

THIRTY-FOURTH ANNUAL REPORT

OF THE

Board of Health of the State of New Jersey

1910

AND

Report of the Bureau of Vital Statistics



TRENTON, N. J.

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Letter of Transmittal.

TRENTON, N. J., October 31st, 1910.

To His Excellency John Franklin Fort, Governor of New Jersey:

SIR—I have the honor to transmit herewith the Thirty-fourth Annual Report of the Board of Health of the State of New Jersey and the Report of the Bureau of Vital Statistics.

Very respectfully,

BRUCE S. KEATOR,

Secretary.

(iii)

Board of Health of the State of New Jersey.

MEMBERS.

JOHN H. CAPSTICK, President.....Montville
GEORGE P. OLCOTT, C.E., Vice President.....East Orange
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Cemeteries, Burial and Transportation of the Dead—Harry M. Herbert and Herbert W. Johnson.
Epidemics and Supervision of Lines of Travel—William H. Chew and George P. Olcott.
Drainage, Sewerage and Water Supplies—Harry M. Herbert and William H. Chew.
Public Institutions—George P. Olcott and Harry M. Herbert.
Auditing—John H. Capstick and Bruce S. Keator.
Laboratory—George P. Olcott and William H. Chew.
Examiners of Applicants for Appointment—William H. Chew and Harry M. Herbert.

John H. Capstick, President, and Bruce S. Keator, Secretary, members *ex officio* of all committees.

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

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Report of the Board.

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To His Excellency, John Franklin Fort, Governor, Trenton, New Jersey:

SIR—The State Board of Health presents herewith its annual report for the year ending October 31st, 1910. Accompanying this report, and made a part of it, are the reports of the Secretary and Executive Officer and the Chief of each of the Divisions created by the Board.

Since its reorganization in 1908 the State Board of Health has, from time to time, made such recommendations to the Executive as in its opinion were necessary to the more efficient administration of the health laws, and where additional legislation was needed the Board has urged this upon the Legislature. Considerable progress has been made, but one of the difficulties of presenting to the public the timely suggestions of the Board has been the unreasonable delay in getting out the printed reports. This, however, the Board could not control, and yet it has had to suffer by criticism, well founded, which has been directed to reports that have lost much of their force and certainly all of their freshness by delayed publication. This year the Board proposes to overcome this by placing its recommendations in the hands of the legislators before the session is over, and before the statistical and detailed part of the report is published.

The year just past has been one of active work in every department of the Board. The progress along many lines has been gratifying and the work of the Board compares very favorably with that done by similar boards in other states which expend more money than does New Jersey.

It is, perhaps, appropriate, in this the last report to the Executive who advocated and created it, for the Board to briefly summarize its work that its usefulness to the State under its present organization may be judged. At the outset the Board promised

a business administration and this policy has resulted in greater efficiency in every division and a decidedly more prompt method of dealing with important matters requiring the attention of the Board.

The health department of the State for years has been hampered both by lack of funds and an inadequate number of inspectors to properly carry on the important work with which it was charged. The present Board each year has directed attention to this and has urged appropriations sufficient at least to make the work of inspection of some practical value. During the last year an amount of money has been granted by the Legislature which has permitted the extension of work along lines that heretofore had of necessity been neglected. This is illustrated in the Division of Medical and Sanitary Inspection.

DIVISION OF MEDICAL AND SANITARY INSPECTION.

This department has to deal with epidemics of communicable diseases occurring in State institutions, epidemics in the various sanitary districts of the State, the protection of the milk consumer against diseases disseminated by infected milk, the inspection of public institutions including asylums, almshouses and jails, and investigations of nuisances. Its duty is also to be of assistance to local boards of health that the standard of local health administration throughout the State may be raised.

For a number of years there was only one sanitary inspector employed by the State Board of Health for this work and therefore no systematic investigations could be made. Local boards of health were left to enforce sanitary regulations and could not depend upon the advice and assistance of the State Board. With the increased number of inspectors in this department, an effort has been made to ascertain whether local boards of health in the various sanitary districts of the State are complying with the law.

Under the laws of the State, provision is made for the creation of local boards of health in every city, town, borough or local municipality or township. In cities, boroughs and other local municipalities, these boards are created by ordinances passed by the governing body. In townships the members of the local boards of health consist of members of township committees and

township assessors and physicians appointed by the township committees.

Beginning with December 1st, 1909, a general investigation was started and a special effort was made to secure the proper reporting of contagious diseases to local boards of health and the keeping of proper records of such cases, for unless this is done health statistics amount to little.

There are in New Jersey 472 sanitary districts in which there should be properly organized boards of health. These districts are classified as follows: 37 are cities; 184 are boroughs; 18 are towns; 3 are villages, and 240 are townships. Of this total number, 303 made no reports of contagious diseases to the State Board of Health from January 1st, 1909, to October, 1909, leaving a balance of 169 districts which were reporting cases of contagious diseases, as required by law. Between December 1st, 1909, and October 3d, 1910, 264 of the 303 districts from which no reports had been received were visited by an inspector; and later re-visits were made to 74 of this number, making a total of 348 visits to local boards of health during the year. From information gathered, it was found that only 20.9 per cent. of the local boards visited were making reports to the State Board of Health, while cases of notifiable diseases had been known to have occurred in 67 per cent. of the sanitary districts. In 126 of the districts it was ascertained that the reporting officer had no knowledge of the law requiring that weekly reports be sent to the State Board of Health. In only 74 districts visited were blank forms furnished to local physicians upon which to make reports of cases of communicable diseases reported to them; in 113, no forms were furnished, and in the remaining districts no information could be obtained as to whether such forms were in use or not. There were 12 sanitary districts in which there was no organized board of health. In 16 districts no meetings had been held in over a year; in 33 districts the local board of health had met to organize and had held no other meeting; in 8 districts, quarterly meetings were held; in 64 districts, meetings were held monthly; and in 60 districts, meetings were held at no stated time. In 99 sanitary districts visited, ordinances and sanitary codes had been adopted by local boards of health, while in 84 districts no action of this kind had been taken.

In the year 1905, a law forbidding the local boards of health to

employ as inspectors any person who had not secured a license from the State Board of Health, became effective. This law, however, did not affect those acting as inspectors previous to 1905. Inquiry in regard to the violations of this law by local boards of health showed that in 24 districts properly licensed inspectors were employed. In 123 districts, persons were acting as inspectors who were not licensed. In 35 districts, no inspectors were employed.

The beneficial results which follow a visit of a representative of the State Board of Health are becoming more and more apparent. The campaign which has been instituted for improvement in sanitary methods in the various localities of the State is one that is largely educational, and whenever unfamiliarity or lack of knowledge with regard to the duties of officials of local boards of health was found to exist, the various officials or members of the boards were informed as to the requirements of the law. In nearly all of the districts which have been visited, reports of notifiable diseases are now received at the office of the State Board of Health; books are kept in which cases of contagious diseases are recorded; blank forms are furnished to physicians on which to report to local boards; and in many instances where the boards were improperly organized, proper organization has been secured. Persons serving as inspectors in the employ of local boards of health are now making application for examination for the purpose of securing the licenses which the law requires.

It is the intention of the Board to continue this inquiry as to efficiency of local boards. From results thus far obtained there is reason to believe that in the near future a legally organized local board of health will be secured in each sanitary district in the State for the enforcement of ordinances and local health regulations, and through which the State Board may work in the enforcement of health laws which require the existence of and action by a local board in order that they may be effective.

The study of epidemics of contagious diseases, resulting in many instances in the discovery and removal of the source of infection, is one of great interest and value. These inquiries are made whenever an epidemic is reported to the Board, and each year the Division of Medical and Sanitary Inspection is called upon to aid local boards of health in the investigation of epidemics.

In 1909 epidemics of communicable diseases, occurring in 84 sanitary districts, were studied and inquiry was made as to 158 cases of typhoid fever; 41 cases of scarlet fever; 159 cases of diphtheria and 107 cases of small-pox. During the year 1910, 29 epidemics were investigated; and 33 cases of scarlet fever, 202 cases of typhoid fever, 15 cases of small-pox and 26 cases of diphtheria were subjected to careful study. This list, however, does not include cases of contagious diseases occurring on dairy premises.

There is a large increase in epidemiological work as compared with former years, and in the report of the Division of Medical and Sanitary Inspection for the present year the records of special epidemics indicate the scope and value of such investigations. A careful review of the methods in operation in this division shows what advances have been made in recent years; and the loss of life from preventable diseases, together with the lessened number of non-fatal cases of contagious diseases, is a valuable return for the money expended by the State for the protection of the health of its citizens.

DIVISION OF SEWERAGE AND WATER SUPPLIES.

No more important work is engaging the attention of the Board than its effort to put a stop to the pollution of streams and to safeguard the potable water supplied to the people of the State. In line with this policy more laws relative to stream pollution and public water supplies have been placed upon the statute books during the existence of the present Board than were enacted during all the years previous. That it was possible to secure this legislation is due to the awakening of public interest in these important subjects. At the present time, New Jersey has some of the most stringent regulations concerning stream pollution of any of the states; and our commonwealth is among the first of the states to provide by statute for complete jurisdiction over sewerage systems, disposal plants and public water supplies.

The successful operation of the laws relating to stream pollution depends upon inspection. In the Division of Sewerage and Water Supplies are employed three field inspectors, who patrol the waters of the State and seek out violations of the law, serve the necessary

notices to cease polluting the waters and re-inspect the premises when the time limit has expired. In the first five months, from May to October, 1908, 808 pollutions were discovered. During the next year, 1,501 were reported, of which 338, upon re-inspection, were found to have been abated. Three hundred and seventy-one cases were referred to the Attorney-General for action, while the remainder were given extension of time in which to comply with the orders of the Board. During the year just passed, 1,402 individual cases of pollution have been reported, of which number, up to the present time, about 40 per cent. have been abated. The other cases have been either referred to the Attorney-General for prosecution or await re-inspection. It is gratifying to note that although the figures look formidable there is much less individual pollution now than when this division commenced work; but it is absolutely necessary to maintain a strict patrol of our waters to keep the ignorant or thoughtless from nullifying the work and care of those who are in sympathy with the anti-pollution laws and who thoroughly realize their necessity.

Under chapter 72 of the Laws of 1900, the Board may serve notice upon municipalities (except those under the jurisdiction of the Passaic Valley Sewerage Commission) to show cause why they should not be ordered to provide a suitable method for the disposal of their sewage. Orders under this act may be appealed from and court hearings given, or in cases of failure to comply within the specified time, the aid of the Court of Chancery may be sought. Under this law practically every municipality which sewers into a stream has been ordered to cease, and a majority have taken steps to comply. The others, either for financial reasons or lack of desire to better their sanitary condition, have refused to comply with the notices issued, and await court action.

When this division was established by the Board, there were in the State thirty-nine sewage disposal plants in operation, built by direction of the former State Sewerage Commission. At the present time there are eighty-two such plants, with twelve others in course of construction. Plans for these plants have been approved by this Board, construction has been watched carefully, and the operation of the finished plants supervised, the result being that New Jersey, at the present time, has a larger list of sewage disposal plants than any other State. The power of the Board to

advise changes in construction and operation of these plants has been used in many instances where such changes would produce better results, and in nearly all cases the suggestions made have been carried out.

There are now fourteen municipalities under orders to purify their sewage whose time has not expired, while seven towns have received orders but have failed to comply before the expiration of the time given. The cases of five of the municipalities which have refused to comply with the orders issued have been referred to the Attorney-General for such action as the law provides.

Chapter 253, Laws of 1909, gives power to the State Board of Health in regard to water supplies greater than that of any other State Board. New supplies must be approved before the water is used and purification may be ordered for present supplies which are deemed unsafe. Provision is also made for the general supervision of all plants with respect to the purity of water furnished. There are in operation in the State at the present time one hundred and seventy water plants. Since the law of 1909 went into effect eleven new plants have been installed and purification of some kind has been adopted by five.

The Board through this division endeavors to keep a careful watch over all water supplies, especially those of surface origin. Purification has been ordered in some instances, and up to the present time only one municipality thus advised has seen fit to object, although that city is now taking steps to comply with the orders of the Board. It is universally acknowledged that water may become the wholesale distributor of certain diseases, chief among which is typhoid fever, and if a town, by installing a water purification plant can reduce its death rate from typhoid fever ten per cent., that community is well repaid for the expenditure.

The laboratory operated in connection with this division, although cramped for room, has accomplished as much, if not more, work than any other of its size. During the last three years there have been analyzed 4,960 samples of water and sewage. Each specimen is given a physical, chemical and bacteriological examination, the cost of which, if done in a private laboratory, would have been at least ten dollars for each examination. The total value, then, of this branch of the Board's work amounts to about fifty thousand dollars.

During the coming year the Board, through the Division of Sewerage and Water Supplies, aims to take up certain problems which have confronted the State for some time. Among these are the proper disposal of various trade wastes which must be purified before passing into the streams. A careful study must be made of these wastes, however, before any method of purification can be advised, and this is now being done. A better method must also be devised for obtaining samples of water from public water supplies.

DIVISION OF CREAMERIES AND DAIRIES.

State inspection of milk and its products has been a part of New Jersey's policy for some years, but prior to 1908 there was no adequate force for a regular and systematic inspection of dairies under the supervision of the State Board of Health. Previous to that time, all complaints received concerning the unsanitary condition of dairy premises were of course inquired into and referred to an inspector to investigate and report to the Secretary of the Board, but these investigations were necessarily sporadic.

In spite of the lack of proper facilities, however, the work done by the Board for a few years prior to 1908 was so effectual in certain districts of the State that the attention of health officers in the adjoining States of New York and Pennsylvania was drawn to it, and work of the same character was inaugurated by those authorities. In enlarging its work of milk inspection, the Board of Health of the City of New York extended its line of inquiry to the dairies of New Jersey and other states. By that time this Board had adopted a score-card upon which to record all dairy inspections. A similar method was adopted by the New York City Board of Health in its inspections of New Jersey dairies, but the requirements of these two score cards varied in so many particulars that dissatisfaction arose among the dairymen. This condition was finally adjusted in 1908, when this Board adopted a revised score card embracing substantially many of the requirements of the New York card; and since that time the work of the two states has been more uniform in character and has given greater satisfaction to the dairymen whose premises have been inspected.

It was impossible, however, to meet the increasing demand for dairy inspection on account of the limited facilities provided for

the work. The beginning of the more thorough system of dairy inspection dates from the year 1908, when the Legislature provided more funds for this purpose. During that year the Board created the Division of Creameries and Dairies, and assigned to it two inspectors, and an additional inspector was appointed in February, 1910. With a chief and three assistants, who are kept constantly at work inspecting creameries and dairies, the results accomplished in the last three years have been gratifying. It was recognized at the beginning that it would be impossible to inspect regularly all the dairies in the State in which milk is produced for public consumption, and therefore the Board adopted the policy of securing the aid of such local boards as had enacted ordinances requiring all dealers to take out permits before engaging in the business of selling milk. The result of this system of co-operation has been very valuable in stimulating the local authorities to greater efforts in guarding their own municipal milk supplies, for they have the assurance that the State Board will support them in their demands for proper hygienic conditions on dairy premises.

Periodical inspections are now being made of dairy premises which furnish milk to twenty municipalities, and the number of local boards of health who are revising their sanitary codes so as to receive the benefit of the State's milk inspection service is constantly increasing.

It is the aim of the Board to make the work of this division cover as much ground as is consistent with thoroughness, and to this end a system has been adopted which has produced increasingly satisfactory results. In the ten years prior to 1908 there were 2,204 dairy and 525 creamery inspections. In 1908 there were 300 dairy and 184 creamery inspections; in 1909, 1,223 dairy and 202 creamery inspections, and in 1910, 1,478 dairy and 511 creamery inspections; making a total of 3,001 dairy and creamery inspections in the last three years, as compared with 2,729 inspections in the ten previous years. The records of these inspections are kept on file and are so arranged that reference to any one of them can readily be made. These records are of great value in comparing the progress or decline in the conduct of a dairy, or in cases where information is desired concerning a particular dairy, by individual citizens or local boards of health, or when official action becomes necessary to compel better conditions on dairy premises.

In addition to the periodical inspection of the dairies supplying the twenty municipalities referred to, a large amount of work has been done among the other dairies in the State, in compliance with requests of health boards or private citizens.

Since the reorganization of the Board, an act was passed by the Legislature providing for the incorporation of medical milk commissions and the certification of milk produced under their supervision. This act makes the Secretary of the Board an ex-officio member of each commission and requires this Board to investigate the methods employed in the production of certified milk and to inspect the dairies in which such milk is produced. Certified milk, properly handled, is ideal for infant feeding and for the use of invalids in their homes and in hospitals, and on account of the high price paid by the consumer and his obvious confidence in the purity of the product, the dairies producing this milk receive much attention from inspectors of this division. Milk is sold in this State from eight certified dairies, two of which are located in the vicinity of Elmira, New York. These dairies and the methods employed in them have all been carefully investigated.

The act relative to the inspection of creameries was approved April 20th, 1906, and provides that all such establishments shall be licensed by the State Board of Health. It also stipulates that they shall be constructed so that the interior surfaces shall be smooth, that is, free from all projecting ridges upon which dust, dirt, cobwebs, &c., may accumulate. It provides for impervious floors, pure water supplies, proper washing and cleansing facilities, good drainage, &c. The act defines a creamery to be "any establishment where milk is received or stored for sale or distribution by wholesale, or for the manufacture of the same into butter, cheese, condensed milk or other food for human beings."

Before the passage of this act, many complaints reached the Board concerning impaired milk supplies, due both to the unsanitary conditions in and surrounding the creameries and to the imperfect methods of the managers in handling the large quantities of milk received. At that time the milk brought to these creameries by the farmers was poured into vats, whence it was pumped through long lines of iron piping, and even through rubber hose, and frequently bottled by processes that rendered it positively dangerous to health. The milk vats were usually located on a platform near the door of the creamery where it was most con-

venient for the farmers to reach it, but where clouds of dust from the roadway would settle in the milk contained in the uncovered vats. The pumps used at that time were of a type difficult to clean; in fact, they were never taken apart so that the inside could be cleaned. The pipes through which the fluid was transferred from vat to separator or shipping can were generally of a small diameter, and, like the pumps, the interior surfaces could not be cleaned. The creamery buildings had wooden floors, and when they happened to be worn, the space beneath became a reeking mass of decomposing matter caused by escaped waste fluids. A common practice in use at that time was the bottling of milk by the syphon process. The operator, after inserting one end of a rubber tube in a can of milk, would place the other end in his mouth and draw the milk through it, then remove the tube and let the milk flow into the bottles, keeping up the process until his supply was all bottled.

In many cases a part of the creamery building was occupied by the manager and his family as a dwelling, with the living room frequently adjoining the room where milk was received, bottled or otherwise prepared for market. Children and other members of the family, or visitors, had free access to the rooms where large quantities of milk were exposed. This condition of creamery occupation menaced the purity of the product, and when a certain outbreak of scarlet fever occurred in a city in the northern part of the State, where the milk from a creamery of this description was distributed, the source of the disease was traced directly to this establishment. It was found that a child, sick with a malignant case of scarlet fever, had been nursed by its parents in the room adjoining the milk room. The father and mother alternated in nursing the child and caring for the milk in the creamery.

The foregoing is stated in order to show the revelations unearthed by the Board in its preliminary work of creamery inspection, and it was because of such occurrences that section five of chapter 139 of the Laws of 1906 was enacted, providing that no part of any creamery building should be used as a kitchen, a laundry or a dwelling.

As a result of the work in creamery inspection, all the old type of milk pumps have been removed, and those creameries which still use pumps have installed a type which can readily be taken apart so that the entire interior surfaces can be cleansed. The Board has also required all milk vats to be provided with metal covers to pre-

vent the entrance of flies, dust and dirt. Wooden floors have given place to concrete floors; defective drainage systems have been reconstructed, and the method of bottling and otherwise handling milk have undergone a radical change in the direction of reform.

The records of the Board show that its inspectors made 525 visits to creameries in the six years prior to 1908. Since the reorganization of the Board and the creation of the Division of Creameries and Dairies, in 1908, the number of inspections made of these establishments was 897, of which 511 were made in the last year.

