Lane, Registrar; Dr. E. G. Herbener, Inspector; all of Lakewood.

Landis, Cumberland county; population, 6,435. Dr. L. F. Hatch, President and Inspector; Ernest E. Howe, Clerk and Registrar; both of Vine-land.

Lawrence, Cumberland county; population, 1,746. Mahew Lovett, President; J. Wayne Mulford, Clerk; Furman Sheppard; all of Cedarville.

Lawrence, Mercer county; population, 2,522. John C. Hill, President, R. F. D. No. 3, Princeton; Frank Pierson, Clerk, Lawrenceville.

Lebanon, Hunterdon county; population, 2,179. Eliphalt Hoover, President; Geo. H. Castner, Clerk; both of Califon.

Linden, Union county; population, 1,988. DeWitt C. Winans, President; Albert Weber, Clerk and Registrar; both of Linden; Dr. F. W. Sell, Rahway.

Little Egg Harbor, Ocean county; population, 388. B. Frank Holman, President; Jay C. Parker, Clerk and Registrar; both of Parkertown; Dr. C. H. Conover, Health Officer and Inspector, Tuckerton.

***Little Falls**, Passaic county; population, 3,750. Wm. M. Zelif, Clerk and Registrar, Little Falls.

Livingston, Essex county; population, 1,025. A. P. Squier, President, Chatham, R. F. D.; Wm. Rathbun, Clerk and Registrar, Livingston; Dr. E. E. Peck, Health Officer and Inspector, Caldwell.

***Lodi**, Bergen county; population, 693. Ferdinand Kallminger, Secretary, Little Ferry.

Logan, Gloucester county; population, 1,523. Wilbur F. Beckett, President, Swedesboro; S. B. Platt, Clerk and Registrar, Bridgeport; P. E. Stillwagon, Health Officer and Inspector, Bridgeport.

***Long Beach**, Ocean county; population, 109. Charles E. Sherborne, Clerk, Long Beach.

***Lopatcong**, Warren county; population, 766. Frank Cline, Registrar, Shimers.

Lower, Cape May county; population, 1,188. J. Durell Hoffman, President, Fishing Creek; J. Hollis Hoffman, Clerk and Registrar, Cold Spring; Dr. Wilson A. Lake, Health Officer and Inspector, Erma.

Lower Alloways Creek, Salem county; population, 1,252. Lucius H. Carll, President; Edward Hancock, Clerk; both of Hancock's Bridge; Herman F. Smith, Registrar, Canton; Dr. Frank B. Harris, Health Officer, Canton; John F. Kates, Inspector.

Lower Penns Neck, Salem county; population, 1,544. Chas. Bright, Sr., President; Chas. Casperson, Clerk and Registrar; Dr. Wm. H. James, Health Officer; all of Pennsville; David Dixon, Inspector, Salem.

***Lumberton**, Burlington county; population, 1,768. E. C. Davis, Clerk, Registrar and Inspector, Hainesport.

Madison, Middlesex county; population, 1,621. E. Bowne, President, Matawan; James Fountain, Clerk, Old Bridge; D. H. Brown, Registrar, Old Bridge; Edward Barker, Matawan.

Manalapan, Monmouth county; population, 1,375. Ed. Hendrickson, President; G. E. Conover, Clerk; H. W. Herbert, Registrar; A. T. Applegate, Health Officer.

Manchester, Ocean county; population, 1,112. Thos. Manion, President; Harold Pittis, Clerk, Health Officer and Inspector; E. T. Francis, Registrar; all of Lakehurst.

*No report received.

Mannington, Salem county; population, 1,606. Aaron E. Fogg, President; Elmer Griscom, Clerk and Registrar; both of Salem.

Mansfield, Burlington county; population, 1,526. A. H. Patterson, President, Georgetown; Jos. H. Armstrong, Clerk and Registrar, Columbus.

Mansfield, Warren county; population, 1,238. Wm. P. Boylor, President, Washington; John C. Beaty, Clerk, Port Murray; Dr. H. S. Funk, Health Officer, Port Murray; Wm. Lauce, Inspector, Port Murray.

Mantua, Gloucester county; population, 1,529. Isaac Dilkes, President, Sewell; Richard S. Kincaid, Clerk and Registrar, Mantua; Dr. E. Z. Hillegass, Health Officer and Inspector, Mantua.

***Marlboro**, Monmouth county; population, 1,754. J. D. Ely, M. D., Clerk.

Matawan, Monmouth county; population, 1,472. Lewis H. Stemler, President; Daniel Martin, Clerk; Richard Henser, Registrar; Nathan Ewin, Inspector; all of Matawan.

Maurice River, Cumberland county; population, 2,124. Raymond Henderson, President, Port Elizabeth; Henry Reeves, Jr., Clerk and Registrar, Leesburg; Dr. Charles Butcher, Health Officer, Dorchester.

Medford, Burlington county; population, 1,903. Joshua S. Wills, President; William M. Potts, Clerk and Registrar.

Mendham, Morris county; population, 792. Charles L. Lade, President; Frank Dean, Clerk; Fred H. Garrabrant, Registrar; all of Brookside.

Middle, Cape May county; population, 2,974. E. S. Hewitt, President, Cape May Court House; V. N. Erricson, Clerk and Registrar, Dias Creek; J. Morgan Dix, M. D., Inspector, Cape May Court House.

Middletown, Monmouth county; population, 6,653. Isaac Morris, President, Middletown; Howard W. Roberts, Clerk, New Monmouth; Omar Sickles, Registrar, Navesink; Dr. O. W. Budlong, Inspector, Belford.

Midland, Bergen county; population, 1,480. Otto Weisgerber, President; John D. Bogart, Clerk and Registrar; both of Ridgewood; Frank Freeland, M. D., Health Officer and Inspector, Maywood.

Millburn, Essex county; population, 3,720. William Byrd, President, Short Hills; Charles R. Reeve, Clerk and Registrar, Millburn; Dr. Willington Campbell, Health Officer, Short Hills; Felix McGee, Inspector, Millburn.

Millstone, Monmouth county; population, 1,461. A. B. Chamberlin, President, Perrineville; Geo. J. Ely, Sr., Clerk and Registrar; Ely's Corner, R. F. D., Cranbury.

Monroe, Gloucester county; population, 3,015. John H. Bittle, President, Sicklerville; John W. McClure, Clerk, Williamstown; E. F. Evans, Registrar, Williamstown; Herman N. Lutz, Health Officer, Williamstown; H. M. Fodder, Inspector, Williamstown.

Mourne, Middlesex county; population, 1,723. John D. Butcher, President, Cranbury, R. F. D. 3; Robt. V. Vandenbergh, Clerk, Prospect Plains; J. L. Suydam, M. D., Inspector, Jamesburg.

Montague, Sussex county; population, 621. Geo. Hooker, President; Geo. McCarty, Clerk and Registrar; Dr. G. O. Pobe, Inspector; all of Port Jervis, N. Y.

Montgomery, Somerset county; population, 1,637. Jacob Boice, President, Harlingen; E. L. Van Zandt, Clerk, Blawenburg; C. B. Allshouse, Registrar, Skillman.

Montville, Morris county; population, 1,944. George Bayliss, President; Frank H. Starkey, Clerk; Fred Van Duyn, Registrar.

Morris, Morris county; population, 3,161. Thos. T. Sands, President, Registrar and Inspector; J. Paul Jamieson, Clerk; all of Morristown.

Mount Laurel, Burlington county; population, 1,573. James Lavery, President, Masonville; W. Clifford Godfrey, Clerk and Registrar, Moores-town; Dr. F. G. Stroud, Inspector, Moores-town.