The Board has thus been able to keep a better supervision over the places where milk is received and prepared for public distribution. In the year 1906, 133 creameries were reported in operation, not including establishments where ice cream, exclusively, was manufactured for the wholesale trade. In a few of them this food was manufactured in the summer time from the surplus milk and cream, for which no other market was as profitable. Early in the present year a communication was received from the owner of a creamery in Salem county, informing the Board that he had given up the business of receiving and shipping milk and cream for sale as such, and that he proposed to use his creamery in the future for the sole purpose of manufacturing ice cream for the wholesale trade, and wished to know whether or not he could operate his plant under the license already granted him. The Attorney-General was consulted and informed the Board that under the provisions of chapter 139 of the Laws of 1906, ice cream factories come under the classification of creameries, as defined by that act, because they were establishments where "milk or cream * * * is manufactured into * * * food for human beings," and that it was clearly the duty of the Board to license them whenever they met the requirements of the law. This creamery was licensed and the inspectors were directed to visit as many wholesale ice cream factories as possible and report on the sanitary conditions found. Fifty-one of these plants were inspected and are included in the 212 creameries reported this year.

In these investigations the Board found that eleven of the creameries or factories were located in cellars or in the basements of dwellings. Most of them were unfit for creamery purposes on account of poor light and ventilation. In a few instances defec-

tive drainage constituted a nuisance, and the places were condemned on that ground alone.

While there is no provision in the law against a creamery or ice cream factory being located in a basement, such places are unfit for the business. In view of this, an amendment to the creamery act should be passed, providing that no cellar or basement or place which is below the street level shall hereafter be used for the manufacture of ice cream except where the same is used for the purpose at the time of the passage of the act; but providing, of course, that if in the judgment of the State Board of Health the basements now used for that purpose are unfit places in which to manufacture or handle such a product in a clean and sanitary way, the Board could prohibit such manufacture of ice cream by giving a notice in writing to the owner to cease to use such basement within a specified time.

Another subject on which legislation is desirable is a law requiring local boards of health to revoke permits already issued to milk dealers where the officers of the State Board of Health have found conditions on their premises which, in the Board's judgment, render the milk produced there of such a character as to be dangerous to health. Local boards of health, within whose limits unsanitary dairies are located, are always notified by the Board of the conditions found at these places, and while prompt action is usually taken by local boards in the revocation of licenses issued to the dealers, in some cases no notice whatever is taken of the complaint of the State Board, and the dealers are permitted to continue the sale of unsanitary milk without molestation on the part of the local health authorities.

STATE LABORATORY OF HYGIENE.

The bacteriological laboratory of the State Board of Health began operations in 1896, making use of a building on the campus of Princeton College which was made available for laboratory purposes through the generosity of Dr. Charles E. Green. The work was performed at Princeton under considerable disadvantages because of lack of proper mail facilities until 1902 when the laboratory was moved to Trenton and located in the Broad Street Bank building. In 1907 the present laboratory in the State House was

completed and occupied. These successive changes in the location of the laboratory were made necessary by the growth of the work which necessitated a larger equipment and more room, and it was believed when the State House laboratory was finished that ample room would be available to care for the natural growth for many years to come. Unfortunately, this has not proved to be the case. The organization of the Division of Sewerage and Water Supplies in 1908 resulted in a large increase in the number of samples of water and sewage examined, and necessitated the setting aside of one room which had been previously used partly for water work, exclusively for the use of that division. The chemists of that division also find it necessary to make constant use of other portions of the laboratory. The bacteriological work has increased during the last three years at a much greater rate than during any previous period, requiring the employment of more assistants and the storage and handling of a much larger equipment. Inasmuch as this increase is due to the much larger number of specimens sent to the laboratory by physicians and local boards of health, and cannot therefore be controlled, and as it seems likely that the present rate of increase will continue for some years to come, it is evident that the rooms now occupied by the bacteriological department, which are crowded at the present time, will soon be inadequate to care for the number of specimens received. The work of the Division of Food and Drugs has also increased to an unexpected extent because of certain laws recently enacted which will be referred to later, and the Food and Drugs laboratory will soon have reached the limit of its capacity. This state of affairs must be regarded with some concern because of the location of the laboratory which precludes the possibility of any considerable expansion. It is situated in the wing of the already overcrowded State House and is surrounded by offices, all of which are in use and cannot be secured for laboratory purposes. And yet more room must be provided or the progress of the laboratory work will be necessarily checked. At the present time the Board is constantly compelled to refuse to grant requests for assistance from local boards of health on account of lack of laboratory space in which to conduct the investigations they desire.

The work of the bacteriological laboratory consists in the examination of specimens sent by physicians from suspected cases of certain communicable diseases. The most important of these dis-

cases are diphtheria, tuberculosis, typhoid fever, malaria, gonorrhœa, rabies, anthrax and glanders. During the years 1908, 1909 and 1910 the number of specimens examined was greater than ever before. This increase was due to a much larger number of diphtheria specimens received, specimens from other diseases showing only a normal increase. This extraordinary increase in the number of diphtheria specimens was not due to any sudden increase in the activity of physicians in sending specimens to the laboratory but, in the main, to the passage of an act (Chapter 292 of the Laws of 1908) which places epidemics in State institutions under the direct control of the State Board of Health. An outbreak of diphtheria occurred in the Rahway Reformatory in 1908, resulting in the examination of 3,547 specimens from that institution alone. In 1909, diphtheria was epidemic in the State Village for Epileptics at Skillman and from that institution more than 11,000 specimens were received. During the same year and early in 1910, outbreaks of diphtheria occurred in Salem, Elmer, Ocean City and Asbury Park, and from each of these places large numbers of specimens taken by local boards of health from well persons who had been exposed to infection, were sent to the laboratory. There can be no doubt that the use of the laboratory in this manner is of great value in controlling epidemics of this disease, and it is to be expected that, in the future, a larger number of local boards of health will avail themselves of the facilities offered by the State Board in limiting the spread of diphtheria. This will result in the examination of large numbers of specimens which the laboratory must be prepared to handle promptly. Fortunately its equipment is ample for this purpose in so far as the microscopical examination of these specimens is concerned. Unfortunately the equipment is not adequate to make routine tests for virulence on diphtheria cultures because no suitable place is available in which to keep the necessary animals. The director of the laboratory has frequently called attention to this defect in the laboratory equipment and the Board has urged the Legislature to remedy it, but so far little has been accomplished toward providing a suitable animal room. The testing of cultures for virulence is of great practical importance in the control of epidemics of diphtheria where large numbers of specimens are examined from well persons. Bacteria morphologically identical with the diphtheria bacillus are sometimes found in the

throats or noses of these persons which are not sufficiently virulent to produce the disease. It therefore happens, when reliance is placed upon microscopical examination alone, that persons are subjected to the annoyances of quarantine restrictions which a test for virulence on the cultures obtained from them would show to be unnecessary. Inasmuch as proper control of a diphtheria epidemic causes unavoidable inconvenience because of quarantine restrictions, it is highly desirable that every precaution be taken to interfere as little as possible with the liberty of the public, and virulence tests are of considerable value in lessening the burdens which the people must bear.

As has been previously pointed out, the natural growth of the laboratory work cannot be measured by the number of diphtheria specimens examined because this number inevitably fluctuates greatly from year to year. The number of specimens received from suspected cases of tuberculosis is perhaps the most reliable indicator of the increasing use which physicians are making of the laboratory. Tuberculosis is a disease which does not become epidemic. The number of cases occurring each year is diminishing slowly in this State, but little difference occurs from year to year. The increased number of specimens from suspected cases of this disease which have been received within the last two or three years cannot therefore be charged to an increase in the disease itself, but must be due to an increased desire on the part of physicians to avail themselves of the facilities offered by the laboratory for early diagnosis. This increase may, on that account, be regarded as a measure of the increased usefulness of the laboratory to the citizens of the State. In 1908 the number of specimens examined for tuberculosis was 3,637. In 1909 the number had increased to 4,208, a gain of 16 per cent., and in 1910 the number examined was 4,520, an increase over the number received in 1908 of 24 per cent.

During the last two years 5,289 specimens have been examined from suspected cases of typhoid fever. In the early stages, typhoid fever is a difficult disease to diagnose and early diagnosis is of great value not only to the patient but to people at large, who must be protected from the danger of infection. The laboratory has rendered important service to the State in giving physicians information regarding this disease which enables them to prevent its

spread. Examinations for malaria are also important, although this is now an uncommon disease in New Jersey.

During 1909 and 1910, seventy-one specimens were examined for the purpose of ascertaining whether or not the animals from which they were obtained were suffering from rabies. This disease is now prevalent in some sections of this State and the number of cases is increasing rapidly. The examinations made of animals suspected of having had the disease are of much importance, as such animals rarely reach the laboratory unless they have bitten human beings. Rabies in man is a disease which cannot be cured after it has progressed far enough to produce symptoms which are recognizable, but can almost always be prevented, if the patient is treated soon after having been bitten, by Pasteur's method. Unfortunately, this treatment is costly and not unattended by danger, and the importance of prompt examination of animals which have bitten human beings is therefore evident. The examination of these specimens exposes the person making them to considerable danger and the bacteriologists attached to the laboratory deserve commendation for their willingness to risk their lives in the interest of the citizens of the State.

Besides the regular examinations for diagnosis, a number of special examinations have been made, principally for the purpose of assisting the Division of Medical and Sanitary Inspection in locating the causes of epidemics, and in other problems of an epidemiological nature.

DIVISION OF FOOD AND DRUGS.

The first comprehensive food and drugs act was passed in 1901, when the control of food and drugs laws passed into the hands of the State Board of Health. This law was variously amended and supplemented each year after its passage until in 1907 the present food and drugs act was passed. This act had for its model the Federal Food and Drugs act of June 30th, 1906, and contains most of the good features and not a few of the faults of that act. Certain amendments and supplements to the State act have been passed, so that the State of New Jersey has, at the present time, a fairly satisfactory set of laws governing the sale of food and drugs. These acts are by no means ideal. Many changes could be made

in them which would increase their efficiency, and supplemental legislation along certain lines is badly needed. A more satisfactory provision relative to the cleansing of containers used for transporting milk, a better provision for requiring that package goods be marked with the net weight or measure of their contents, a modification of our oleomargarine legislation in several respects, some definite legislation regarding the use of preservatives, coloring matters and artificial sweetening agents in foods, more rigid regulation of the sale and distribution of habit-forming drugs; these and many other matters require legislative action.

In 1908 the Division of Food and Drugs was created by the State Board of Health. Previous to that time the enforcement of food and drugs laws had been supervised by the Secretary of the Board, the analytical work being performed by the Director of the Laboratory of Hygiene and his assistants. At the time the division was created its work consisted principally in the collection and analysis of samples of food and drugs for the purpose of detecting violations of the law. For this purpose this division employed three inspectors and two chemists, besides the Chief, who devoted part of his time to analytical work. In 1908 there were collected and examined in the laboratory 6,581 samples of food and drugs. In 302 instances sufficient evidence of violation of law was obtained to warrant the Board in authorizing legal proceedings for the collection of penalties, and the sum of \$14,477.61 was collected in fines. In 1909 there were examined 7,568 samples, 282 suits were authorized and \$13,945.94 collected in penalties. In 1910 the appropriation for this work was reduced from \$20,000 to \$15,000; nevertheless, by extraordinary effort on the part of each employe of this division, 6,535 samples were collected and examined, 296 suits authorized and \$10,621.74 collected in penalties.

The efficiency of the enforcement of a food law cannot be gauged by the amount of money collected in penalties. During the last few years a great improvement has taken place in the quality of food and drugs offered for sale in this State. This is due primarily to the vigorous enforcement of law in this and many other states for a number of years, and latterly to the wide publicity given to the enforcement of the Federal Food and Drugs act. Violations of law are becoming fewer and more difficult to detect, and in the future it is to be expected that the amount of money received for

penalties will diminish, although the law be more rigidly enforced each year, and, indeed, because of such enforcement.

It should be pointed out, however, that food laws do not enforce themselves, and also that, because of the large number of places where foods and drugs are manufactured and sold, a large force of inspectors is necessary to adequately patrol the State. During the coming year it will be possible to employ one, and perhaps two more inspectors, and the amount of work which this division will be enabled to do will be correspondingly increased. In all probability, however, the number of samples examined will be smaller than last year, because of other work which the Legislature has required of the Board and which has properly been assigned to this division. In 1909 a very important supplement to the Food and Drugs act was passed, which throws certain safeguards of a sanitary nature around the manufacture and sale of food. (Chapter 231 of the Laws of 1909.) Under this act it becomes necessary for the Division of Food and Drugs to make inspections of all places where foods are produced, manufactured, stored, sold, and the manner in which they are transported, an undertaking so vast that hardly a beginning has been made. In view of the fact that, because of the smallness of the inspection force, no general survey of conditions throughout the State could be attempted with any hope of success, a few industries were selected and inspections were made for the purpose of becoming familiar with existing conditions and ascertaining the directions in which the most effective work could be done. For example: in 1909 inspections were made in drug stores to the number of 197, for the purpose of ascertaining the sanitary conditions existing where ice cream and soda water were offered for sale. In 74 of these places no violations of law could be detected; in 63 of them violations of minor importance which could be readily corrected were discovered; in 34, serious violations which might render the food sold in such places dangerous to health were discovered, and in 26 conditions were such that the places were unfit for use for the distribution of food. Numerous inspections have been made in establishments where soft drinks are prepared and bottled. Nearly every one of them violated the law in some particular, and in some the conditions were very bad. During the past few months nearly all of the canning factories in the State have been visited and it has been found that defects exist in the equipment and management of some of them. The need for a

much larger inspection force to adequately perform this inspection work is therefore evident.

At the last session of the Legislature, two laws were enacted which place additional work upon this division of the Board, without carrying any appropriations for their enforcement. One of these (Chapter 295 of the Laws of 1910) requires that all slaughter-houses in the State shall operate under a license granted by the State Board of Health, and providing that certain requirements must be met before a license can issue; and the other (Chapter 97 of the Laws of 1910) provides that the State Board of Health shall inspect at least once a year, all the oyster and clam grounds in the State. Attempts have been made to enforce both of these acts, although little could be done because of lack of funds. Nearly one hundred slaughter-houses have been inspected and very few of them have been found to comply with the law. Nothing could be more convincing than the reports of these inspections to show that the law requiring them was needed. At the present time but five slaughter-houses have been found to be so constructed and operated that the Board could grant them licenses. In order to properly inspect the slaughter-houses in the State, at least one, and preferably two men, should be provided for this work alone. These men should be graduate veterinarians and should have had special training along sanitary lines.

The annual inspection of the oyster and clam beds of the State is a task, the magnitude of which the Legislature could have had no conception when it passed an act requiring it and provided no funds for its enforcement. There can be no doubt that this work is necessary. Already great improvement in the sanitary conditions of the oyster grounds in the Maurice River Cove has been made, and much improvement must be made in other sections of the State. Our oyster and clam-producing territory extends from New York harbor all along the Atlantic coast and up the Delaware Bay as far as Salem, a large territory to cover. Oyster beds must be reached by boat, which adds another difficulty to the inspections. In order that the Board may adequately comply with the law, it will be necessary to provide sufficient funds to employ one analyst to examine samples, at least two inspectors, and a boat of sufficient size to carry four men and make short trips on the ocean in good weather. With the assistance of the Oyster Commission boats the Board has been able to make a fairly complete

liminary examination of the Maurice River Cove, and partial inspections in Ocean, Atlantic and Cape May counties.

This law requiring the annual inspection of oyster beds is in its present form unnecessarily burdensome on the State Board of Health, as it necessitates inspections of certain localities oftener than they are needed, and requires that a certificate of each inspection be sent to the oysterman whose beds have been examined. Since experience has shown these defects in the statute, it might be well to revise it in such a manner that its object would be accomplished without so much unnecessary labor.

BUREAU OF VITAL STATISTICS.

Since 1908 a complete revision of the laws in reference to vital statistics has been passed by the Legislature upon the recommendation of the State Board of Health. Although the State has been engaged in the collection of vital statistics for a period of thirty years, it is significant, as the registrar points out in his report to the Board, that New Jersey has just enacted laws which will probably permit the primary object of this department to be realized, viz., that of presenting an accurate marriage, birth and death rate. Under the old laws this was practically impossible to obtain, especially with reference to marriages and births. On July 1st, 1910, the marriage license law became effective and a revision of the laws in reference to births and deaths went into effect October 1st, 1909. Other changes in the work of this department of the Board include the adoption of the standard certificate of death, as approved by the Census Bureau at Washington, and the leading registration states of the country.

There is no doubt that the marriage license law which became operative on July 1st last, has attracted more attention and received more favorable comment than all the other New Jersey acts in reference to vital statistics. The first draft of a marriage license bill was prepared about four years ago, but did not receive legislative approval until the session of 1909. It will be recalled that this bill, after passing both branches of the Legislature, was found to be defective after reaching the Governor's hands, which necessitated its disapproval. The bill in its present form was passed by the last session of the Legislature.

To the ordinary layman the necessity of securing a marriage license is considered a hardship, but statisticians and students of philosophy who have given this matter careful attention, consider such a law necessary, for the reason that the conditions and legal necessities growing out of the contract of marriage concerns national existence and national permanency.

The Board has had many complimentary letters from clergymen throughout the State commending the new law, and the press, statisticians and laymen have praised it. The only objections that have been offered to the measure have come indirectly from some justices of the peace who were doing a lucrative business, before its passage, in marrying ill assorted couples; and who, in many instances, have never reported such marriages.

Summarizing the work, therefore, of every division of the Board, it is gratifying to be able to show that the health laws of the State are being efficiently administered and that marked progress has been made in the entire health department. The enactment by the Legislature of such additional laws as the experience of the present Board has shown to be necessary, will make for even greater efficiency and enable the work of this Board to be of increasing value to the people of the State.

Respectfully submitted,

JOHN H. CAPSTICK, *President.*
 BRUCE S. KEATOR, *Secretary.*
 WILLIAM H. CHEW.
 HERBERT W. JOHNSON.
 GEORGE P. OLCOTT.
 HARRY M. HERBERT.

Secretary's Report.

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

GENTLEMEN—Herewith is presented the report of the operations of the Board during the year ending October 31st, 1910. The report of the Board, which precedes my report, contains a comparative resume of the work of the State Board of Health for the years 1909 and 1910, and of necessity deals with portions of administrative work in the various departments. I have therefore considered it wise to briefly outline the action taken by the State Board in various matters and present a short summary of the work of each of the divisions created by the Board. As the Secretary of the Board is, under the provisions of the law, made the Medical Superintendent of Vital Statistics, a full report of statistical work for the year is presented. A careful review of the work of the year indicates decided advance in dealing with problems affecting the public health, and should act as an incentive for increased application and renewed enthusiasm during the coming year.

VITAL STATISTICS.

In summarizing the reports of births, marriages and deaths made to the Bureau of Vital Statistics for the past thirty years, it is interesting to note the great increase in the number of certificates filed in this department. The three tables shown below are for the three decades ending December 31st, 1909, and attention is called to the total number of births, marriages and deaths, together with the average for each decade, when some idea will be gained as to the enormous increase of the work in this department as well as the results of administrative health work in efforts to lower the death-rate.

It will be found that the death-rate for the first decade was 18.59; for the second decade, 18.48, and the third decade, 16.16.

This last named figure is no doubt the result of efficient sanitary administration, aided by adequate legislation with which to protect the public health. The number of births reported for the first decade was 25,405; the second decade, 31,204, and the third decade, 40,012, which is a remarkable increase. No doubt still further improvement will be noticed in the reporting of births when physicians and midwives become thoroughly familiar with chapter 109, Laws of 1909, which requires all births to be reported within five days, under a penalty of \$50.

The matter of reporting births is important in many respects, and in order to correctly determine the death-rate we must also know with some accuracy the true birth-rate.

The total number of certificates of births, marriages and deaths for the three decades in question are as follows: Births, 966,210; marriages, 480,298; deaths, 876,114, making a grand total of 2,322,622 certificates of births, marriages and deaths filed in the thirty years mentioned. Besides this, about 60,000 still-births have been reported and are on file in the department.

Prior to 1879, there is on file records of births, marriages and deaths in New Jersey as far back as 1848. These records are partially indexed and much valuable information yet remains to be tabulated from the same. It is estimated that close to 2,000,000 records are on file prior to 1879. This number, together with the total of 2,322,622 for the thirty years shown in the tables below, the total still-births, and other supplementary reports which have been received and are not incorporated in the figures given above, brings the grand total of all certificates of births, still-births, marriages and deaths on file in this department close to 5,000,000.

This enormous amount of statistical material, besides its use in studying the health and longevity of our inhabitants, is at the disposal of the two and one-half million people of this State for personal and statistical data.

A great many copies of these records are issued daily from this department for pension purposes, various legal uses, in proof of satisfactory age in enforcing the child labor law, in settlement of estates, in proof of age for entrance to school both in this country and abroad, in proof of age for applications for positions in the civil service of the city, state or government, &c., &c., &c.