Mount Olive, Morris county; population, 1,160. Elmer Lozier, President, Stanhope; Hez. Smith, Clerk and Registrar, Flanders; Dr. Jno. Miller, Inspector, Stanhope.

***Mullica**, Atlantic county; population, 811. John D. Carver, Clerk, Elwood.

Neptune, Monmouth county; population, 5,551. Leonard Hecht, President; J. L. Thompson, Clerk, Asbury Park; Fred D. Hurley, Registrar, Health Officer and Inspector, Ocean Grove.

***New Hanover**, Burlington county; population, 948. Chas. Remine, Sr., Clerk, Wrightstown.

***New Providence**, Union county; population, 526.

Northampton, Burlington county; population, 5,652. Wm. H. Mason, President; M. H. Girven, Clerk and Registrar; Dr. R. H. Parsons, Health Officer and Inspector; all of Mt. Holly.

North Bergen, Hudson county; population, 15,662. Adolph Asmus, President; James Nolan, Clerk; Wm. A. Pindar, M. D., Health Officer.

***North Brunswick**, Middlesex county; population, 990. Michael Anderson, Jr., Clerk, New Brunswick.

***North Hanover**, Burlington county; population, 696. Benjamin Harker, Jr., Clerk, Wrightstown.

***North Plainfield**, Somerset county; population, 886. John Herman, Clerk, Watchung.

Ocean, Monmouth county; population, 1,377. B. A. Jeffrey, President, Elberon; Harry G. Van Note, Clerk and Registrar, Oakhurst; Dr. Stanley Nichols, Health Officer and Inspector, Long Branch.

Ocean, Ocean county; population, 397. H. S. Brown, President, Waretown; W. B. Wilkins, Clerk and Registrar.

***Oldmans**, Salem county; population, 1,364. Geo. S. Justice, Clerk and Registrar.

***Orvil Bergen** county; population, 970. Chas. H. Henion, Clerk and Registrar, Waldwick.

***Overpeck**, Bergen county; population, 4,512. Howard B. Ficken, Registrar, Ridgefield Park.

Oxford, Warren county; population, 3,444. Geo. Fox, President, Michael Mountain, Clerk and Registrar.

***Pahaquarry**, Warren county; population, 205. J. G. Spangenburg, Clerk, Mill Brook.

Pailsade, Bergen county; population, 1,141. Frederick Heine, President, New Bridge; George Gengenagel, Clerk and Registrar, Peetzburg; Chester A. King, M.D., Inspector, Oradell.

Palmyra, Burlington county; population, 2,801. James Russell, President; John W. Shade, Clerk; Frederick Blackburn, Health Officer and Inspector.

***Passaic**, Morris county; population, 2,165. Walter J. Swenson, Clerk and Registrar, Stirling.

Pemberton, Burlington county; population, 1,679. Thos. C. Shreve, President; W. M. Hengrove, Clerk, Brown Mills; Barclay Seeds, Registrar; Dr. E. Hollingshead, Health Officer and Inspector.

Pensauken, Camden county; population, 4,169. Chas. F. Lacy, President; Wm. T. Sheppard, Clerk and Registrar; Frank Clifford, Health Officer and Inspector.

Pequannock, Morris county; population, 1,921. Edwin Fruit, President, Butler; Alfred Gilliard, Clerk and Registrar, Pompton Plains.

Pilesgrove, Salem county; population, 1,786. W. C. Richman, President; M. W. Buzby, Clerk; F. P. Vanlier, Inspector; all of Woodstown.

***Piscataway**, Middlesex county; population, 3,523. Geo. W. Coriell, Registrar, New Market.

***Pittsgrove**, Salem county; population, 2,394. George Schalick, Clerk and Registrar, Centreton.

***Plumsted**, Ocean county; population, 1,123.

Pohatcong, Warren county; population, 3,202. William Sherman, President, Phillipsburg, R. D.; W. I. Jacoby, Clerk and Registrar, Finesville.

Pompton, Passaic county; population, 4,044. E. W. Wheeler, President; J. C. Beam, Clerk and Registrar; both of Midvale; Dr. D. N. Shippee, Inspector.

Princeton, Mercer county; population, 1,178. Dr. E. H. Bergen, President and Inspector; J. H. Warren, Clerk and Registrar.

Quinton, Salem county; population, 1,091. William Radel, President.

Randolph, Morris county; population, 2,307. Wm. J. Curnow, President, Dover; Ellison Coe, Clerk and Registrar, Mt. Freedom.

***Raritan**, Hunterdon county; population, 1,310. Theo. H. Dilts, Clerk and Registrar, Three Bridges.

*No report received.

*No report received.

Raritan, Middlesex county; population, 2,707. Peter Meeker, President; Wm. T. Woerner, Clerk; both of Metuchen.

Raritan, Monmouth county; population, 1,583. J. L. Webster, President, Hazlet; Herman L. Lehr, Clerk, Registrar and Inspector, Keansburg.

Readington, Hunterdon county; population, 2,569. C. C. Huff, President, Three Bridges; W. T. Hoffman, Clerk, White House Station; Dr. F. L. Johnson, Inspector, Stanton, N. J.

Riverside, Burlington county; population, 4,011. Jacob Theuer, President; Chas. Heiss, Clerk and Registrar; Dr. C. B. Lambert, Health Officer and Inspector.

Rivervale, Bergen county; population, 450. Peter Jerr, President; Lucas C. Blauvelt, Clerk and Registrar; both of Westwood.

Rockaway, Morris county; population, 4,835. James Onstead, President, Wharton, R. F. D. No. 1; William Winters, Clerk and Registrar, Hibernia.

***Roxbury**, Morris county; population, 2,414. E. W. Kilpatrick, Clerk and Registrar, Succasunna.

Saddle River, Bergen county; population, 3,047. Adam Hopper, President; Isaac A. Hopper, Clerk and Registrar; both of Fair Lawn.

Sandyston, Sussex county; population, 855. Ira Stoll, President; Dr. A. A. Ranson, Clerk; both of Layton; Warren Van Sickle, Registrar, Bevans.

Sayreville, Middlesex county; population, 5,783. Abraham Feible, President; Thos. Creamer, Clerk and Registrar; Dr. J. H. Beekman, Health Officer; Henry Shafnaker, Inspector.

Shamong, Burlington county; population, 483. Ulysses Dillits, President; Mahlon Prickitt, Clerk, Registrar, Health Officer and Inspector; all of Indian Mills.

Shrewsbury, Monmouth county; population, 3,238. Harry G. Borden, President and Registrar, Shrewsbury; George H. Lippincott, Clerk, Little Silver; Benj. F. King, Inspector, Shrewsbury.

Southampton, Burlington county; population, 1,778. C. G. Naylor, President; J. C. Brown, M. D., Health Officer and Inspector; all of Vincen-town.

South Brunswick, Middlesex county; population, 2,443. H. W. Jeffers, President, Plainsboro; Wm. Perkins, Clerk and Registrar, Kingston.

South Harrison, Gloucester county; population, 694. Clayton G. Kirby, President, Mullica Hill, R. F. D.; D. C. Lippincott, Clerk and Registrar, Harrisonville; Samuel S. Ashcraft, Inspector, Mullica Hill.

South Orange, Essex county; population, 2,979. Frederick O. Runyon, President; Edward R. Arcularius, Clerk; William G. Miller, Registrar; William L. Holt, Health Officer, Maplewood.

Sparta, Sussex county; population, 1,579. Martin Demarest, President; Seymour Pullis, Registrar, Andover; Dr. A. N. Jacob, Health Officer and Inspector.

Springfield, Burlington county; population, 1,278. Hiliary A. Tilghman, President, Jobstown; Dr. Lyman Hollingshead, Health Officer and Inspector, Pemberton.