TABLE SHOWING POPULATION, NUMBER OF BIRTHS,—MARRIAGES AND DEATHS REPORTED IN NEW JERSEY, WITH BIRTH, MARRIAGE AND DEATH RATES FOR TEN YEARS, 1880-1889, AND ALSO THE AVERAGE NUMBER OF BIRTHS, MARRIAGES AND DEATHS, WITH RATES FOR THE SAME PERIOD.

YEAR.	Population.	BIRTHS.		MARRIAGES.		DEATHS.	
		Number of births reported.	Birth-rate per 1,000 population.	Number of marriages.	Persons married per 1,000 population.	Number of deaths.	Death-rate per 1,000 population.
1880.....	1,180,892	23,680	20.94	7,963	14.08	18,967	16.77
1881.....	1,160,275	23,484	20.24	8,199	13.98	20,812	17.94
1882.....	1,189,658	23,108	19.42	8,837	14.86	25,959	21.82
1883.....	1,209,048	24,430	20.21	9,166	15.16	23,310	19.28
1884.....	1,248,224	25,263	20.20	8,968	14.37	21,716	17.40
1885.....	1,278,033	24,077	18.84	8,989	14.07	23,807	18.63
1886.....	1,310,431	25,497	19.46	12,351	18.85	22,734	17.35
1887.....	1,342,829	27,340	20.36	15,416	22.96	24,331	18.12
1888.....	1,375,227	28,074	20.41	16,025	23.31	27,173	19.76
1889.....	1,407,625	29,099	20.67	15,726	22.34	26,543	18.86
Averages for ten years.....	1,265,224	25,405	20.08	11,155	17.40	23,535	18.59

TABLE SHOWING POPULATION, NUMBER OF BIRTHS, MARRIAGES AND DEATHS REPORTED IN NEW JERSEY, WITH BIRTH, MARRIAGE AND DEATH RATES FOR TEN YEARS, 1890-1899, AND ALSO THE AVERAGE NUMBER OF BIRTHS, MARRIAGES AND DEATHS, WITH RATES FOR THE SAME PERIOD.

YEAR.	Population.	BIRTHS.		MARRIAGES.		DEATHS.	
		Number of births reported.	Birth-rate per 1,000 population.	Number of marriages.	Persons married per 1,000 population.	Number of deaths.	Death-rate per 1,000 population.
1890.....	1,441,017	30,103	20.89	15,564	21.60	28,530	19.80
1891.....	1,478,784	28,882	19.53	15,305	20.70	28,840	19.50
1892.....	1,511,653	30,627	20.26	16,082	21.28	32,685	21.62
1893.....	1,538,799	32,285	20.98	17,178	22.33	30,596	19.88
1894.....	1,578,373	33,662	21.33	16,245	20.58	30,004	19.09
1895.....	1,672,942	31,742	18.97	15,873	18.98	30,634	18.31
1896.....	1,718,543	31,207	18.16	18,370	21.38	30,767	17.90
1897.....	1,764,144	31,595	17.91	18,171	20.60	29,822	16.90
1898.....	1,810,008	32,515	17.96	18,213	14.59	27,337	15.11
1899.....	1,855,872	29,419	15.84	13,326	14.37	30,999	16.70
Averages for ten years.....	1,637,014	31,204	19.18	15,934	19.64	30,021	18.48

TABLE 2.—SHOWING NUMBER OF WHITE AND COLORED INHABITANTS IN NEW JERSEY, WITH DEATH-RATES PER 1,000 POPULATION, FOR NINE YEARS, 1901-1909.

YEARS.	Estimated population (total).	Estimated population (colored).	Total death-rate.	Death-rate, white.	Death-rate, colored.
1901	1,883,669	72,011	16.48	16.65	21.79
1902	1,925,781	74,178	15.91	17.33	21.00
1903	2,016,797	76,345	15.87	15.44	24.32
1904	2,058,909	78,512	17.14	16.91	22.95
1905	2,144,143	79,485	15.79	15.57	21.59
1906	2,196,238	80,458	16.24	16.02	22.09
1907	2,248,331	81,431	16.63	16.42	22.47
1908	2,300,427	82,404	15.47	15.23	22.04
1909	2,352,522	83,377	15.46	15.29	20.09

BIRTHS.

During the year ending December 31st, 1909, 47,508 births were reported to the State Bureau of Vital Statistics and the birth-rate per 1,000 inhabitants is 20.19, a fraction less than the preceding year.

Under chapter 109, Laws of 1909, the registration of births in New Jersey is improving; however, we are far from a complete registration of all births. Besides the important bearing of birth records upon health statistics it may safely be assumed that such records will become accurate and complete in proportion as legal necessity for their existence makes them so.

At the present time the greatest neglect in reporting births is among midwives and foreigners who have no professional attendant at the birth. Local registrars should see that copies of the law are distributed to these persons and in cases where no professional attendant is present, either of the parents have authority to file a record of the birth. The registrar of vital statistics also has authority to make records of births in cases where the medical attendant or parents have neglected this duty.

TABLE 3.—SHOWING POPULATION, NUMBER OF BIRTHS REPORTED, NUMBER OF MARRIAGES AND NUMBER OF DEATHS IN NEW JERSEY, WITH BIRTH-RATES, MARRIAGE-RATES AND DEATH-RATES FOR THE THIRTY-ONE YEARS ENDING DECEMBER 31, 1909.

YEAR.	Population.*	BIRTHS.		MARRIAGES.		DEATHS.	
		Number of births reported.	Birth-rate per 1,000 population.	Number of marriages.	Persons married per 1,000 population.	Number of deaths.	Death-rate per 1,000 population.
1879.....	1,020,584	23,116	22.65	7,096	13.91	20,440	20.03
1880.....	1,130,892	23,680	20.94	7,963	14.05	18,967	16.77
1881.....	1,160,275	23,484	20.24	8,109	13.98	20,812	17.94
1882.....	1,189,658	23,108	19.42	8,587	14.86	25,959	21.82
1883.....	1,209,048	24,430	20.21	9,166	15.16	23,810	19.28
1884.....	1,248,224	25,263	20.20	8,968	14.37	21,716	17.40
1885.....	1,278,033	24,077	18.84	8,989	14.07	23,807	18.68
1886.....	1,310,431	25,497	19.46	12,351	18.85	22,734	17.35
1887.....	1,342,829	27,340	20.36	15,416	22.96	24,331	18.12
1888.....	1,375,227	28,074	20.41	16,025	23.31	27,173	19.76
1889.....	1,407,625	29,099	20.67	15,726	22.34	26,543	18.86
1890.....	1,441,017	30,103	20.89	15,564	21.60	23,530	19.80
1891.....	1,473,784	28,882	19.53	15,305	20.70	23,840	19.50
1892.....	1,511,673	30,627	20.26	16,092	21.28	32,655	21.62
1893.....	1,538,799	32,285	20.98	17,178	22.33	30,596	19.88
1894.....	1,578,373	33,662	21.33	18,245	20.58	30,004	19.09
1895.....	1,672,942	31,742	18.97	15,873	18.98	30,634	18.31
1896.....	1,718,543	31,207	18.16	18,370	21.38	30,767	17.90
1897.....	1,764,144	31,595	17.91	18,171	20.60	29,822	16.90
1898.....	1,810,008	32,515	17.96	18,213	14.59	27,337	15.11
1899.....	1,853,872	29,419	15.84	18,336	14.37	30,999	16.70
1900.....	1,883,669	32,270	17.13	14,611	15.51	31,474	16.62
1901.....	1,923,781	34,816	18.08	16,539	17.18	31,739	16.48
1902.....	1,967,893	35,116	17.84	18,150	18.45	31,319	15.91
1903.....	2,016,797	37,242	18.47	19,512	19.35	31,820	15.87
1904.....	2,058,909	38,751	18.82	18,919	18.38	35,298	17.14
1905.....	2,144,143	39,689	18.51	20,572	19.19	33,864	15.79
1906.....	2,196,238	42,677	19.43	21,580	19.65	35,670	16.24
1907.....	2,248,331	44,651	19.86	23,649	21.04	37,408	16.63
1908.....	2,300,427	47,405	20.61	26,155	22.74	35,597	15.47
1909.....	2,352,522	47,508	20.19	29,724	25.27	36,359	15.46

*Estimated except for census years.

NOTE.—The reports of births are not as complete as are those for marriages and deaths, hence the above table does not represent with accuracy the relation between birth-rates and death-rates.

NOTE.—The large number of marriages reported during the years 1886-1897 was due to the unrestricted authority contained in the laws for the performance of the marriage ceremony in the case of non-residents, and the marked decrease in the number of marriages which occurred in 1898 was directly consequent upon the enactment of the law requiring a license in cases where both parties are non-residents of the State.

MARRIAGES.

The number of marriages reported to the Bureau of Vital Statistics for the year ending December 31st, 1909, was 29,724, and the marriage-rate, 25.27 per 1,000 population, which is the highest rate in New Jersey for the past thirty-one years or since this department was established. Many of these marriages, however, are of non-residents and therefore these figures do not represent the exact marriage-rate of New Jersey.

TABLE 4.—SHOWING NUMBER OF MARRIAGES RECORDED IN NEW JERSEY FOR THE THIRTY-ONE YEARS ENDING DECEMBER 31, 1909.

YEAR.	1879.	1880.	1881.	1882.	1883.	1884.	1885.	1886.	1887.	1888.
Marriages in New Jersey	7,006	7,963	8,109	8,837	9,166	8,968	8,989	12,351	15,416	16,025
Persons married per 1,000 population.....	13.91	14.08	13.98	14.86	15.16	15.37	14.07	15.85	22.96	23.31

YEAR.	1889.	1890.	1891.	1892.	1893.	1894.	1895.	1896.	1897.	1898.
Marriages in New Jersey	15,726	15,564	15,305	16,082	17,178	16,245	15,873	15,370	18,171	13,213
Persons married per 1,000 population.....	22.34	21.60	20.70	21.28	22.33	20.59	18.98	21.33	20.60	14.50

YEAR.	1899.	1900.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
Marriages in New Jersey...	13,336	14,611	16,539	18,150	19,512	18,919	20,572	21,580	23,649	26,155	29,724
Persons married per 1,000 population...	15.40	15.51	17.23	18.45	19.35	18.88	19.19	19.65	21.04	22.74	25.27

DEATHS.

The number of certificates of death received during the year ending December 31st, 1909, was 36,359, and the annual death-rate is 15.46 per 1,000 inhabitants, which is a fraction lower than the preceding year and, with one exception, the lowest death-rate in New Jersey during the past thirty-one years.

In order to get the best information from mortality records all of the facts called for in the certificate should be accurately given, therefore local registrars and health officers having charge of these records should see that a full and complete cause of death is given in every instance. This will place the State Bureau of Vital Statistics in a position to more fully study the facts relating to the health and longevity of our population.

CHART SHOWING DEATH-RATES IN NEW JERSEY, PER 1,000 INHABITANTS FOR THIRTY-ONE YEARS, 1879-1909.

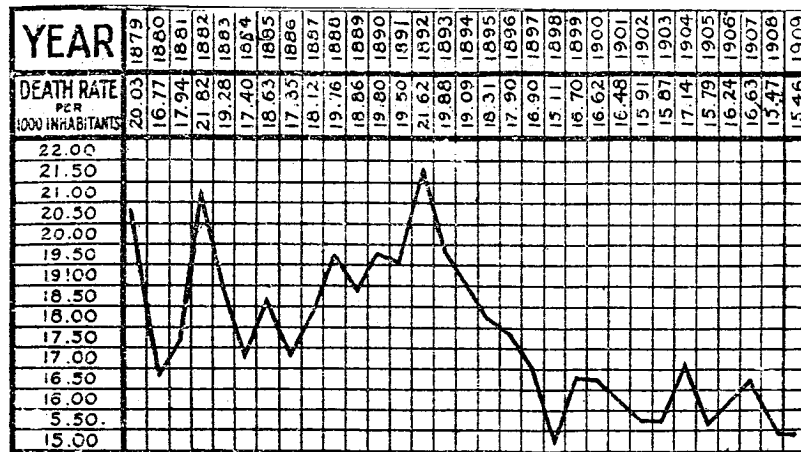


TABLE 5.—DEATHS IN NEW JERSEY, BY AGE PERIODS, FOR THE YEAR ENDING DECEMBER 31, 1909.

		AGE PERIODS.																Total number of deaths.	
Under 1 mo.	Under 1 year.	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 70	70 to 80	80 to 90	Over 90.		Not stated.
2661	4997	3479	907	549	800	1195	1343	1451	1655	1076	1688	1719	1867	1314	3894	1906	252	4	36359

TABLE 9.—SHOWING NUMBER OF DEATHS IN NEW JERSEY FOR THE YEAR ENDING DECEMBER 31, 1909, FROM TEN SELECTED PREVENTABLE DISEASES, WITH PERCENTAGE OF TOTAL MORTALITY.

NAMES OF DISEASES.	Deaths.	Percentage of total mortality.
Consumption	3,608	9.92
Pneumonia	3,094	8.51
Diarrhœal diseases of children.....	2,369	6.52
Diphtheria	610	1.68
Typhoid fever.....	301	.83
Whooping cough.....	284	.78
Measles	242	.67
Scarlet fever.....	338	.93
Malarial fever.....	25	.07
Small-pox	2	.01

TABLE 10.—SHOWING DEATHS FROM CERTAIN SELECTED CAUSES OF DEATH, PER 10,000 INHABITANTS, FOR THE YEARS ENDING DECEMBER 31, 1908, AND DECEMBER 31, 1909; ALSO SHOWING AVERAGE NUMBER OF DEATHS FROM SAID DISEASES DURING PAST THIRTY-ONE YEARS.

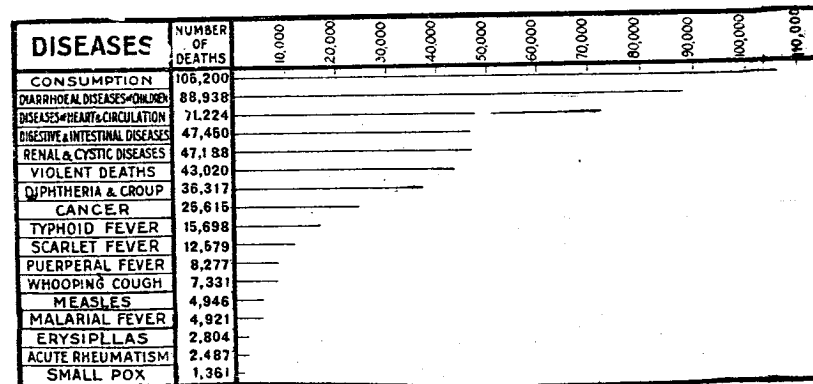
DISEASES.	Average number of deaths for thirty-one years.	Deaths per 10,000 inhabitants during year ending December 31st, 1908.	Deaths per 10,000 inhabitants during year ending December 31st, 1909.
Consumption	3,394	15.72	15.34
Diarrhœal diseases of children..	2,869	11.19	10.07
Pneumonia* .....	.....	12.05	13.15
Diseases of heart and circulation.	2,298	16.70	17.10
Digestive and intestinal diseases,	1,531	10.02	9.60
Diphtheria and croup.....	1,172	2.33	2.59
Renal and cystic diseases.....	1,522	11.48	11.89
Violent deaths.....	1,388	10.29	10.54
Cancer	826	6.67	7.07
Typhoid fever.....	506	1.60	1.28
Scarlet fever.....	406	1.72	1.44
Puerperal	267	1.43	1.32
Whooping cough.....	236	1.03	1.21
Malarial fever.....	159	.13	.11
Measles	160	.82	1.03
Erysipelas	90	.42	.24
Acute rheumatism.....	80	.42	.29
Small-pox	44	.....	.01

*Deaths from pneumonia were not separately recorded until the year 1901.

TABLE 11.—SHOWING MORTALITY IN NEW JERSEY, FROM CERTAIN SELECTED CAUSES OF DEATH, FOR THE YEAR ENDING DECEMBER 31, 1909, COMPARED WITH DEATHS FOR THE PREVIOUS YEAR.

SELECTED DISEASES.	Deaths for year ending December 31st, 1908.	Deaths for year ending December 31st, 1909.	Comparative mortality.
Consumption	3,616	3,608	— 8
Diseases of heart and circulation,	3,841	4,023	+ 182
Renal and cystic diseases.....	2,640	2,797	+ 157
Digestive and intestinal diseases,	2,305	2,258	— 47
Diarrhœal diseases of children..	2,575	2,369	— 206
Cancer	1,535	1,663	+ 128
Diphtheria	535	610	+ 75
Typhoid fever.....	367	301	— 66
Scarlet fever.....	396	338	— 58
Puerperal	329	311	— 18
Whooping cough.....	237	284	+ 47
Erysipelas	96	57	— 39
Acute rheumatism.....	97	68	— 29
Measles	189	242	+ 53
Malarial fever.....	30	25	— 5
Small-pox	0	2	+ 2

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



CONSUMPTION.

The number of deaths from pulmonary tuberculosis for the year 1909 was 3,608, and the death-rate per 10,000 population, 15.34, which is a decrease from the previous year.

Local boards of health in many cities of this State are conducting campaigns for the prevention of tuberculosis and the results of this work are apparent in the decreasing death-rate from this disease. Many of the municipalities have adopted anti-spitting ordinances; however, in many places the police departments do not co-operate with the health officials and therefore there is no action taken to prevent promiscuous spitting.

TABLE 12.—DEATHS FROM CONSUMPTION IN NEW JERSEY, BY AGE PERIODS, FOR NINE YEARS.

YEARS.	AGE PERIODS.											Totals.
	Under 1 year.	1 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80	Not stated.	
1901.....	39	73	241	937	827	510	319	199	87	25		3,257
1902.....	39	62	227	842	759	504	281	199	76	19	7	3,015
1903.....	49	81	255	941	877	534	310	191	95	16	1	3,380
1904.....	67	80	315	983	1,005	575	337	217	78	11	2	3,670
1905.....	40	89	309	972	915	606	335	197	100	23	1	3,587
1906.....	62	93	309	953	942	646	339	199	84	26	1	3,654
1907.....	56	61	256	978	907	682	407	229	90	25		3,751
1908.....	36	74	272	983	1,018	602	344	197	80	15		3,616
1909.....	53	68	258	917	976	657	349	220	86	24		3,608
Totals.....	441	681	2,472	8,506	8,281	5,316	3,021	1,848	776	154	12	31,538

TABLE 13.—SHOWING NUMBER OF DEATHS AND DEATHS PER 10,000 POPULATION FROM CONSUMPTION IN NEW JERSEY, AND THE PROPORTION OF DEATHS FROM CONSUMPTION TO TOTAL DEATHS DURING THIRTY-ONE YEARS.

YEARS.	Popula-tion.*	Total deaths in New Jersey.	Deaths from con-sumption.	Proportion of deaths from con-sumption to total deaths.	Deaths from con-sumption per 10,000 population.
1879	1,020,584	20,444	2,788	13.64	27.32
1880	1,130,892	18,967	2,714	14.30	24.00
1881	1,160,275	20,810	2,989	14.36	25.76
1882	1,189,658	25,910	3,475	13.41	29.21
1883	1,209,048	23,310	3,121	13.39	25.81
1884	1,248,224	21,716	3,215	14.80	25.76
1885	1,278,033	23,807	3,320	13.94	25.19
1886	1,310,431	22,734	3,205	14.10	24.46
1887	1,342,829	24,331	3,653	15.01	27.20
1888	1,375,227	27,173	3,358	12.44	24.42
1889	1,407,625	26,543	3,449	12.99	24.50
1890	1,441,017	28,530	3,669	12.96	25.46
1891	1,478,784	28,840	3,456	11.98	23.37
1892	1,511,653	32,685	3,575	10.94	23.65
1893	1,538,799	30,596	3,429	11.21	22.28
1894	1,578,373	30,004	3,433	11.44	21.75
1895	1,672,942	30,634	3,542	11.56	21.17
1896	1,718,543	30,767	3,358	10.92	19.54
1897	1,764,144	29,822	3,237	10.85	18.35
1898	1,810,008	27,337	3,225	11.79	17.82
1899	1,855,872	30,999	3,584	11.56	19.31
1900	1,883,669	31,474	3,514	11.17	18.64
1901	1,925,781	31,739	3,257	10.26	16.91
1902	1,967,893	33,655	3,015	8.96	15.32
1903	2,016,797	31,820	3,330	10.62	16.76
1904	2,058,909	35,298	3,670	10.40	17.83
1905	2,144,143	33,864	3,587	10.59	16.73
1906	2,196,238	35,670	3,654	10.24	16.64
1907	2,248,331	37,408	3,749	10.02	16.67
1908	2,300,427	35,597	3,616	10.16	15.72
1909	2,352,522	36,359	3,608	9.92	15.34

*Estimated except for census years.

TABLE 14.—SHOWING MORTALITY RATES FROM ALL CAUSES AND FROM CONSUMPTION ONLY, IN MUNICIPALITIES HAVING 5,000 INHABITANTS OR OVER, FOR THE YEAR ENDING DECEMBER 31, 1909, PER 10,000 POPULATION.

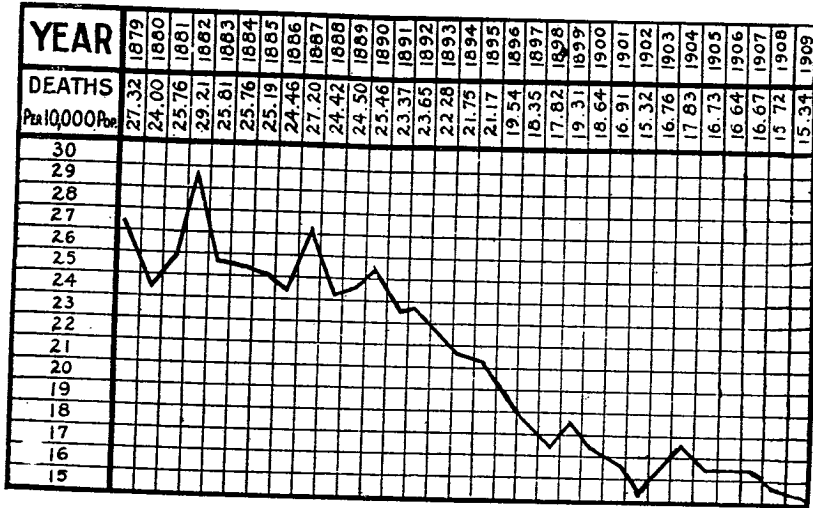
	Deaths from all causes per 10,000 population.	Deaths from consumption per 10,000 population.
Atlantic County.....	157.7	15.05
*Atlantic City.....	149.6	10.79
Bergen County.....	121.8	11.52
Englewood.....	145.8	4.32
Garfield.....	220.1	18.86
Hackensack.....	153.8	10.47
Rutherford.....	90.4	6.82
Burlington County.....	149.9	14.10
Bordentown.....	136.0	14.84
Burlington.....	156.6	12.86
Camden County.....	136.2	18.34
Camden City.....	165.7	14.89
Gloucester City.....	179.5	18.83
Cape May County.....	122.7	8.20
Cumberland County.....	142.9	16.96
Bridgeton.....	156.8	12.69
Millville.....	116.8	17.80
Essex County.....	165.0	18.88
Bloomfield.....	114.6	10.53
East Orange.....	114.5	9.25
Irvington.....	145.6	17.20
Montclair.....	151.4	9.29
Newark.....	176.2	19.80
Orange.....	161.6	19.15
West Orange.....	131.0	17.33
Gloucester County.....	142.9	13.41
Hudson County.....	189.3	32.35
Bayonne.....	135.9	11.62
Harrison.....	123.2	15.06
Hoboken.....	178.4	21.46
Jersey City.....	173.6	17.11
Kearny.....	131.3	13.96
Town of Union.....	139.1	18.42
West Hoboken.....	124.0	13.58
West New York.....	173.9	25.17
Hunterdon County.....	138.8	12.25
Lambertville.....	135.4	11.28
Mercer County.....	97.6	7.26
Princeton.....	78.9	6.47
Trenton.....	178.8	22.29
Middlesex County.....	108.8	8.50
New Brunswick.....	199.0	14.04
Perth Amboy.....	133.1	9.24
South Amboy.....	152.0	12.93
Monmouth County.....	132.4	12.25
*Asbury Park.....	170.8	7.29
*Long Branch.....	176.6	11.46
Red Bank.....	147.2	14.43
Morris County.....	172.8	11.06
Dover.....	166.0	8.98
Morristown.....	197.7	13.23
Ocean County.....	136.3	13.31
Passaic County.....	105.4	13.05
Passaic City.....	170.6	11.99
Paterson.....	161.9	16.21
Salem County.....	110.8	9.53
Salem City.....	131.0	12.95
Somerset County.....	124.0	9.44
North Plainfield.....	106.5	11.47
Sussex County.....	172.0	16.76
Union County.....	110.4	10.99
Elizabeth.....	169.8	16.37
Plainfield.....	140.8	10.98
Rahway.....	131.2	11.93
Summit.....	120.1	12.38
Westfield.....	114.7	.....
Warren County.....	153.2	12.83
Phillipsburg.....	98.8	8.75

*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 included in it, the death-rate is not a criterion of health conditions.

TABLE 15.—SHOWING AVERAGE ANNUAL DEATH-RATES FROM ALL CAUSES AND AVERAGE ANNUAL DEATH-RATES FROM CONSUMPTION IN NEW JERSEY FOR THIRTY-ONE YEARS, BY COUNTIES, COMPARED WITH DEATH-RATES FROM ALL CAUSES AND DEATH-RATES FROM CONSUMPTION, FOR THE YEAR ENDING DECEMBER 31, 1909, PER 10,000 POPULATION.

COUNTIES.	AVERAGES PER YEAR.			
	Average annual death-rate from all causes per 10,000 population for thirty-one years.	Average annual death-rate from consumption per 10,000 population for thirty-one years.	Death-rate per 10,000 population from all causes for year ending Dec. 31, 1909.	Death-rate from consumption per 10,000 population for year ending Dec. 31, 1909.
Atlantic County.....	169.7	17.02	152.5	12.32
Bergen County.....	92.9	14.32	130.8	11.00
Burlington County.....	154.5	17.85	150.0	13.98
Camden County.....	187.7	22.38	159.0	16.05
Cape May County.....	138.5	14.01	122.5	8.20
Cumberland County.....	75.9	19.46	140.0	16.09
Essex County.....	192.6	25.95	166.4	18.24
Gloucester County.....	145.1	17.19	142.9	13.41
Hudson County.....	213.6	25.46	163.7	18.07
Hunterdon County.....	135.5	14.56	138.3	12.09
Mercer County.....	173.6	22.20	157.9	18.59
Middlesex County.....	161.2	16.70	137.1	10.37
Monmouth County.....	151.3	16.54	144.6	11.77
Morris County.....	103.6	19.88	176.7	11.26
Ocean County.....	143.5	19.78	136.3	13.31
Passaic County.....	185.2	21.53	155.2	14.71
Salem County.....	145.3	18.41	116.0	10.41
Somerset County.....	142.4	15.53	121.2	9.76
Sussex County.....	126.3	15.14	172.0	16.76
Union County.....	134.5	15.36	147.8	13.38
Warren County.....	146.4	14.75	132.7	11.29
The State.....	175.1	20.96	154.6	15.34

CHART SHOWING DEATHS FROM CONSUMPTION IN NEW JERSEY, PER 10,000 POPULATION, FOR THE THIRTY-ONE YEARS, ENDING DECEMBER 31, 1909.



PNEUMONIA.

The number of deaths in New Jersey from pneumonia for the year ending December 31st, 1909, is 3,094, an increase of 321 over the previous year. The death-rate from this disease for the past nine years will be found in table 18.

TABLE 16.—SHOWING DEATHS IN NEW JERSEY FROM PNEUMONIA, WITH AGE AT DEATH, FOR THE YEAR ENDING DECEMBER 31, 1909.

DEATHS FROM PNEUMONIA.	AGE PERIODS.																	Total.		
	Under 1 mo.	Under 1 year.	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 70	70 to 80	80 to 90		Over 90.	Not stated.
	96	544	538	71	39	52	61	86	99	117	119	151	131	161	863	299	147	20	.....	3,094

TABLE 17.—SHOWING DEATHS FROM PNEUMONIA IN CITIES OF OVER 5,000 INHABITANTS, IN NEW JERSEY, BY MONTHS, FOR THE SEVEN YEARS ENDING DECEMBER 31, 1909, AND DEATH-RATES PER 10,000 INHABITANTS, FOR EACH YEAR OF SAID YEARS.

YEARS.	Estimated population of cities of over 5,000 inhabitants.	MONTHS.												Totals.	Death-rate per 10,000 inhabitants.
		Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.		
1908	1,363,464	271	288	261	128	155	67	98	58	75	91	202	278	1,972	14.46
1904.....	1,370,719	401	350	394	315	241	134	42	51	72	108	187	289	2,584	18.85
1905.....	1,429,100	309	271	251	190	178	96	75	73	69	121	199	209	2,041	14.28
1906.....	1,505,142	340	286	341	175	189	86	80	69	89	127	178	235	2,245	14.92
1907.....	1,546,574	361	290	333	285	214	144	100	64	93	142	162	364	2,502	16.18
1908.....	1,584,217	329	279	252	178	174	80	66	78	89	154	149	269	2,092	13.21
1909.....	1,623,851	301	254	314	299	208	104	67	52	95	142	203	286	2,325	14.32
Totals.....		2,312	2,018	2,146	1,520	1,359	711	528	440	582	885	1,280	1,980	15,761	.....

TABLE 18.—SHOWING DEATHS AND DEATH-RATES FROM PNEUMONIA IN NEW JERSEY FOR NINE YEARS, 1901-1909.

YEARS.	Deaths from pneumonia.	Deaths from pneumonia per 10,000 inhabitants.
1901	2,539	13.18
1902	2,421	12.30
1903	2,628	13.03
1904	3,486	16.93
1905	2,764	12.89
1906	3,117	14.19
1907	3,307	14.70
1908	2,773	12.05
1909	3,094	13.15

DEATHS AMONG CHILDREN.

The number of deaths among children under five years of age for the calendar year 1909 was 11,137 and the death-rate per 10,000 population, 47.34, therefore the death-rate from diseases of children continues normal.

Special efforts are being made by the State Board of Health to improve the milk supply of the State; however, the effect of improvement in this respect cannot be definitely measured in connection with infant mortality until some distinction can be made between children breast-fed and bottle-fed, to trace the possible injurious effects of artificial feeding.

TABLE 19.—SHOWING NUMBER OF DEATHS IN NEW JERSEY; DEATHS AMONG CHILDREN UNDER FIVE YEARS OF AGE; DEATHS UNDER FIVE YEARS FROM DIARRHOEAL DISEASES, AND DEATHS UNDER FIVE YEARS PER 10,000 INHABITANTS, FOR THE NINE YEARS ENDING DECEMBER 31, 1909.

DEATHS.	NEW JERSEY.								
	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
Total deaths.....	31,739	31,319	31,820	35,298	35,864	35,670	37,408	35,597	36,359
Deaths under five years.....	9,549	9,802	9,950	10,913	9,864	11,246	10,867	10,869	11,137
Deaths under five years from diarrhoea.....	1,787	1,857	1,603	2,354	2,290	2,365	2,453	2,561	2,350
Percentage of deaths under five years to total deaths.....	30.09	31.30	31.27	30.92	29.13	31.53	29.05	30.53	30.63
Deaths under five years per 10,000 population.....	49.59	49.81	44.34	53.00	46.00	51.21	48.33	47.25	47.34

TABLE 20.—SHOWING DEATHS AMONG CHILDREN UNDER FIVE YEARS OF AGE IN NEW JERSEY PER 10,000 POPULATION, FOR THIRTY-ONE YEARS.

YEARS.	Deaths under 1 year per 10,000 population.	Deaths from 1 to 5 years per 10,000 population.	YEARS.	Deaths under 1 year per 10,000 population.	Deaths from 1 to 5 years per 10,000 population.
1879	45.58	33.97	1894	49.75	22.97
1880	40.38	25.12	1895	45.67	21.79
1881	39.90	25.75	1896	43.99	24.43
1882	49.88	38.48	1897	40.16	20.00
1883	44.48	28.22	1898	35.91	15.83
1884	41.04	22.82	1899	38.22	17.04
1885	44.69	26.67	1900	37.05	13.44
1886	41.31	23.83	1901	36.11	13.48
1887	43.56	25.29	1902	36.18	13.63
1888	47.51	28.90	1903	37.08	15.38
1889	48.61	24.95	1904	36.18	16.82
1890	49.38	25.38	1905	32.42	13.59
1891	46.90	25.36	1906	35.39	15.81
1892	52.74	29.08	1907	34.39	13.94
1893	49.22	24.26	1908	34.01	13.24
			1909	32.55	14.79

TABLE 21.—SHOWING DEATHS IN NEW JERSEY FROM DIARRHOEAL DISEASES OF CHILDREN, WITH AGES AT DEATH, COMPARED WITH DEATHS FROM ALL CAUSES AMONG CHILDREN UNDER FIVE YEARS OF AGE, FOR YEAR ENDING DECEMBER 31, 1909.

AGE PERIODS.	Deaths from diarrhoeal diseases.	Deaths from all causes among children under five years of age.
Under one month.....	170	2,661
Over one month and under one year.....	1,700	4,997
One to five.....	480	3,479
Total.....	2,350	11,137

TABLE 22.—SHOWING TOTAL DEATHS, DEATHS UNDER FIVE YEARS, PERCENTAGE OF YEARS PER 10,000 INHABITANTS, FOR CERTAIN CITIES OF NEW JERSEY 31, 1909.

Table with columns: NAME OF PLACE, 1905 (Total deaths, Deaths under five years, Percentage of deaths under five years to total deaths, Deaths under five years per 10,000 population), 1906 (Total deaths, Deaths under five years, Percentage of deaths under five years to total deaths, Deaths under five years per 10,000 population).

DEATHS UNDER FIVE YEARS TO TOTAL DEATHS AND DEATHS UNDER FIVE HAVING OVER 5,000 POPULATION, FOR THE FIVE YEARS ENDING DECEMBER

Table with columns: 1907 (Total deaths, Deaths under five years, Percentage of deaths under five years to total deaths, Deaths under five years per 10,000 population), 1908 (Total deaths, Deaths under five years, Percentage of deaths under five years to total deaths, Deaths under five years per 10,000 population), 1909 (Total deaths, Deaths under five years, Percentage of deaths under five years to total deaths, Deaths under five years per 10,000 population).

TABLE 23.—SHOWING DEATHS IN CERTAIN CITIES OF NEW JERSEY, ALSO DEATHS AMONG CHILDREN UNDER FIVE YEARS OF AGE; DEATHS UNDER FIVE YEARS FROM DIARRHOEA AND DEATHS UNDER FIVE YEARS PER 10,000 INHABITANTS.

DEATHS.	NEWARK.					
	1904.	1905.	1906.	1907.	1908.	1909.
Total deaths.....	5,301	4,943	5,547	5,736	5,198	5,516
Deaths under five years.....	1,679	1,320	1,840	1,686	1,640	1,742
Deaths under five years from diarrhoea.....	324	325	330	370	344	340
Percentage of deaths under five years to total deaths.....	31.57	26.70	33.17	29.04	31.55	31.58
Deaths under five years per 10,000 population.....	62.12	46.60	63.29	55.67	53.66	55.64

DEATHS.	JERSEY CITY.					
	1904.	1905.	1906.	1907.	1908.	1909.
Total deaths.....	4,699	4,394	4,607	4,723	4,428	4,404
Deaths under five years.....	1,462	1,426	1,538	1,456	1,331	1,541
Deaths under five years from diarrhoea.....	315	315	354	371	375	332
Percentage of deaths under five years to total deaths.....	32.14	32.45	33.38	30.83	30.06	34.99
Deaths under five years per 10,000 population.....	64.85	61.28	64.63	59.87	53.57	60.74

DEATHS.	PATERSON.					
	1904.	1905.	1906.	1907.	1908.	1909.
Total deaths.....	1,988	1,841	1,992	1,839	1,867	1,888
Deaths under five years.....	647	550	681	523	559	526
Deaths under five years from diarrhoea.....	152	144	130	126	126	108
Percentage of deaths under five years to total deaths.....	30.73	29.88	34.18	28.44	29.94	27.86
Deaths under five years per 10,000 population.....	58.06	49.31	60.37	45.85	48.46	45.11

DEATHS.	CAMDEN.					
	1904.	1905.	1906.	1907.	1908.	1909.
Total deaths.....	1,547	1,347	1,565	1,506	1,471	1,480
Deaths under five years.....	539	412	566	455	483	443
Deaths under five years from diarrhoea.....	102	83	89	84	57	88
Percentage of deaths under five years to total deaths.....	28.70	30.59	36.17	30.21	32.83	29.93
Deaths under five years per 10,000 population.....	62.74	49.42	66.71	52.70	55.00	49.61

DEATHS.	HOBOKEN.					
	1904.	1905.	1906.	1907.	1908.	1909.
Total deaths.....	1,420	1,382	1,431	1,556	1,266	1,241
Deaths under five years.....	456	334	440	481	405	400
Deaths under five years from diarrhoea.....	76	70	81	88	105	87
Percentage of deaths under five years to total deaths.....	31.14	27.79	30.75	30.91	32.00	32.23
Deaths under five years per 10,000 population.....	71.71	53.65	65.98	70.83	53.59	56.86

DEATHS.	TRENTON.					
	1904.	1905.	1906.	1907.	1908.	1909.
Total deaths.....	1,482	1,484	1,493	1,599	1,625	1,661
Deaths under five years.....	421	453	467	418	523	500
Deaths under five years from diarrhoea.....	69	99	108	103	95	108
Percentage of deaths under five years to total deaths.....	28.41	30.53	31.28	26.14	32.18	30.10
Deaths under five years per 10,000 population.....	51.33	53.22	54.08	47.22	57.66	53.83

TABLE 24.—SHOWING DEATHS IN NEW JERSEY UNDER FIVE YEARS OF AGE PER 10,000 POPULATION FOR THIRTY-ONE YEARS, TOGETHER WITH AVERAGES FOR THE NINETEEN YEARS, 1879-1897, AND ALSO FOR THE TWELVE YEARS, 1898-1909.

YEARS.	Deaths under five years per 10,000 population.	YEARS.	Deaths under five years per 10,000 population.
1879	75.55	1898	51.74
1880	65.50	1899	55.26
1881	65.65	1900	55.49
1882	88.36	1901	49.59
1883	72.70	1902	49.81
1884	63.86	1903	52.46
1885	71.36	1904	53.00
1886	65.14	1905	46.01
1887	68.85	1906	51.21
1888	76.41	1907	48.33
1889	73.56	1908	47.25
1890	74.74	1909	47.34
1891	72.26		
1892	81.82		
1893	73.48		
1894	72.72		
1895	67.46		
1896	68.42		
1897	60.16		
Average death-rate for nineteen years ending 1897.....	71.69	Average death-rate for twelve years ending 1909	50.62

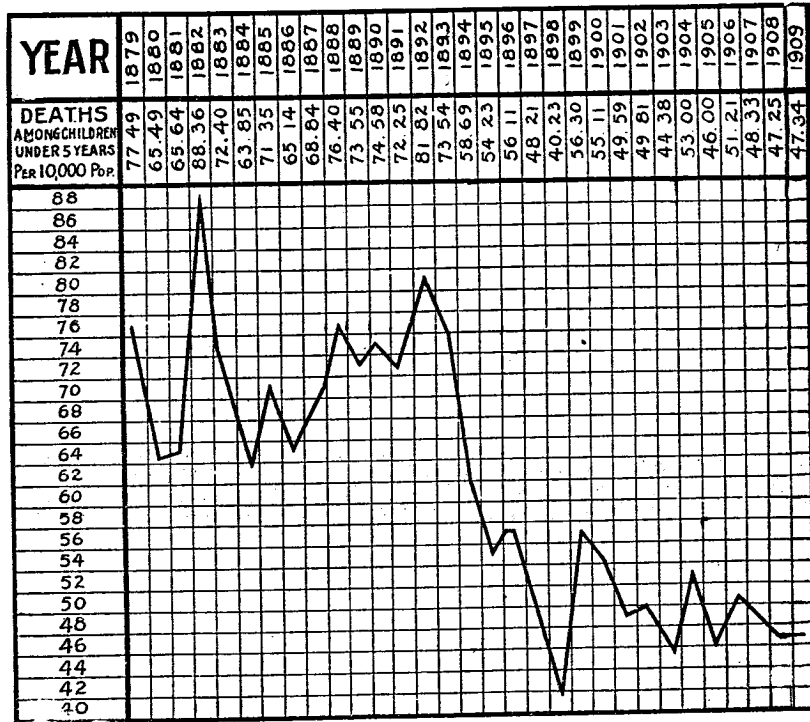
TABLE 25.—SHOWING PERCENTAGE OF DEATHS UNDER FIVE YEARS TO TOTAL DEATHS, AND DEATHS UNDER FIVE YEARS PER 10,000 INHABITANTS FOR CERTAIN CITIES OF NEW JERSEY HAVING OVER 5,000 POPULATION, FOR THE YEAR ENDING DECEMBER 31, 1909.