Springfield, Union county; population, 1,246. Joseph Koch, President; Lewis L. Terry, Clerk and Registrar; Dr. H. P. Dengler, Health Officer.

Stafford, Ocean county; population, 934. C. H. Cranmer, President; Geo. F. Pharo, Clerk and Registrar; Dr. J. Hilliard, Health Officer; all of Manahawkin.

Stillwater, Sussex county; population, 796. Chas. R. Westbrook, President, Middleville; O. Van Horn, Registrar; E. W. Landis, Health Officer.

Stow Creek, Cumberland county; population, 880. Eric Carlson, President; Wm. H. Davis, Clerk and Registrar; both of Bridgeton; H. H. Fritts, M.D., Medical Inspector, Shiloh.

Tabernacle, Burlington county; population, 487.

Teaneck, Bergen county; population, 2,082. Wm. H. Bodine, President; James B. Armstrong, Clerk and Registrar; Valentine Ruch, M. D., Health Officer, Englewood; Geo. F. Shafer, Inspector, Hackensack.

Tewksbury, Hunterdon county; population, 1,742. Fred L. Lindabury, President, Lebanon, R. D.; Hezekiah Philhower, Clerk and Registrar, Callon; F. A. Apgar, Inspector, New Germantown.

***Union**, Bergen county, population, 4,076. H. Leroy Dikeman, Clerk, Lyndhurst.

*No report received.

Union, Hunterdon county; population, 930. William Best, President; Morris Stockton, Clerk and Registrar; H. J. Hahn, M. D., Inspector; all of Pattenburg.

Union, Ocean county; population, 982. John W. Chew, President; Michael M. Olnowich, Clerk and Registrar; Dr. Howard Conover, Health Officer; George Van Note, Inspector; all of Barnegat.

Union, Union county; population, 3,419. C. E. Blanchard, President, Vauxhall; Fred Stone, Clerk and Registrar.

Upper, Cape May county; population, 1,483. Harry Young, President, Beesley's Point; Jesse T. Young, Clerk, Beesley's Point; S. C. G. Stephens, Registrar, Tuckahoe; R. Marshall, Health Officer, Tuckahoe.

Upper Freehold, Monmouth county; population, 2,053. Joseph C. Johnston, President, Allentown; John Y. Sinton, Clerk, Health Officer and Inspector, Imlaystown.

Upper Penns Neck, Salem county; population, 744. David W. Wright, President; Willard Layton, Clerk and Registrar; Paul Scott, Health Officer, Inspector; all of Penns Grove.

Upper Pittsgrove, Salem county; population, 1,754. John C. Wiltsee, President; R. A. Robinson, Clerk and Registrar; both of Monroeville; Geo. W. Fitch, M. D., Health Officer and Inspector, Daretown.

Vernon, Sussex county; population, 1,675. Monroe Houghtaling, President; Wm. D. Parker, Clerk and Registrar.

Voorhees, Camden county; population, 1,174. W. I. Tomlinson, President, Kirkwood; R. B. Stafford, Clerk and Registrar, Marlton; Dr. W. A. Westcott, Health Officer and Inspector, Berlin.

Wall, Monmouth county; population, 3,317. E. S. Wooley, President; George E. Rogers, Clerk, Registrar, Health Officer and Inspector; all of Belmar.

***Walpack**, Sussex county; population, 286. J. W. Bunnell, Registrar, Walpack Center.

Wantage, Sussex county; population, 2,077. Frank Meddough, President; S. M. Parcell, Clerk and Registrar; W. D. Vangasbeck, Health Officer and Inspector; all of Sussex.

Warren, Somerset county; population, 1,036. Frank W. Ralph, President, Plainfield, R. 3; Geo. Bowers, Clerk, Registrar, Health Officer and Inspector, Warrentville.