NAMES OF CITIES.	Percentage of deaths under five years to total deaths.	Deaths under five years per 10,000 inhabitants.
Atlantic City.....	23.71	35.46
Englewood.....	37.04	54.02
Garfield.....	67.14	147.75
Hackensack.....	26.70	41.06
Rutherford.....	18.76	18.76
Bordentown.....	20.75	34.63
Bound Brook (Som. Co.).....	25.45	34.63
Burlington.....	33.58	52.60
Camden.....	29.93	49.61
Gloucester.....	38.89	69.79
Bridgeton.....	23.33	36.59
Millville.....	30.46	35.59
Bloomfield.....	26.32	30.15
East Orange.....	17.70	20.28
Irvington.....	25.20	36.70
Montclair.....	30.69	46.46
Newark.....	31.58	55.64
Orange.....	30.65	49.51
West Orange.....	26.72	35.81
Bayonne.....	44.25	60.13
Harrison.....	38.89	47.93
Hoboken.....	32.23	56.86
Jersey City.....	34.99	60.74
Kearny.....	17.87	23.47
Town of Union.....	24.91	37.38
West Hoboken.....	38.10	47.24
West New York.....	36.18	62.94
Lambertville.....	26.39	35.72
Princeton.....	19.67	15.52
Trenton.....	30.10	53.83
New Brunswick.....	40.45	76.85
Perth Amboy.....	53.01	70.57
South Amboy.....	36.17	54.97
Asbury Park.....	31.71	54.14
Long Branch.....	19.85	35.06
Red Bank.....	31.37	46.17
Dover.....	32.43	53.85
Morristown.....	28.35	56.04
Passaic.....	55.56	94.80
Paterson.....	27.86	45.11
Salem.....	28.57	37.42
North Plainfield.....	18.46	19.67
Elizabeth.....	40.23	68.29
Plainfield.....	24.41	34.37
Rahway.....	23.14	30.37
Summit.....	30.93	37.13
Westfield.....	42.03	48.21
Phillipsburg.....	19.62	19.38

TABLE 26.—SHOWING NUMBER OF DEATHS IN NEW JERSEY AMONG CHILDREN UNDER FIVE YEARS OF AGE IN MANUFACTURING DISTRICTS, AND ALSO IN COUNTIES OUTSIDE OF THE LARGER TOWNS, WITH COMPARATIVE MORTALITY.

NAMES OF MANUFACTURING TOWNS.	Estimated population.	Number of deaths occurring in children under five years of age.	Number of deaths of children under five years of age for each 1,000 of population.	Estimated population of counties outside of larger cities.	Number of deaths occurring in children under five years of age in counties outside of larger cities.	Number of deaths of children under five years of age for each 1,000 of population in counties outside of larger cities.
Bayonne (Hud. Co.).....	49,894	300	6.01	35,547	157	4.42
Beverly (Bur. Co.).....	2,504	10	3.99	52,485	192	3.66
Boonton (Morris Co.).....	3,962	25	6.31	50,622	192	3.79
Bordentown (Bur. Co.).....	4,043	14	3.46	52,485	192	3.66
Bound Brook (Som. Co.).....	13,393	49	4.00	32,826	90	2.74
Bridgeton (Cumb. Co.).....	8,555	45	5.26	26,526	75	2.86
Burlington (Bur. Co.).....	8,521	443	5.18	52,485	192	3.66
Camden (Cam. Co.).....	89,305	24	4.96	34,353	99	2.88
Carlstadt (Ber. Co.).....	6,362	94	6.82	83,348	319	3.83
Elizabeth (U. Co.).....	67,212	459	6.83	20,024	66	3.30
Garfield (Ber. Co.).....	3,521	24	14.78	83,348	319	3.83
Gloucester City (Cam. Co.).....	9,027	63	6.98	34,353	99	2.88
Hoboken (Hud. Co.).....	70,351	400	5.69	35,547	157	4.42
Jersey City (Hud. Co.).....	258,712	1,541	6.07	35,547	157	4.42
Lambertville (Hunt. Co.).....	5,319	19	3.57	26,940	48	1.78
Lodi (Ber. Co.).....	3,494	26	7.44	83,348	319	3.83
Millburn (Essex Co.).....	3,458	9	2.60	32,843	123	3.75
Milltown (Mdx. Co.).....	1,729	2	1.16	46,583	185	3.97
Millville (Cumb. Co.).....	12,925	46	3.56	26,526	75	2.83
Newark (Essex Co.).....	313,064	1,742	5.56	32,843	123	3.75
New Brunswick (Mdx. Co.).....	25,685	197	7.69	46,583	185	3.97
Orange (Essex Co.).....	27,669	137	4.95	32,843	123	3.75
Passaic City (Pas. Co.).....	45,885	435	9.48	29,883	109	3.65
Paterson (Pas. Co.).....	116,615	526	4.51	29,883	109	3.65
Perth Amboy (Mdx. Co.).....	32,452	229	7.06	46,583	185	3.97
Phillipsburg (W. Co.).....	15,992	31	1.94	26,509	91	3.43
Plainfield (U. Co.).....	20,947	72	3.44	20,024	66	3.30
Rahway (U. Co.).....	9,220	28	3.04	20,024	66	3.30
Raritan (Som. Co.).....	4,522	19	4.20	32,826	90	2.74
Riverton Bor. (Bur. Co.).....	1,737	2	1.15	52,485	192	3.66
Salem City (Salem Co.).....	6,949	26	3.74	19,944	52	2.61
South River (Mdx. Co.).....	4,219	32	7.58	46,583	185	3.97
Town of Union (Hud. Co.).....	18,459	69	3.74	35,547	157	4.42
Trenton (Mer. Co.).....	92,878	500	5.38	22,026	41	1.86
Vineland (Cumb. Co.).....	4,771	27	5.66	26,526	75	2.83
Wharton (Mor. Co.).....	2,458	11	4.48	50,622	192	3.79

CHART SHOWING DEATHS IN NEW JERSEY AMONG CHILDREN UNDER FIVE YEARS OF AGE, PER 10,000 POPULATION, FOR THIRTY-ONE YEARS.



DIPHThERIA.

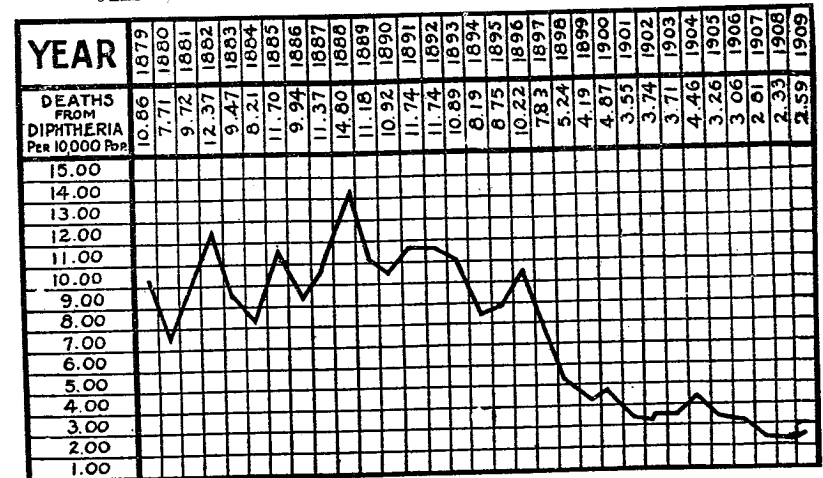
The number of deaths from diphtheria reported to the State Bureau of Vital Statistics for the year ending December 31st, 1909, was 610, and the death-rate per 10,000 population, 2.59, which is a slight increase over the previous year.

The bacteriological laboratory of the State Board of Health stands ready to assist physicians and local boards of health in preventing the spread of this disease by making bacteriological examinations of specimens submitted. It is the duty of health authorities to trace as far as possible the origin of the infection so as to check any further spread from that source. Bacteriological examinations should also be made of specimens taken from persons who are likely to have been infected and who may be capable of transmitting the disease.

TABLE 27.—SHOWING DEATHS IN NEW JERSEY FROM DIPHThERIA WITH AGES OF DECEDENTS. FOR YEAR ENDING DECEMBER 31, 1909.

AGE PERIODS.	Deaths from Diphtheria.	AGE PERIODS.	Deaths from Diphtheria.	AGE PERIODS.	Deaths from Diphtheria.
Under 1 month.....	2	25 to 30.....	2	60 to 70.....	1
Under 1 year.....	33	30 to 35.....	2	70 to 80.....	
1 to 5.....	374	35 to 40.....	1	80 to 90.....	
5 to 10.....	147	40 to 45.....	3	Over 90.....	
10 to 15.....	34	45 to 50.....	2	Not stated.....	
15 to 20.....	7	50 to 55.....		Total.....	610
20 to 25.....	2	55 to 60.....			

CHART SHOWING DEATHS FROM DIPHThERIA PER 10,000 POPULATION, IN NEW JERSEY, FOR THE THIRTY-ONE YEARS ENDING DECEMBER 31, 1909.



TYPHOID FEVER.

The total number of deaths from typhoid fever for the year 1909 was 301, and the death-rate per 10,000 inhabitants, 1.28, which is the lowest death-rate from this disease in New Jersey for the past thirty-one years.

The efforts of the State Board of Health to purify the public water supplies of New Jersey will no doubt result in a decreasing mortality from this disease; however, educational work in reference to the prevention of typhoid fever by local boards of health is not the least important as there are many lines of defense which should be constantly brought to the attention of the public, among the more important of which is abolishment of the country well, boiling of water, pasteurization of milk, screening of windows, supervision of food supplies, &c.

A prominent authority in speaking of the dangers of dirty milk in connection with typhoid fever states:

"Milk may become infected with typhoid fever in various ways. The hands of the milker may convey the infection, the milk cans may be washed with water from a contaminated well, or infected water may be added to the milk. Handling at the milk depots and pouring from can to can offer opportunities for the introduction of typhoid germs, and the passing of glass bottles from house to house without sufficient washing and sterilization may do the same. The glass milk jars are even taken into the sick-room by the poorer classes, who find them convenient receptacles for daily use as well as for transportation. Physicians have reported that typhoid patients have even been seen drinking from milk jars."

TABLE 28.—SHOWING COMPARATIVE DEATH-RATES FROM TYPHOID FEVER, PER 10,000 INHABITANTS, IN THE REGISTRATION AREA OF THE UNITED STATES AND IN NEW JERSEY, FOR THE NINE YEARS ENDING DECEMBER 31, 1909.

Registration area of United States	DEATHS FROM TYPHOID FEVER, PER 10,000 INHABITANTS.									
	Annual average, 1901-1909.	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
New Jersey.....	1.87	1.83	2.17	1.92	1.87	1.63	1.86	2.06	1.60	1.28

TABLE 29.—SHOWING DEATHS PER 10,000 POPULATION FROM TYPHOID FEVER IN NEW JERSEY FOR THIRTY-ONE YEARS.

YEAR.	Population.*	Number of deaths from typhoid fever.	Deaths from typhoid fever, per 10,000 inhabitants.	YEAR.	Population.*	Number of deaths from typhoid fever.	Deaths from typhoid fever, per 10,000 inhabitants.
1879.....	1,020,584	324	3.17	1894.....	1,578,873	485	3.07
1880.....	1,130,892	373	3.29	1895.....	1,672,942	568	3.39
1881.....	1,160,275	574	4.94	1896.....	1,718,543	577	3.35
1882.....	1,189,658	884	7.43	1897.....	1,764,141	478	2.70
1883.....	1,209,048	564	4.66	1898.....	1,810,008	450	2.48
1884.....	1,248,224	640	5.12	1899.....	1,855,872	486	2.62
1885.....	1,278,033	642	5.02	1900.....	1,883,669	356	1.87
1886.....	1,310,431	545	4.15	1901.....	1,925,781	352	1.93
1887.....	1,342,829	522	3.88	1902.....	1,967,893	428	2.17
1888.....	1,375,227	620	4.50	1903.....	2,016,797	388	1.92
1889.....	1,407,625	724	5.14	1904.....	2,058,909	384	1.87
1890.....	1,441,017	782	5.42	1905.....	2,144,143	360	1.68
1891.....	1,478,784	695	4.69	1906.....	2,196,288	408	1.86
1892.....	1,511,653	628	3.15	1907.....	2,248,331	464	2.06
1893.....	1,538,799	506	3.28	1908.....	2,300,427	367	1.60
				1909.....	2,352,522	301	1.28

*Population estimated except for census years.

TABLE 30.—SHOWING DEATHS FROM TYPHOID FEVER IN NEW JERSEY, PER 10,000 POPULATION, BY COUNTIES, FOR THE NINE YEARS ENDING DECEMBER, 1909, WITH AVERAGES FOR NINE YEARS.

COUNTIES.	YEARS.								
	1901.	1902.	1903.	1904.	1905.	1906.	1907.	1908.	1909.
Atlantic County.....	2.67	2.74	2.81	1.97	2.01	1.60	2.30	1.62	1.13
Bergen County.....	.99	1.08	1.16	1.24	1.10	1.15	1.29	.71	.85
Burlington County.....	2.58	2.23	3.61	2.89	2.58	3.18	4.41	4.04	2.00
Camden County.....	2.11	2.44	1.07	2.46	1.81	2.98	2.99	2.00	1.28
Cape May County.....	2.26	.60	.75	.....	1.73	1.65	2.62	.80	1.45
Cumberland County.....	1.94	2.32	.96	2.29	2.88	1.15	2.29	1.71	1.32
Essex County.....	1.93	2.12	2.04	1.41	1.39	1.79	2.00	1.16	1.22
Gloucester County.....	2.81	2.17	2.16	1.54	1.16	3.14	1.41	1.39	1.09
Hudson County.....	1.74	1.86	1.66	1.99	2.66	1.71	1.58	1.11	.78
Hunterdon County.....	1.45	2.03	1.74	1.45	.90	1.80	2.44	.62	.62
Mercer County.....	1.75	6.04	5.14	3.87	2.35	3.26	6.69	4.43	3.10
Middlesex County.....	1.47	1.95	1.05	2.63	1.55	.70	1.92	1.68	1.17
Monmouth County.....	1.92	2.36	1.63	1.95	2.62	2.47	1.99	2.41	1.22
Morris County.....	1.06	1.21	1.75	1.00	2.21	1.75	1.01	.72	1.14
Ocean County.....	1.00	2.98	.49	2.43	3.35	.95	1.41	.....	.99
Passaic County.....	2.19	2.50	2.02	.75	1.14	1.33	1.19	1.06	1.49
Salem County.....	.....	1.96	1.96	3.53	2.28	3.03	1.51	2.62	2.31
Somerset County.....	.60	.59	1.16	.86	2.48	1.35	.27	2.35	2.32
Sussex County.....	.41	2.51	.80	1.97	.43	1.71	1.29	3.94	1.87
Union County.....	2.64	2.57	2.32	1.99	1.37	1.66	1.37	2.19	1.67
Warren County.....	1.85	4.74	1.05	2.35	1.73	1.95	1.43	.71	1.18
The State.....	1.83	2.17	1.92	1.87	1.63	1.86	2.06	1.76	1.28

TABLE 31.—SHOWING DEATHS FROM TYPHOID FEVER IN NEW JERSEY, FOR YEAR ENDING DECEMBER 31, 1909. AND SHOWING ALSO THE NUMBER OF DEATHS FROM THIS DISEASE IN URBAN AND RURAL DISTRICTS, TOGETHER WITH POPULATION AND DEATHS PER 10,000 INHABITANTS.

	Aggregate population.	Deaths from typhoid fever.	Deaths from typhoid fever per 10,000 population.
State	2,352,522	301	1.28
Cities	1,623,851	211	1.30
Rural Districts.....	728,671	90	1.24

TABLE 32.—DEATHS FROM TYPHOID FEVER IN NEW JERSEY, BY AGE PERIODS, FOR NINE YEARS.

YEARS.	AGE PERIODS.											Totals.
	Under 1 year.	1 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	Over 80	Not stated.	
1901.....	2	35	57	107	74	36	17	13	9	1	1	352
1902.....	1	25	72	124	92	53	33	18	8	1	1	428
1903.....	3	26	77	108	88	49	19	17			1	388
1904.....	2	24	77	108	83	31	85	16	5	3		384
1905.....	3	33	73	86	65	49	28	16	6	1		360
1906.....	1	34	85	110	67	59	23	11	10	3		408
1907.....		22	95	149	93	61	27	11	4	2		464
1908.....	3	36	71	96	73	39	25	16	6	2		367
1909.....	8	20	63	68	59	47	23	7	6			301
Totals.....	23	253	670	956	694	424	235	125	54	13	3	3,452

TABLE 33.—SANITARY DISTRICTS IN NEW JERSEY IN WHICH DEATHS FROM TYPHOID FEVER OCCURRED DURING THE YEAR ENDING DECEMBER 31, 1909, WITH POPULATION. NUMBER OF DEATHS, SOURCE OF WATER SUPPLY AND NATURE OF DRAINAGE.

NAME OF SANITARY DISTRICT.	Population, census 1905.	Number of deaths from typhoid fever.	Water-supply.	Drainage.
Andover Borough.....	427	1	Domestic.	No sewers.
Acquackanonk Township..	7,187	1	Domestic.	No sewers.
Atlantic City	37,593	5	Public.	Sewers.
Bayonne	42,262	2	Public.	Sewers.
Belleville Township	7,632	1	Public.	No sewers.
Belvidere City	1,869	1	Public.	Sewers.
Boonton City	3,935	1	Public.	No sewers.
Bound Brook Borough....	3,339	1	Public.	Sewers.
Bridgeton	13,624	3	Public.	Sewers.
Burlington City	8,038	1	Public.	Sewers.
Camden City	83,363	11	Public.	Sewers.
Cape May City Borough..	3,006	1	Domestic.	No sewers.
Centre Township	2,651	1	Domestic.	No sewers.
Chesterfield Township ..	1,141	1	Public.	No sewers.
Clinton Borough	830	1	Domestic.	No sewers.
Commercial Township ..	2,476	1	Public.	No sewers.
Cranbury Township	1,463	1	Domestic.	No sewers.
Deerfield Township	3,212	1	Domestic.	No sewers.
Delran Township	1,340	1	Domestic.	No sewers.
Deptford Township	2,234	1	Public.	No sewers.
Dover City	6,353	1	Public.	Sewers.
East Orange	25,175	1	Domestic.	No sewers.
East Windsor Township..	863	1	Public.	No sewers.
Eatontown Township	2,874	1	Public.	No sewers.
Egg Harbor Township....	1,468	1	Public.	Sewers.
Elizabeth	60,509	15	Public.	Sewers.
Englewood	7,922	1	Domestic.	No sewers.
Ewing Township	1,560	1	Domestic.	No sewers.
Fairfield Township	1,625	1	Domestic.	Sewers.
Florence Township	1,967	1	Public.	No sewers.
Garfield	5,092	1	Public.	No sewers.
Glassboro Township	2,607	1	Public.	Sewers.
Gloucester City	8,055	3	Domestic.	No sewers.
Greenwich Twp. (Glou.)..	754	1	Public.	Sewers.
Hackensack	11,098	3	Public.	No sewers.
Hackettstown Township ..	2,594	1	Public.	Sewers.
Haddonfield Borough	3,466	1	Public.	Sewers.
Hamilton Twp. (Mercer)..	5,150	1	Domestic.	No sewers.
Hammonton	4,334	2	Public.	No sewers.
Hardyston Township	3,434	1	Domestic.	No sewers.
Hasbrouck Heights Bor- ough	1,650	1	Public.	Sewers.
Hightstown Borough	2,083	1	Public.	Sewers.
Hillsborough Township ..	2,247	1	Domestic.	No sewers.
Hoboken	65,468	9	Public.	Sewers.
Holly Beach Borough....	1,327	1	Public.	Sewers.
Hopewell Borough	984	1	Public.	No sewers.
Irrington	7,180	1	Public.	Sewers.
Jamesburg Borough	1,315	1	Public.	No sewers.
Jefferson Township	1,259	1	Domestic.	No sewers.
Jersey City	232,699	23	Public.	Sewers.
Kearny	13,601	2	Public.	Sewers.
Lacey Township	653	1	Domestic.	No sewers.
Lakewood Township	4,263	1	Public.	Sewers.
Lawrence Twp. (Cumb.)..	1,730	1	Domestic.	No sewers.
Lebanon Township	1,983	1	Domestic.	No sewers.
Little Falls Township....	3,079	2	Public.	No sewers.
Long Branch	12,183	9	Public.	Sewers.
Lower Penns Neck Twp...	1,327	1	Domestic.	No sewers.
Madison Borough	4,115	1	Public.	Sewers.
Manalapan Township	1,392	1	Domestic.	No sewers.
Mantua Township	1,471	1	Public.	No sewers.
Matawan Township	1,365	1	Domestic.	No sewers.
Maywood Borough	687	1	Public.	No sewers.

TABLE 33.—SANITARY DISTRICTS IN NEW JERSEY IN WHICH DEATHS FROM TYPHOID FEVER OCCURRED DURING THE YEAR ENDING DECEMBER 31, 1909. WITH POPULATION, NUMBER OF DEATHS, SOURCE OF WATER SUPPLY AND NATURE OF DRAINAGE—Continued.

NAME OF SANITARY DISTRICT.	Population, census 1905.	Number of deaths from typhoid fever.	Water-supply.	Drainage.
Middletown Township	5,600	2	Domestic.	No sewers.
Millburn Township	3,182	1	Public.	No sewers.
Millville	11,884	1	Public.	Sewers.
Montclair	16,370	3	Public.	Sewers.
Morristown	12,146	2	Public.	Sewers.
Newark	283,289	40	Public.	Sewers.
New Brunswick	23,133	5	Public.	Sewers.
Neptune Township	9,357	2	Public.	Sewers.
Northampton Township	5,509	3	Public.	Sewers.
North Bergen Township	11,134	1	Public.	No sewers.
North Brunswick Twp.	929	1	Domestic.	No sewers.
Norwood Borough	432	1	Domestic.	No sewers.
Orange	26,101	5	Public.	Sewers.
Oxford Township	2,964	1	Domestic.	No sewers.
Palmyra Township	2,643	1	Public.	No sewers.
Passaic City	37,837	1	Public.	Sewers.
Passaic Township	2,163	4	Public.	No sewers.
Paterson	111,529	12	Public.	Sewers.
Pensauken Township	3,957	1	Domestic.	No sewers.
Pequannock Township	1,674	1	Domestic.	No sewers.
Perth Amboy	25,895	2	Public.	Sewers.
Phillipsburg	13,352	1	Public.	Sewers.
Plainfield	18,468	4	Public.	Sewers.
Rahway	8,649	1	Public.	Sewers.
Riverside Township	3,301	2	Public.	Sewers.
Rocky Hill Borough	479	2	Domestic.	No sewers.
Rumson Borough	.....	1	Public.	Sewers.
Salem City	6,443	1	Public.	Sewers.
Shrewsbury Township	5,402	1	Public.	No sewers.
Somerville Borough	4,782	3	Public.	Sewers.
S. Bound Brook Borough	939	2	Domestic.	No sewers.
South Brunswick Twp.	2,489	1	Domestic.	No sewers.
South Orange Township	1,946	1	Public.	Sewers.
Springfield Twp. (Bur.)	1,323	1	Domestic.	No sewers.
Springfield Twp. (Union)	1,123	1	Public.	No sewers.
Spring Lake Borough	1,039	1	Public.	Sewers.
Town of Union	17,005	1	Public.	Sewers.
Trenton	84,180	33	Public.	Sewers.
Union Township (Ber.)	2,188	1	Public.	No sewers.
Upper Township	1,350	1	Domestic.	No sewers.
Upper Pittsgrove Twp.	1,722	1	Domestic.	No sewers.
Vernon Township	1,649	1	Domestic.	No sewers.
Wall Township	3,518	1	Domestic.	No sewers.
Washington Borough	3,431	1	Public.	Sewers.
Westfield	5,265	1	Public.	Sewers.
West Hoboken	29,082	1	Public.	Sewers.
West Orange	7,872	2	Public.	Sewers.
Westwood Borough	1,044	1	Public.	Sewers.
Woodbridge Township	10,221	2	Public.	No sewers.
Woodstown Borough	1,500	1	Public.	Sewers.

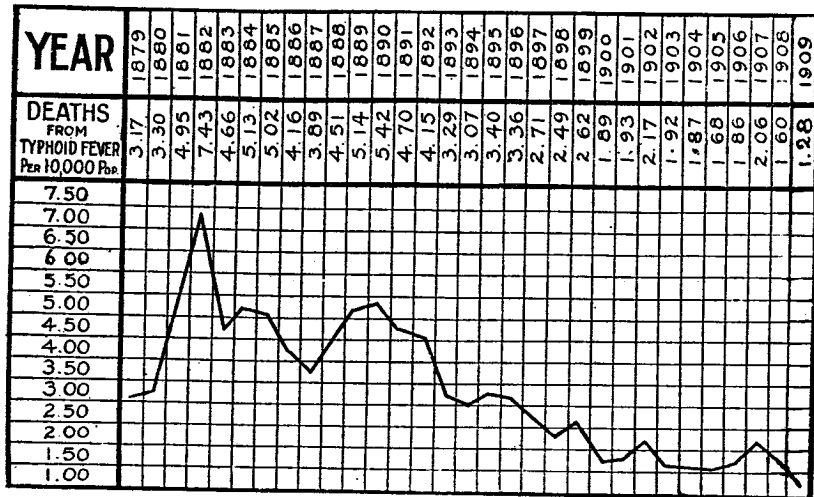
TABLE 34.—DEATHS FROM SCARLET FEVER, DIPHTHERIA AND TYPHOID FEVER IN NEW JERSEY FOR THE THIRTY-ONE YEARS ENDING DECEMBER 31, 1909, COMPARED WITH TOTAL DEATHS.

YEARS.	Popula-tion.	Total deaths.	Death-rate per 1,000 population.	SCARLET FEVER.		DIPHTHERIA.		TYPHOID FEVER.	
				Number of deaths.	Death-rate per 1,000 population.	Number of deaths.	Death-rate per 1,000 population.	Number of deaths.	Death-rate per 1,000 population.
1879.....		20,440	18.07	627	.61	1,100	1.09	324	.32
1880.....	1,180,892	18,967	16.77	573	.51	873	.77	373	.33
1881.....		20,810	18.39	499	.43	1,128	.97	574	.49
1882.....		25,910	22.90	1,306	1.01	1,472	1.24	884	.74
1883.....		13,310	20.60	853	.71	1,146	.95	564	.47
1884.....		21,716	19.20	547	.44	1,027	.82	640	.51
1885.....	1,278,033	23,807	18.63	646	.51	1,496	1.17	642	.50
1886.....		22,734	17.80	222	.17	1,303	.99	545	.42
1887.....		24,331	19.04	255	.19	1,527	1.14	522	.39
1888.....		27,173	17.01	574	.42	2,036	1.48	620	.45
1889.....		26,543	18.99	533	.38	1,574	1.12	724	.51
1890.....	1,441,017	28,530	19.80	209	.15	1,575	1.09	782	.54
1891.....		32,685	21.62	288	.19	1,737	1.17	695	.47
1892.....		28,840	19.50	1,008	.67	1,776	1.17	628	.42
1893.....		30,596	19.88	445	.29	1,677	1.09	506	.33
1894.....		30,004	19.09	272	.17	1,294	.82	485	.31
1895.....	1,672,942	30,634	18.31	264	.16	1,464	.85	568	.34
1896.....		30,767	17.90	183	.11	1,758	1.02	577	.34
1897.....		29,822	16.90	203	.12	1,382	.78	478	.27
1898.....		27,337	15.11	201	.11	950	.52	450	.25
1899.....		30,999	16.70	187	.10	777	.42	486	.26
1900.....	1,883,669	31,474	16.62	220	.12	927	.49	356	.19
1901.....		31,739	16.48	179	.09	683	.36	352	.19
1902.....		31,319	15.91	217	.11	683	.35	428	.22
1903.....		31,820	15.73	299	.15	748	.37	388	.19
1904.....		35,298	17.14	416	.20	918	.45	384	.19
1905.....	2,144,143	33,864	15.79	164	.07	699	.33	360	.17
1906.....	2,196,238	35,670	16.24	193	.09	673	.31	408	.19
1907.....	2,248,331	37,408	16.63	286	.13	632	.29	464	.21
1908.....	2,300,427	35,597	15.47	396	.17	535	.23	367	.16
1909.....	2,352,522	36,359	15.46	338	.14	610	.26	301	.13

TABLE 35.—SHOWING DEATHS FROM TYPHOID FEVER AND DEATHS PER 10,000 INHABITANTS FROM TYPHOID FEVER IN THE COUNTIES OF NEW JERSEY FOR YEAR ENDING DECEMBER 31, 1909. ALSO CHART SHOWING DEATHS FROM TYPHOID FEVER PER 10,000 INHABITANTS IN THE COUNTIES OF NEW JERSEY FOR SAME PERIOD.

NAMES OF COUNTIES.	Number of deaths from typhoid fever.	Deaths from typhoid fever per 10,000 inhabitants.	Chart showing deaths from typhoid fever per 10,000 inhabitants.
Atlantic County.....	8	1.13	
Bergen County.....	10	.85	
Burlington County..	13	2.00	
Camden County.....	17	1.28	
Cape May County.....	3	1.45	
Cumberland County.....	7	1.32	
Essex County.....	55	1.22	
Gloucester County.....	4	1.09	
Hudson County.....	39	.78	
Hunterdon County.....	2	.62	
Mercer County.....	33	3.10	
Middlesex County.....	13	1.17	
Monmouth County.....	20	2.16	
Morris County.....	8	1.14	
Ocean County.....	2	.92	
Passaic County.....	19	.99	
Salem County.....	4	1.49	
Somerset County.....	9	2.31	
Sussex County.....	3	1.32	
Union County.....	22	1.67	
Warren County.....	5	1.18	

CHART SHOWING DEATHS FROM TYPHOID FEVER IN NEW JERSEY, PER 10,000 POPULATION FOR THIRTY-ONE YEARS.



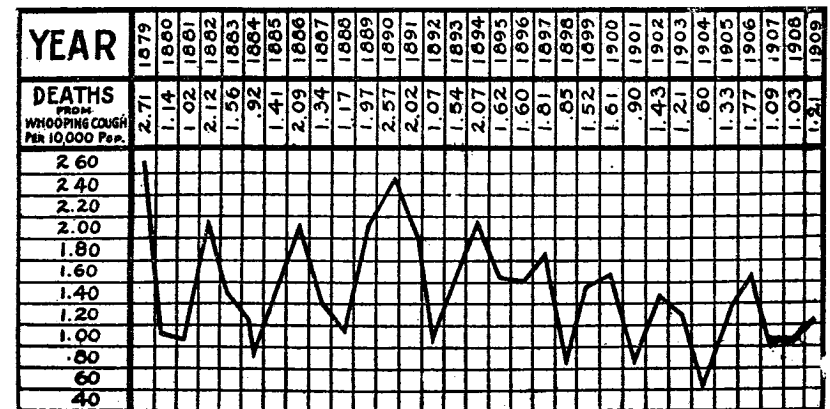
WHOOPING COUGH.

The number of deaths from whooping cough reported to this department for the year ending December 31st, 1909, was 284, and the death-rate for 10,000 population, 1.21, a slight increase over the previous year. The death-rates from whooping cough for the past thirty-one years will be found in the chart following table 36.

TABLE 36.—SHOWING DEATHS IN NEW JERSEY FROM WHOOPING COUGH, WITH AGES OF DECEDENTS, FOR YEAR ENDING DECEMBER 31, 1909.

AGE PERIODS.	Deaths from whooping cough.	AGE PERIODS.	Deaths from whooping cough.	AGE PERIODS.	Deaths from whooping cough.
Under 1 month.....	11	20 to 25.....		50 to 55.....	
Under 1 year.....	141	25 to 30.....	1	55 to 60.....	
1 to 5.....	115	30 to 35.....		60 to 70.....	
5 to 10.....	11	35 to 40.....		70 to 80.....	2
10 to 15.....	2	40 to 45.....		80 to 90.....	
15 to 20.....	1	45 to 50.....		Over 90.....	
				Total.....	284

CHART SHOWING DEATHS FROM WHOOPING COUGH IN NEW JERSEY, PER 10,000 POPULATION, FOR THE THIRTY-ONE YEARS ENDING DECEMBER 31, 1909.

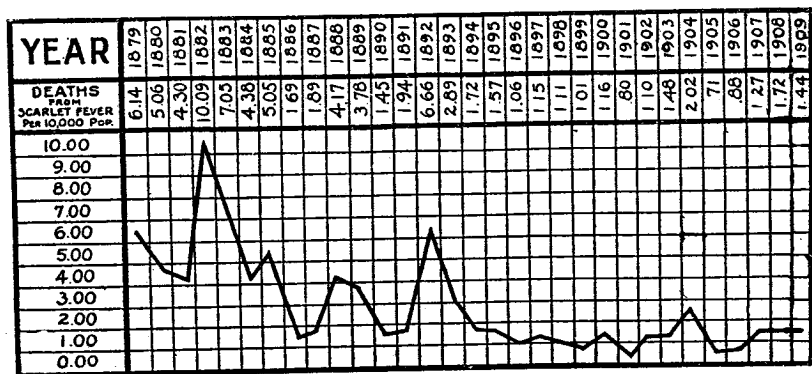


SCARLET FEVER.

The total number of deaths from scarlet fever for the year 1909 was 338. The mortality from scarlet fever has been decreasing for the past fifteen years; however, scarlet fever is a very infectious and dangerous disease. It is the duty, therefore, of parents and others in charge of a case to remember that they are responsible for a disease which tends to spread, and to adopt such precautions as will prevent it from doing so. The two words, "isolation" and "disinfection," are all important in this and in all other infectious diseases. Disinfection, however, is worthless unless thoroughly done, and in this respect, a case is cited from McVail's Work on Prevention of Infectious Diseases, as follows:

"A while ago, in Dunbartonshire, a case was removed to hospital immediately after notification. Disinfection was supposed to be complete, the child's bedroom and the passage and stair leading to it having all been thoroughly purified. But eight months later two children staying in the house on a visit were attacked by scarlet fever, and it turned out on inquiry that a sitting room carpet on which the child originally infected had vomited before going to bed had been overlooked in the disinfection, and had been lifted and beaten in the presence of the visiting children."

CHART SHOWING DEATHS FROM SCARLET FEVER IN NEW JERSEY, PER 10,000 POPULATION, FOR THIRTY-ONE YEARS.



MEASLES.

The number of deaths in New Jersey from measles for the year 1909 was 242 and the death-rate per 10,000 population, 1.03, a decided decrease from the previous year.

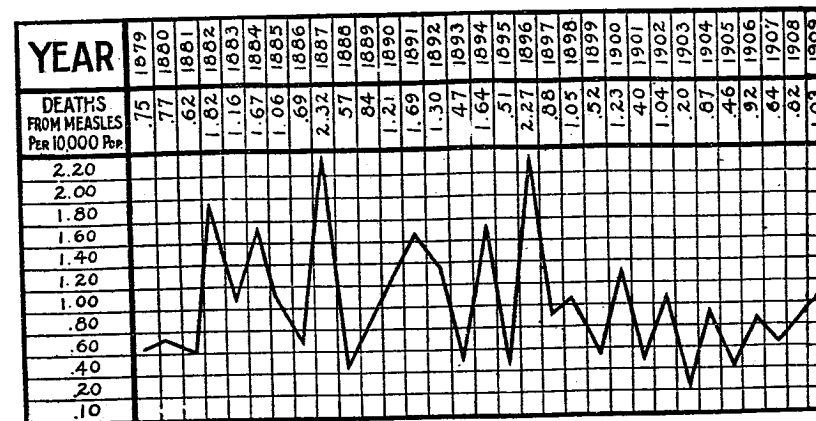
Local health officers and registrars should, as far as possible, see that all deaths from measles are correctly reported on the certificate of death, as in many cases measles is undoubtedly associated with bronchitis, broncho-pneumonia, capillary bronchitis, and pneumonia and one of these sequela may be given as the cause of death instead of measles. Measles is a most serious disease of childhood and its after effects upon those who recover are liable to be lasting, resulting in impaired vision, deafness and chronic respiratory affections.

The records of vital statistics in New Jersey show that periodical outbreaks from this disease occur with much regularity and no successful measures have thus far been devised to prevent these epidemics.

TABLE 37.—SHOWING DEATHS IN NEW JERSEY FROM MEASLES, WITH AGE AT DEATH, FOR YEAR ENDING DECEMBER 31, 1909.

AGE PERIODS.	Deaths from measles.	AGE PERIODS.	Deaths from measles.	AGE PERIODS.	Deaths from measles.
Under 1 month.....	2	25 to 30.....	2	60 to 70.....	
Under 1 year.....	66	30 to 35.....		70 to 80.....	
1 to 5.....	141	35 to 40.....	2	80 to 90.....	
5 to 10.....	23	40 to 45.....		Over 90.....	
10 to 15.....	1	45 to 50.....	1		
15 to 20.....	1	50 to 55.....	1		
20 to 25.....	2	55 to 60.....		Total.....	242

CHART SHOWING DEATHS IN NEW JERSEY FROM MEASLES, PER 10,000 POPULATION FOR THIRTY-ONE YEARS ENDING DECEMBER 31, 1909.



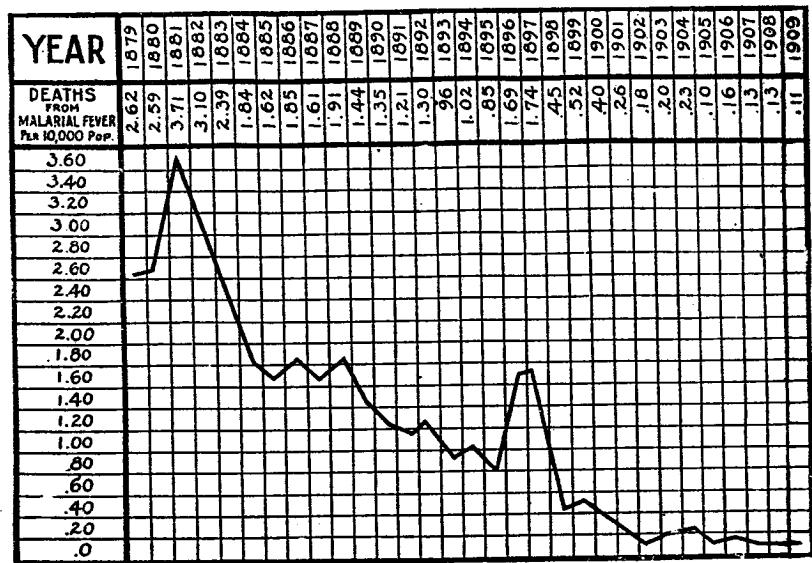
MALARIAL FEVER.

The total number of deaths in the State from malarial fever for the year ending December 31st, 1909, was 25. The following table and chart shows the continued diminution in the death-rate from this disease for the past thirty-one years.

TABLE 38.—SHOWING DEATHS IN NEW JERSEY FROM MALARIAL FEVER FOR THIRTY-ONE YEARS.

YEARS.	Deaths from malarial fever.	YEARS.	Deaths from malarial fever.	YEARS.	Deaths from malarial fever.
1879	268	1889	203	1899	96
1880	293	1890	195	1900	84
1881	431	1891	180	1901	50
1882	379	1892	198	1902	36
1883	290	1893	148	1903	40
1884	230	1894	162	1904	47
1885	209	1895	144	1905	21
1886	243	1896	119	1906	33
1887	217	1897	132	1907	29
1888	264	1898	82	1908	30
				1909	25

CHART SHOWING DEATHS FROM MALARIAL AFFECTIONS, PER 10,000 INHABITANTS, IN NEW JERSEY, FOR THIRTY-ONE YEARS.



SMALL-POX.

The number of deaths from small-pox for the calendar year 1909, was 2. No epidemics from this disease have occurred in New Jersey for several years, and it is hoped that the law requiring trained sanitary inspectors and health officers in the various municipalities throughout the State will be the means of preventing any serious spread of this disease.