***Washington**, Bergen county; population, 100. J. Henry Thomas, Assessor, Westwood.

Washington, Burlington county; population, 597. James M. Crowley, President, Green Bank; Gilbert H. Irons, Clerk, Lower Bank; Thomas K. Sooy, Health Officer, Green Bank; John H. Maxwell, Inspector, Wading River.

Washington, Gloucester county; population, 1,396. Henry Nicholson, President, Sewell; G. R. Hurff, Clerk and Registrar, Turnerville; J. E. Hurff, Health Officer, Blackwood.

Washington, Mercer county; population, 1,090. C. Newton Hutchinson, President and Registrar; E. B. Yard, Clerk; both of Robbinsville; E. Drew Silver, M. D., Health Officer, Windsor; Mahlon Merohn, Inspector, Robbinsville.

Washington, Morris county; population, 1,900. John Bunn, President, Califon, R. D.; G. H. Sliker, Clerk and Registrar, Pt. Murry; Jas. Anthony, Health Officer, German Valley; C. A. S. Gulick, Inspector, Beatystown.

Washington, Warren county; population, 1,023. Daniel M. Wyckoff, President; Elmer C. Snyder, Clerk, Registrar and Health Officer.

Waterford, Camden county; population, 1,484. F. C. Schleinkofer, President; Theo. Schleinkofer, Clerk and Registrar; both of Atco.

Wayne, Passaic county; population, 2,281. Larry Berdan, President; Aaron Lawane, Clerk; both of Paterson, R. F. D. No. 1; Thos. D. Ryerson, Registrar, Wayne; Wm. F. Hosier, Health Officer, Mt. View.

Weehawken, Hudson county; population, 11,228. Emile W. Granert, President; Henry C. Hansen, Clerk and Inspector; John G. Meister, Registrar; A. E. Fendrick, M. D., Health Officer.

***Westampton**, Burlington county; population, 564. Harvey J. Gaskill, Secretary, Mt. Holly, R. D. No. 1.

*No report received.

West Amwell, Hunterdon county; population, 866. Chas. A. Slack, President; G. H. Carr, Clerk and Registrar; both of Lambertville, F. W. Lavisson, M. D., Health Officer and Inspector, Lambertville.

***West Deptford**, Gloucester county; population, 2,057. James Carter, Clerk and Registrar, Thorofare.

West Milford, Passaic county; population, 1,967. Walter Vreeland, President, Macopin; John M. Weaver, Clerk and Registrar; Dr. D. E. Drake, Health Officer; both of Newfoundland.

West Windsor, Mercer county; population, 1,342. Jacob R. Wyckoff, President, Princeton Junction; Hiram A. Cook, Clerk, Dutch Neck; H. J. Coleman, Registrar, Trenton, R. F. D. 2; E. B. Silvers, M. D., Health Officer, Windsor.

Weymouth, Atlantic county; population, 899. Anderson Campbell, President; F. R. McKegue, Registrar; both of Tuckahoe.

White, Warren county; population, —. Dr. L. E. Hoagland, President and Health Officer, Oxford; D. S. Spangenberg, Clerk and Registrar, Belvidere.

Willingboro, Burlington county, population, 562. William Bowker, President, Rancocas; Albert Hansell, Jr., Secretary, Burlington, R. F. D.

Winslow, Camden county; population, 2,919. Fred'k. Pristley, President, Elm; John Leed, Clerk, Waterford Works; James T. Russell, Registrar, Cedar Brook; Dr. C. Cunningham, Inspector, Hammonton.

Woodbridge, Middlesex county; population, 8,948. B. J. Dunigan, President and Registrar; Joseph L. Gill, Clerk, Port Reading; J. H. Concannon, Health Inspector.

Woodland, Burlington county; population, 475. Walter Sloan, President; Jacob Dunfer, Clerk; both of Chatsworth; Dr. J. C. Brown, Health Officer, Vincentown.

Woolwich, Gloucester county; population, 1,136. A. A. Bradshaw, President; C. H. Brown, Clerk and Registrar, Swedesboro.

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