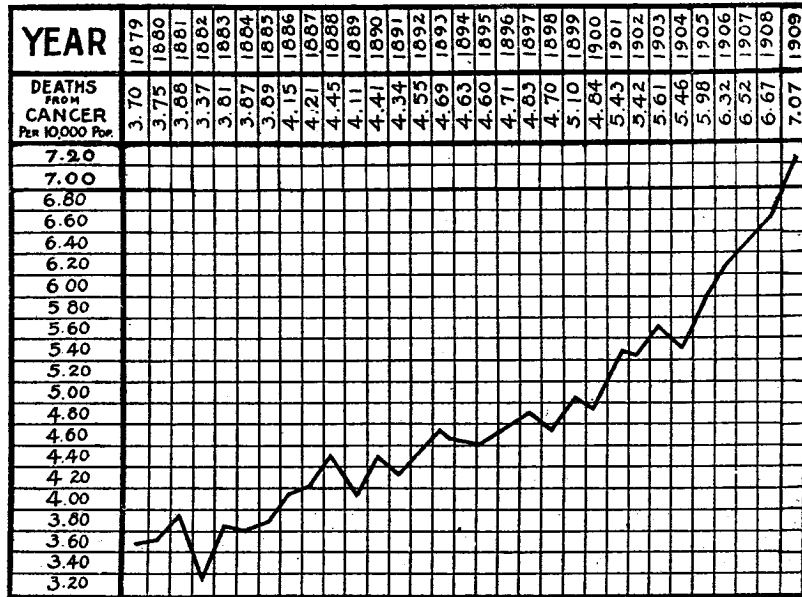
TABLE 39.—SHOWING DEATHS IN NEW JERSEY FROM SMALL-POX FOR THIRTY-ONE YEARS.

YEARS.	Deaths from small-pox.	YEARS.	Deaths from small-pox.	YEARS.	Deaths from small-pox.
1879	.....	1889	3	1899	....
1880	15	1890	.....	1900	5
1881	254	1891	.....	1901	142
1882	367	1892	38	1902	432
1883	54	1893	43	1903	16
1884	7	1894	11	1904	24
1885	2	1895	23	1905	1
1886	4	1896	2	1906	1
1887	5	1897	.....	1907	1
1888	5	1898	.....	1908	....
				1909	2

CANCER.

For the year ending December 31st, 1909, there were 1,663 deaths from cancer in New Jersey, and the following tables show the number of deaths and death-rate from this disease for the past thirty-one years, also the various organs affected and ages at death.

CHART SHOWING DEATHS IN NEW JERSEY FROM CANCER, PER 10,000 POPULATION, FOR THIRTY-ONE YEARS, 1879-1909.



SUICIDE.

For the year ending December 31st, 1909, 432 deaths from suicide were recorded in New Jersey, a decrease of 16 from the previous year. The following tables show the various means used by suicides, together with ages at death and nationalities of the decedents.

TABLE 44.—SHOWING DEATHS IN NEW JERSEY FROM SUICIDE FOR NINE YEARS, 1901-1909.

YEARS.	Deaths from suicide.	YEARS.	Deaths from suicide.
1901	265	1905	354
1902	271	1906	338
1903	314	1907	387
1904	330	1908	448
		1909	432

TABLE 45.—DEATHS IN NEW JERSEY FROM SUICIDE, SHOWING MODE OF DEATH AND AGE AT DEATH, FOR THE YEAR ENDING DECEMBER 31, 1909.

MODE OF DEATH.	AGE AT DEATH.													Totals.			
	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 30	30 to 35	35 to 40	40 to 45	45 to 50	50 to 55	55 to 60	60 to 70		70 to 80	80 to 90	Over 90	Not stated.
By poison.....			1	11	10	12	7	12	15	21	10	8	16	5			128
By asphyxia.....				1	3	3	3	9	8	8	17	5	10	4	2		78
By strangulation.....				2		1	4	9	8	7	9	2	13	7	1		63
By firearms.....				5	6	9	13	14	13	8	11	11	14	5	1		110
By cutting instruments.....					1			1	5	3	2	2	2	1	1		18
By drowning.....				2	5	3	4	3	3	5	2	1	2				30
By crushing.....							1	2	1	1							7
By precipitation from height.....										1							1
Others.....						1				1							2
Totals.....		1	21	25	29	32	50	53	55	51	29	59	22	5			432

TABLE 46.—SHOWING NUMBER OF DEATHS BY SUICIDE RECORDED IN NEW JERSEY, BY CITIES, AND BY COUNTIES, EXCLUSIVE OF CITIES, FOR THE YEAR ENDING DECEMBER 31, 1909.

NAME OF PLACE.	COUNTRY OF BIRTH.										Total.	
	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.		Not stated.
Atlantic County.....												3
Atlantic City.....	8	1		1	1					1		12
Bergen County.....												19
Englewood.....												
Garfield.....								1		1		2
Hackensack.....		1		2							1	4
Rutherford.....												
Burlington County.....												8
Bordentown.....												
Burlington.....												
Camden County.....												1
Camden City.....	6			1	1					1	1	10
Gloucester City.....	1											1
Cape May County.....												
Cumberland County.....												
Bridgeton.....												
Millville.....	1											1
Essex County.....												5
Bloomfield.....	4											4
East Orange.....												
Irvington.....	1			2			1					4
Montclair.....	4											4
Newark.....	28	2		18	3	2		3		6	6	68
Orange.....	3			2			1					6
West Orange.....		1		1						1		3
Gloucester County.....												4
Hudson County.....												14
Bayonne.....	1			3	2			1			1	8
Harrison.....	1											1
Hoboken.....	10			21						5	1	37
Jersey City.....	33		2	14	3			1		2	2	59
Kearny.....												
Town of Union.....				4			1					5
West Hoboken.....			1	4						1		6
West New York.....				2								2
Hunterdon County.....												4
Lambertville.....												
Mercer County.....												3
Princeton.....												
Trenton.....	4				1			3		1		9
Middlesex County.....												4
New Brunswick.....	3							1		1	1	6
Perth Amboy.....	1			1					1	1		4
South Amboy.....	1											1
Monmouth County.....												11
Asbury Park.....	1											1
Long Branch.....												
Red Bank.....	1										1	2
Morris County.....												9
Dover.....									1			1
Morristown.....	1											1
Ocean County.....												5
Passaic County.....												6
Passaic City.....	1			1		1				1		4
Paterson.....	7	2		6		2				8	2	27
Salem County.....												4
Salem City.....												
Somerset County.....												3
North Plainfield.....	1											1
Sussex County.....												3
Union County.....												5
Elizabeth.....	6			5						1		12
Plainfield.....	2				1							3
Rahway.....				1								1
Summit.....	1											1
Westfield.....												
Warren County.....												7
Phillipsburg.....	2							1				3
Totals.....	135	7	3	89	12	5	3	11	2	31	16	432

DIVISION OF MEDICAL AND SANITARY INSPECTION.

In this division an effort has been made throughout the year ending October 31st, 1910, to secure the enforcement of the various laws of the State which refer especially to the organization of local boards of health, and to endeavor to aid in the prevention of the spread of communicable diseases. With the assistance of an additional inspector it has been possible to visit many of the delinquent local boards of health in the State, and to arouse them from a condition of stagnation and inefficiency to more intelligent effort in carrying out the health laws. From what is now known as to the defects of certain local boards of health we are led to the definite conclusion that the present organization of local boards of health throughout the State is upon final trial, and if as the result of additional investigation and advice to these boards there is no decided improvement in efficiency it will be necessary by legislative enactment to substitute some new form of organization. Although many of the local boards of health in the cities and boroughs of our State are fulfilling the duties required by the health laws, the majority of the township boards are inefficient. This is due almost entirely to the form of organization, as the present law under which local boards of health in townships are organized constitutes the members of the township committee, the township assessor and a physician appointed by the township committee as the local board of health. The members of township committees are usually chosen to supervise the expenditure of township moneys and transact the business of the township, and are not selected with any reference to knowledge of matters affecting public health. Many township boards of health are desirous of doing their duty, and under careful advice have been of service to communities, but the majority of such boards are handicapped by the lack of knowledge of sanitary subjects and as a result the rural districts of the State are not accorded satisfactory protection to the health of the inhabitants. It is difficult to suggest at the present time what form of organization of township boards of health is best suited to the needs of our State, but the subject is receiving careful consideration and any plan for more satisfactory organization of local boards of health in townships is devised it will be submitted to the Legislature for its consideration.

During the year the almshouses of the State have been inspected, and many unsanitary conditions found in these institutions will be remedied before the close of another year. No work that has been done in the effort to prevent the spread of contagious diseases is more directly effective than the supervision of cases of this character occurring on dairy premises from which large quantities of milk are produced and distributed to consumers. Investigation of numerous epidemics has proven that typhoid fever, diphtheria, scarlet fever, tuberculosis and intestinal diseases are transmitted by infected milk. The law on the statute books requiring physicians in attendance upon such cases to report directly to the State Board of Health, and giving the Board power to supervise or prohibit the sale of milk from premises where such milk is exposed to the emanations or exhalations of persons ill with certain diseases, has, we believe, resulted in the prevention of epidemics of diseases which are milk borne. It is also an indication of what may be accomplished in preventive sanitation where ample power is given to a central bureau of health. Many epidemics of communicable diseases in various localities in the State have been investigated, and local boards of health have been assisted in preventing the spread of disease.

The report of an investigation of cases of typhoid fever where persons were infected by eating clams taken from sewage laden waters appears in the report of the chief of the Division of Medical and Sanitary Inspection and is of special interest, proving beyond doubt the usefulness of recent laws giving the State Board of Health power to prevent the pollution of waters from which clams and oysters are taken.

The report of the division also gives interesting data in reference to several outbreaks of contagious diseases occurring in State institutions. The responsibility of directing measures to prevent the dissemination of diseases in institutions where many individuals are housed, and where the danger of infection by direct contact is at a maximum, is willingly assumed by the Board as the resultant limiting of the number of cases and loss of life is so apparent.

The report of the division taken as a whole is evidence of the fact that much is being accomplished in the prevention of disease, and that by following the plans for extension of the work which

are already under consideration we may anticipate even more valuable returns from the work of the division during the coming year.

STATE LABORATORY OF HYGIENE.

During the year 16,424 specimens from suspected cases of communicable diseases in man and animals were examined in the bacteriological department of the Laboratory of Hygiene. The purpose of these examinations is to assist physicians to make early and accurate diagnoses of certain transmissible diseases in order that they may be enabled to take proper measures for the protection of the public by limiting the spread of infectious material. Epidemics of diphtheria have occurred during the year in Asbury Park, Salem, Ocean City and some other localities. From these places large numbers of specimens have been sent by the local boards of health from well persons known or suspected of having been in contact with diphtheria cases, for the purpose of ascertaining whether or not they carried the diphtheria bacillus in their throats or noses. By means of these examinations it has been possible to detect and exclude from the public schools certain diphtheria carriers who no doubt were instrumental in spreading the disease. It is very probable that diphtheria in school children is spread largely by these carriers, and the laboratory therefore renders valuable service in detecting them.

Attention is directed to the increase in the number of specimens to be examined for rabies which reach the laboratory. Rabies is a disease which is increasing rapidly in some sections of this State, and measures should be taken to restrict its further spread. This can best be done by destroying homeless dogs and so restricting the liberties of others that they do not have the opportunity to infect each other which now exists. In order that such restriction may be made effective throughout the State, legislative action will probably be required.

It is to be regretted that the laboratory is still unprovided with sufficient room. During the past year a number of requests for investigations within the scope of the laboratory work had to be refused because no space was available for the purpose. This applies particularly to the testing of diphtheria cultures for virulence, a matter of considerable importance when specimens from

well persons are examined. The need of an animal room is felt more keenly each year, and it is hoped that a suitable place may soon be secured.

FOOD AND DRUGS.

Because the appropriation for the enforcement of the food and drugs act was reduced from \$20,000 to \$15,000, and because of the necessity for using considerable time in investigating oyster and clam beds and making inspections of slaughter-houses, the number of samples of food and drugs collected and examined during the year is smaller than was the case last year. The following table gives a summary of the samples collected and examined:

	<i>Above Standard.</i>	<i>Below Standard.</i>	<i>Total.</i>
Milk and cream.....	3,700	392	4,092
Foods other than milk.....	1,978	197	2,175
Drugs	119	149	268
Total	5,797	738	6,535

Food adulteration is steadily decreasing in this State. This is due to the enforcement of the State law and, of late years, to the wide publicity given to the enforcement of the Federal Food and Drugs act. During the year, as heretofore, the Division of Food and Drugs has devoted much time to the supervision of the milk supply because of the importance of securing pure and wholesome milk for the citizens of the State. It is noteworthy that for the first time since milk laws have been enforced in this State no samples of milk were found this year which contained preservatives. That the practise of preserving milk with injurious chemicals in order to conceal its inferior quality has ceased is a significant indication of the general improvement which is taking place in our milk supply.

While it has been impossible to attempt any general enforcement of the sanitary act (Chapter 231 of the Laws of 1909), a number of investigations have been made of certain selected industries for the purpose of finding a suitable starting point. Among other industries investigated were establishments where soft drinks are manufactured and bottled, canning factories and news stands located at or near railroad stations at which candies are

exposed for sale. These inspections show that the manufacture of soft drinks is a business requiring constant supervision if a wholesome and cleanly product is to be secured. Many of the places investigated were filthy and almost all of them were operated in violation of law. Numerous defects were discovered in the canning factories inspected. An effort will be made to have these corrected before the next canning season begins. One of the most flagrant violations of law discovered was the exposure of candies on news stands so located that their contents were constantly exposed to serious contamination by dust and flies. A notice was served on the corporation operating these stands that the practise of exposing candies must be discontinued, and all candies now offered for sale on these stands are securely protected by paper wrappings.

Inasmuch as the adequate enforcement of the sanitary law can never be accomplished by the State Board of Health alone, and as local boards of health have the same power to enforce it as has the State Board, it is very desirable that a system of co-operation between the State Board and local boards be established which will result in united and harmonious effort. In order that this may be accomplished it will probably be necessary to secure legislation giving the State Board some measure of control over local boards.

Although no funds were provided for the enforcement of the slaughter-house license act (Chapter 295 of the Laws of 1910), some work has been done toward inspecting the slaughter-houses of the State. In all, ninety-three inspections have been made and five licenses issued. If this work is to be successfully carried on one additional inspector, and probably more, will be needed.

During the year an attempt was also made to comply with the act which requires the State Board of Health to annually inspect all the oyster and clam grounds in the State. Preliminary investigations have been made of the oyster grounds in Cumberland, Cape May, Atlantic and Ocean counties and of certain areas from which clams are taken in Atlantic county, and certificates have been issued to the oyster growers occupying leased grounds in Maurice River Cove. It is the intention of the Board to continue this work during the coming year, but if much is to be accomplished more help must be provided. The law as it stands is unsatisfactory in some respects and the coming Legislature

will be asked to revise it both for the purpose of making it more effective and, at the same time, less burdensome on the State Board of Health.

DIVISION OF CREAMERIES AND DAIRIES.

Increased work has been done by this division during the year 1910, and a reference to the report of the chief of the division will show that during the year there were 1,989 official visits made by the inspectors to creamery and dairy premises, as against 1,425 inspections the previous year; that there are 72 more creameries subject to the provisions of Chapter 139 of the Laws of 1906 than were reported in 1909. The extra work of the division during the year, as shown in the report of the division chief, was made possible by the appointment of one additional inspector, and the increase reported in the number of creameries is partly due to the fact that wholesale ice cream establishments are now classified as creameries under Chapter 139 of the Public Laws of 1906. The department, however, has reached its limit in the work of thorough dairy inspection, and unless another inspector is provided for the coming year, the work must necessarily be confined to the localities in which regular and periodical inspection has already been established. To widen the scope of the work with the present force at our command would be to diminish its thoroughness, and any deviation from the plan which we have followed for the past two and a half years would result in a falling off in the quality of the milk produced on dairy premises.

The production of certified milk has been increased in the past year by the establishment of three additional dairies which furnish milk to the inhabitants of New Jersey. During part of the year nine of these establishments were in operation, but one of them having failed to meet the requirements of the Medical Milk Commission certifying to the product, relinquished the business. Two of the eight remaining dairies are located in the vicinity of Elmira, New York, and the chief of the division visited them and made a thorough examination of their methods and conditions. A record of the inspection of these dairies is on file in the office of the Board. The forms which were prepared and sent to the medical milk commissions and to the certified dairies, asking for information concerning the details of the production and certification of

the milk, have mostly been satisfactorily answered, and serve as a guide to the inspectors in making their investigations of these plants and the methods in use in handling milk.

New Jersey's citizens were the originators of "certified milk," and there is probably more high grade milk of this character produced in this State, in proportion to its population, than in any other. The incorporated certified milk dairies operating under the law are increasing in number, and it is very probable that still more of them will be reported next year.

The chief of the division recommends that an amendment be made to the creamery act, permitting the continuance of any ice cream factory located in a basement or cellar which has been used for that purpose prior to this year; provided, however, that the sanitary conditions are approved by the State Board of Health, or its accredited officers, and that in the future no ice cream establishment or other creamery be established in a room below the street level.

He also recommends that an amendment be made to Chapter 217 of the Laws of 1907 so that the provision requiring containers to be rinsed with pure water before returning them to the shipper, may be made to include cans which have contained ice cream.

Another recommendation is for the passage of an act making it mandatory upon local boards of health, whose ordinances require milk dealers to take out permits before engaging in the business of selling milk, to revoke said licenses when the sanitary condition of the dairy premises producing such milk shall have been found to be conducted in a way which, in the judgment of the State Board of Health or its officers, makes the milk produced thereon unsafe for human food.

The reasons for the enactment of these laws are fully set out in the report of the chief of this division, and seem to be necessary to correct the many evils which have been brought to light by the inspection of creamery and dairy premises.

DIVISION OF SEWERAGE AND WATER SUPPLIES.

This division was created in 1908, and has been active and instrumental in bringing this State into the foremost rank regarding matters of health in so far as it is dependent upon pure water.

Unquestionably polluted water supplies are primarily responsible for much sickness and many deaths, and too much care and watchfulness cannot be bestowed upon these to prevent any unnecessary contamination. Our population is rapidly increasing and already in some of the congested communities the question of securing a safe and sufficient water supply is a serious one. In some parts of the State the underground waters are extremely hard and contain large quantities of iron and magnesium, making them unsuitable for potable purposes and, in most instances, the supply is limited. Under these conditions municipalities are compelled to look to our streams for their supply of water and it is of the utmost importance that these be kept free from pollution. To accomplish this it is necessary to have inspectors continually patrol the streams, and during the past year over five thousand miles of shore frontage were inspected and over one thousand pollutions were found. The municipalities and institutions which originally discharged raw sewage into the rivers are rapidly installing purification plants, and it is gratifying to note that there are now eighty-two sewage disposal plants in operation with twelve additional ones nearing completion. Orders have been issued to forty-nine additional localities to install sewage disposal plants. The State may well be proud of this record. Regarding the water supplies, it is found there are one hundred and seventy water supplies, furnishing water to three hundred and fourteen communities in the State. Of this number eighty-six supply underground water untreated, and ten underground water filtered. Of surface supplies thirty-nine plants furnish raw water and eighteen filtered water. There are fifteen combination surface and underground supplies and two plants, one underground and one surface supply, which treat the water only with hypochlorites. Many special inspections were made of water supplies, sewerage systems and State institutions. The plans for a number of sewerage systems and water supplies were examined and reports and recommendations on the same were made to the Board. Advice was given in many cases to municipalities and individuals regarding the disposal of sewage. Extensive examinations of the source of the ice supplied in several cities were also made. There were 1,716 samples of water and sewage analyzed, the value of which work alone, based on the usual charges for such analyses, would amount to approximately \$35,000. This division has a laboratory, the equipment of which

is second to none in this country, but the space available is entirely too small, and we trust that the State House Commission may see its way to supply additional room in order that this branch of the work of the State may expand. To properly conduct this work additional assistant chemists and an assistant sanitary engineer should be employed, and the Civil Service Commission has been requested to furnish a list of persons eligible for these positions. The cost of the entire work of this division for the year was only about \$15,000, and from a financial standpoint alone the division has, by the improvements secured in sewage disposal and the prevention of the pollution of streams, returned to the inhabitants of the State several times the cost of its maintenance. If the State is to hold its advanced position in regard to supervision over streams, sewerage systems and water supplies, it is very necessary that additional laboratory space and an increased number of employes be granted. It is hoped that during the coming year sufficient funds will be furnished for this purpose.

CONTAGIOUS DISEASES OF ANIMALS.

There have been no unusual outbreaks of contagious diseases among animals during the year ending October 31st, 1910. The attention of the Board has been directed to the necessity for improvement in the methods of dealing with bovine tuberculosis in the State. Under the present laws the State Board of Health refers reported cases of tuberculosis to the State Tuberculosis Commission, and the responsibility of the Board ceases with this action. The prevention of this disease depends upon two factors, viz., the diagnosis and discovery of cases at present existing in the State with the destruction of diseased animals, and the prevention of the introduction of diseased animals into the State from other states. With the large number of dairy herds in the State, and with the limited appropriation which is at the disposal of the State Tuberculosis Commission it is impossible to inaugurate a systematic inspection of all herds of cattle, and the commission can only cover scattered portions of the State. Under the present system of paying a portion of the value of an animal which is to be destroyed the small appropriation is rapidly dissipated, and many infected cattle remain in herds and spread

the disease. Sufficient moneys should be appropriated by the Legislature of the State to enable the commission to inaugurate systematic veterinary inspection of all herds of cattle, and after infected animals have been isolated from other animals in the herds or destroyed, the inspection of all dairy animals in the State should be repeated at regular intervals. The prevention of the introduction of infected animals into the State presents many difficulties. At the present time the practice is to receive only those animals into the State which have been tuberculin tested in the states from which they are shipped. In several instances during the year animals having tuberculosis, but certified to as having been tuberculin tested, have been introduced into herds and by transmission of the disease caused the loss of other animals. In one case an owner of a herd of valuable Jersey cows lost seventeen of these through either the misrepresentation of the veterinarian making out the certificate, or through slipshod methods of making the test. It would appear that the solution of this problem lies in the establishment of quarantine stations in our State near the border line of adjacent states, and the requiring of a certain period of detention for observation of all animals imported from other states. The practice is in vogue where animals are brought from foreign countries, and there is no reason why, if ample funds are provided by the Legislature, the plan may not be made both practical and effective. Fifteen applications for the examinations of cows suspected of having tuberculosis have been received during the year, and the State Tuberculosis Commission was in each instance requested to investigate. The animals were condemned, appraised and destroyed by the commission.

ANTHRAX.

In former years, cases of anthrax have occurred in Cumberland, Gloucester and Salem counties. Last year, for the first time, a few cases were reported in Camden county. On the 25th of June of the present year, several animals died on a farm located near Gloucester City, Camden county, and at a later period, the cause of death in these cases was not determined and the carcasses of two animals were sold to a nearby rendering establishment.

As there were other deaths in the herd within a few days, sus-

picious were aroused, and a veterinarian was employed. As the symptoms indicated that the deaths might be due to anthrax, specimens for bacteriological examination were forwarded to the State Laboratory of Hygiene at Trenton. These examinations resulted in the verification of the original suspicions as to the character of the disease. Thirteen cattle on the farm where the disease first appeared died and, following this, twelve died on an adjacent farm. For a short interval of time, no new cases occurred until six animals died on a farm well removed from the original foci of infection.

When the fact that diseased animals had been sold from infected farms came to the knowledge of the State Board of Health, an inspector was at once detailed to trace the hides and have them destroyed.

After two days of detective work, the hides were located, identified and destroyed.

Dr. T. B. Rogers was authorized to offer to cattle owners free vaccination with anthrax vaccine, of all animals exposed to the infection.

As the farmers were located along small creeks, it was considered wise to vaccinate, as far as possible, the cattle of owners living along the creeks. All the stock between Newton creek and Little Timber creek, north and south, and between W. J. and the S. S. R. R. and the White Horse road, southeast and west, were vaccinated with the exception of the cattle of one owner, who having lost one animal after vaccination, refused to have the remaining animals in his herd vaccinated. In all, sixty-nine horses were vaccinated and fifty-three cows. On the three farms upon which the disease appeared the total loss was twenty-eight head of cattle and three horses.

It is the practice of the Board before vaccinating cattle with anthrax vaccine, to require of the owner a release from any responsibility for loss of animals which may occur as the result of vaccination.

As there was little doubt on the part of the veterinarians and in the minds of the board of health of the township in which the cases occurred, that the later outbreak which occurred on one of the farms was due to debris from a slaughter-house located on a branch of Little Timber creek, this establishment was declared to be a nuisance, and it was ordered to be closed.

Buildings and barnyards which were infected were thoroughly cleaned, and there was a thorough disinfection of the premises. There is little doubt that the original outbreak was due to a rendering factory, as the factory washings and debris from this factory in which both foreign and domestic hides are tanned, is discharged directly into the Delaware river, and is water-borne to the creeks on the New Jersey side of the river. The per capita expense in the handling of this outbreak was somewhat greater than in former epidemics, but this is explained by the smaller number of animals which were vaccinated and which require almost the same amount of time as large herds would have required.

As is usual in dealing with outbreaks of this kind, there was no difficulty in stamping out the disease, and the Board is indebted to the hearty co-operation of all the representatives of the local sanitary districts in which the disease appeared. We again call attention, as in former reports, to our responsibility for the losses which are suffered from anthrax, as vaccination of animals before they are turned on to meadows which may become infected, will absolutely preclude the occurrence of cases of the disease.

BLACKLEG.

As stated in the report on contagious diseases of animals of last year, the farmers of Sussex county are estimated to have lost within the last ten years between three and four hundred animals through blackleg. This region of the State is mountainous and cattle owners are accustomed to turn young stock out in extensive pastures lying on the mountain sides. The animals are only looked after infrequently. For a number of years cattle owners in going over the pastures would discover a dead animal, but forage poisoning was usually assigned as the cause of death. During the year 1909 there were so many deaths that a veterinarian was called and, suspecting that the deaths were caused by blackleg, specimens from dead animals were forwarded to the State Laboratory and the diagnosis was confirmed. When the character of the disease was established free vaccination of cattle with anti-blackleg serum was offered, and many cattle owners availed themselves of the offer. Dr. Gray, of Newton, who represented the State

Board of Health, was instructed to visit the farmers in the infected district, and inform them of the danger of leaving infected carcasses of animals on the surface of the ground and insist on the proper burial of dead animals. In October, 1909, there was a recurrence of the disease in Vernon township, Sussex county, but only six died. Thirty-five animals which had been exposed were injected with anti-blackleg virus and no other deaths occurred. We have reason to believe that with the knowledge which cattle owners in this section of the State have of preventive measures which should be adopted in dealing with the disease, there will be fewer cases in the future, and within a few years no cases will occur.

COWPOX.

Some ten years ago a number of cattle in dairy herds in a section of Essex county were affected with cowpox. The disease was of a mild type, and only two or three animals in a herd would develop it. The owners of dairy cows in this section employed veterinarians when the disease appeared, and were advised to isolate the affected animals and have persons employed to milk them who had nothing to do with the milking of animals showing no symptoms of the disease, and the milk from diseased animals was not distributed to customers. As a result of this prompt action on the part of the dairymen the spread of the disease was limited and, although a number of herds were affected, the outbreak was at no time serious. In October of the present year a veterinarian in Hudson county reported cases of cowpox in the herd of a dairyman supplying over two hundred quarts of milk to consumers. The examination of the herd, which consisted of twenty-three cows, showed that the disease had existed for several weeks, but the owner had continued to sell milk. Eighteen cows in the herd were affected, but at the time when the veterinarian's inspection was made all but seven had recovered. The cow barn on the dairy premises was so unsanitary that the local board of health was advised to immediately discontinue the sale of milk, and the animals which showed symptoms of the disease in the acute stage were quarantined. The releasing of these animals from quarantine was left to the judgment of the attending veterinarian. That this disease should have remained undiscovered

for so long a time, and milk from cows having udders and teats covered with pocks should have been regularly sold to consumers, indicates the necessity for more frequent and careful inspection of dairy cattle. Under present conditions with the small appropriations which are allowed local boards of health such inspection is impossible. The time is not far distant when laws will be enacted extending the same supervision over the health of dairy animals as is now required in regard to the sanitary condition of dairy premises.

MANGE.

Approximately thirty cases of this disease were reported as occurring in Somerset and Mercer counties, and quite a number of cases in Salem county. It has been the usual practice of the Board when cases of mange were reported to send a veterinarian representing the Board to confer with the owner or owners of diseased animals, and to advise as to the treatment of the disease and give directions as to the methods to be adopted to prevent it spreading to other animals. These directions included the forbidding of the tying of horses having mange to public hitching posts; the use of public drinking troughs; the changing of harness or blankets from infected to uninfected animals; the disinfection of stables and of infected materials. The failure of several owners to voluntarily comply with the orders of the Board necessitated the serving of absolute quarantine notices in several instances. When owners of well animals were informed of the existence of the disease in Somerset county they co-operated with the State and local authorities in discovering cases and in reporting any failure of owners of diseased animals to comply with the restrictive regulations which had been ordered, with the result that the epidemic was of short duration.

EPIZOOTIC LYMPHANGITIS.

In February of the present year, a request was received from a person living in Pennsylvania to transfer from that State to New Jersey an animal that had recovered from epizootic lymphangitis. The decision as to such a procedure was difficult as

the knowledge as to the duration of the transmissibility of the disease is limited. Rivolta has described, and M. Nocard confirmed, the presence in the pus and lesions of African farcy of a sort of micrococcus, slightly ovoid and somewhat pointed at one of its extremities. Under proper laboratory investigation the organism cannot be confounded, even when unstained, with any other element. Several practitioners have described the appearance of chancres of acute glanders on the nasal mucosa of the animals attacked with epizootic lymphangitis, but examinations in the laboratory clearly showed that the disease was not glanders. The diagnosis of the disease is therefore readily made, but the period of time which should elapse before an animal is free from the infection is more difficult to determine. An effort was made by the Board to have some of the leading veterinarians in the State decide whether an animal that had recovered from the disease could be allowed to mingle with other animals with safety. No definite conclusion was reached in this case, and the transfer of the animal was made dependent upon the statement of the chief veterinarian of Pennsylvania that the animal was entirely free from the disease.

RABIES.

Nine cases of rabies were reported during the year, and, in addition to this number, in which the diagnosis was made without bacteriological examination, forty-five specimens from animals presumed to have the disease were forwarded to the State Laboratory of Hygiene. Of this number twenty-nine were positive, and sixteen negative. The laboratory has thus been of service to local boards of health in making diagnosis of rabies, and by an arrangement made some years ago with the health authorities of New York City persons who have been bitten by rabid dogs can obtain treatment through their attending physician at a moderate cost. As the disease is increasingly a menace to individuals in the State, local boards of health should urge local governing bodies to introduce and pass ordinances, rules or regulations, requiring the muzzling of dogs, and also the destruction of homeless and worthless curs.

GLANDERS.

The cases of glanders which were reported during the year occurred in many scattered localities. With but one exception only a single case of the disease would be discovered, and possibly following this one or more horses in the same stable would develop the disease. In the stables of the Raritan Ridge Clay Company, located in Raritan township, Middlesex county, a more serious outbreak occurred which resulted in the loss of twelve horses. When the attending veterinarian reported the earlier cases he was directed to take active preventive measures to prevent the spread of the disease, and to apply the mallein test to all horses which were exposed to the infection. As the horses were employed in the clay banks there was no exposure of horses of other owners to the disease, and when all diseased horses were destroyed the stables were thoroughly disinfected.

The total number of cases reported during the year ending October 31st, 1910, was 160, and the distribution of the cases by counties was as follows: Bergen county, 5; Essex county, 99, of which 92 cases occurred in Newark; Gloucester county, 1; Hudson county, 16; Mercer county, 1; Middlesex county, 13, of which 12 cases occurred in one stable located in Raritan township; Monmouth county, 7; Morris county, 1; Passaic county, 9; Sussex county, 2; Union county, 2, and Warren county, 4.

The large number of cases of glanders reported from Essex county would naturally lead to the conclusion that this locality has more than its quota of cases. We believe, however, that this deduction is erroneous as the Newark city board of health makes special effort to discover every case of glanders which occurs in the city, and the city health officer is alert in following up any clues which may be of service in locating cases. Comparison of the cases reported in Essex county with those occurring in the larger counties of the State leads us to believe that there may be hidden or unreported cases which are not known to the local authorities. Certain portions of New Jersey are situated near the cities of New York and Philadelphia, and in many instances dishonest dealers in horses sell glandered animals to residents of this State. There appears to be no practical method of dealing with this problem with present appropriations, and owners of horses

in the State are made dependent upon the alertness and efficiency of veterinarians and local boards of health to give protection against the loss of animals from the disease.

EXAMINATION OF HEALTH OFFICERS AND SANITARY INSPECTORS.

In May of the present year the State Board of Health appointed five members of the Board of Examiners of Health Officers and Sanitary Inspectors. The members and officers of the Board are as follows: Edward Guion, M.D., president, Atlantic City; George E. McLaughlin, M.D., Jersey City; David D. Chandler, Newark; L. R. Thurlow, Plainfield, and A. Clark Hunt, M.D., secretary and treasurer, Metuchen. In the report of the board for last year a change was noted in the rules relative to applications for examinations, which was due to the civil service law. At that time several counties in the State had adopted civil service requirements, and applicants for examination from such counties were examined by the Civil Service Commission. This method proved unsatisfactory, and at a meeting of the Civil Service Commission the examining board appointed by the State Board of Health was, by resolution, constituted the examining board to conduct the examination of applicants coming under civil service regulations. A decision of the Supreme Court of the State to the effect that the law was unconstitutional as applied to certain counties in that there had been no vote on a referendum was rendered. This decision rendered the law inoperative in Hudson and Essex counties and also in the city of New Brunswick. The adoption of civil service regulations in Essex county was voted upon at the election held in November, 1910, and carried. The county of Essex is the only one in which persons applying for license as health officer or sanitary inspector would be examined by the Civil Service Commission, and the arrangement for the conducting of these examinations by the examining board appointed by the State Board of Health is still in force.

During the present year State sanitary inspectors have visited 303 of the 472 sanitary districts of the State, and inquiry has been made as to the appointment, by local boards of health, of unlicensed inspectors. The investigation shows that there are 123

districts in which inspectors have been appointed in violation of the law which requires the appointment of licensed inspectors. The Board has carefully considered the advisability of commencing action to secure compliance with the law. Many of the boroughs in which the law is violated are of few inhabitants, and townships in rural districts are sparsely settled. Under these conditions no adequate salary is provided, and individuals are unwilling to prepare for and take the examination. It is probably wiser to advise the smaller municipalities and townships not to employ a regular inspector, but if possible to join with several other localities so that a competent inspector may be employed at a living salary.

The total number of persons who have been examined up to October 31st, 1910, is 461; of licenses issued, 230; of applicants rejected, 231. A full list of the names and addresses of persons who have obtained licenses from the State Board of Health will be found on subsequent pages of this report, and is provided for the information of local boards of health to enable them to select from the list persons who are eligible for employment in the various sanitary districts of the State.

MARITIME QUARANTINE.

There are eight ports of entry in New Jersey for foreign and coastwise vessels. With the exception of the port of Perth Amboy these ports are guarded by the quarantine stations of Philadelphia and New York, or by conditions due to shallow water, which prevents vessels of large size from entrance. Prior to 1900 quarantine supervision at the port of Perth Amboy was through a health officer of the port who was appointed by local authorities. In 1899 an outbreak of yellow fever occurred in Hampton, Va., and attention was directed to the protection against the invasion of contagious diseases through the various ports of the State. A complete investigation had already been made in 1896 by the State Board of Health of all ports of entry in the State. The report showed that in all ports except that of Perth Amboy quarantine was enforced independent of local boards of health, and the conclusion was reached that the system in vogue at that

time was ineffective and useless. Perth Amboy is so located that vessels from foreign ports may enter directly from the sea without coming to the quarantine station in New York which would otherwise give ample protection against the invasion of disease. With the danger imminent the Legislature in 1899 passed a maritime quarantine act which was comprehensive. Under the provisions of the act a health officer of the port was appointed by the Governor of the State and also an assistant. For several years the provisions of the law were enforced until the State Board of Health, after carefully observing the operation of the law, decided that better protection would be given the State against the invasion of contagious diseases if the United States Public Health and Marine Hospital Service assumed control of quarantine regulations at Perth Amboy. A request was made of the National Bureau to station an officer at Perth Amboy. As the laws of the United States conferred upon the United States Public Health and Marine Hospital Service ample power to establish and maintain quarantine in certain ports, and the port of Perth Amboy was of such importance in the general line of protection which was being instituted, the request was complied with. An effort was made at the time to repeal the original act, but the attempt was frustrated. There are at the present time two officers at Perth Amboy, one representing the Federal government and the other State government. The State Board of Health being somewhat uncertain as to its responsibilities and duties under the law, and having been asked by the newly appointed officer of the port of the Perth Amboy for instructions, requested the Attorney-General to give an opinion as to the question under discussion. The opinion as rendered was as follows:

"I note also what you say about the practice heretofore, by which the federal health officer at Perth Amboy, whose duties are to a certain extent coincident with those of the State officer, has been making reports to the health officer of the State, who has been relying upon such reports, instead of making personal inspections, and you desire to be advised whether this practice can be legally continued. It seems to me that the statute clearly devolves upon the State officer certain duties, and while these duties may be coincident with the duties of a federal officer, it is improper for the State officer to delegate his duties to the federal officer, or to anyone else, relying upon their reports for his information. The State officer should perform the duties required of him by the statute, even though they may be duplicated by the activities of the United States Marine Hospital Service."

It appears that the State Board of Health is therefore responsible for the enforcement of the law, and that the work incident to the enforcement of maritime quarantine regulations will of necessity be duplicated.

MOSQUITO EXTERMINATION.

Local boards of health are given certain powers under existing laws in dealing with mosquito breeding areas. Ordinances may be passed requiring the drainage of such areas, but it is difficult to either complete necessary drainage or to maintain drainage ditches which have already been dug. Prof. Smith, who is charged with the supervision of mosquito extermination work in New Jersey, has been endeavoring to overcome the defects in the present prosecution of the work, and his statement as to existing conditions and suggestions of a plan which will make the results of work already done, and of new work inaugurated, more satisfactory, is as follows:

"By the end of the present year there will have been \$80,000 spent in this State in ditching and drainage work in the effort to limit breeding areas. A four years' experience has shown that so long as ditches already dug are not interfered with, they will stand and work indefinitely. Experience has further shown that the owners of marsh lands that have been drained by the State pay very little attention to maintaining the drainage system. If it suits their convenience they will block the ditches so as to be able to drive over them more conveniently, and in the rarest instances is this stoppage removed. Furthermore, any firm, corporation or individual that owns any portion of the marsh, or takes a right of way over it, exercises the privilege, not only of blocking drains on their own property, but of backing up the water wherever it may suit their convenience to do it. They interfere not only with the ditches, but even with the small natural watercourses. The result is frequently like this: After a bad mosquito place has been drained property increases in value, crops become worth gathering in some cases, and in others, near settled communities, it becomes worth using for other purposes. Use in such cases almost always means interference. The mosquito breeding places are restored, and matters become as bad as they were before the work was done. There are, of course, notable exceptions where communities have maintained their drainage areas in good shape, and have derived a corresponding measure of benefit. Under the so-called Duffield amendment to the health law, all waters in which mosquito larvæ breed are declared to be nuisances. Local boards of health therefore have jurisdiction over the abatement of these nuisances, and the State work is done through the local boards of health, using their power to abate in case their notice is disregarded. It is, of course, quite within the powers of the local boards of health to compel the maintenance of the drainage system, but while we may get them to act so as to secure the original drainage, they cannot be urged to a point where they will compel the maintenance of the ditches. The success of the work, and the proper return for the money expended by the State, depends upon the power in some body to compel the owners of the lands that have been drained to maintain the drainage system, and that power should be in the State Board of Health. The power of the State Board to compel action by local

boards is a very limited one. There should be provision made by means of which a marsh inspector is maintained by the State Board of Health. His duty should be to patrol the drained areas, report upon their condition, and notify the local boards of any interference with drainage work. The local board should be given a reasonable time to compel the owner to remove the obstructions to the drainage, and to restore the ditches to their proper condition. In case of failure of the local board to act, power should be given to the State Board, and a sufficient penalty should be imposed to make it an object for local boards to act promptly for the protection of their constituents. The method by which these plans may be carried out will doubtless necessitate some form of legislative action."

NEW LEGISLATION.

During the legislative session of 1910 eleven laws having a direct bearing upon public health were enacted. The necessity for increased legislation on this line is due in part to errors in previously enacted laws and to new problems which arise affecting health. With the rapid increase of population in New Jersey the problem of health protection becomes more complex, and laws which under former conditions were effective are now inadequate. We present herewith a resume of the recent legislative enactments, and in some instances outline the action of the State Board of Health in the effort to secure the enforcement of the laws.

BLINDNESS.

It is estimated that there are over 1,000 blind persons in the State of New Jersey at the present time. The report of a commission appointed by the Legislature shows that over 500 individual cases of blindness were investigated, and that it is safe to estimate that there is one blind person to every 2,000 of population. Twenty-five per cent. of these cases are due to failure on the part of physicians, midwives and parents to properly care for the eyes of infants at birth, and by the adoption of a simple method of treatment the persons might have been saved from this greatest of all afflictions and have rendered service to others instead of being a burden to themselves, their relatives and the State. The original act passed in 1895 to which the new law, Chapter 147 of the Laws of 1910, is a supplement, was intended to deal with this problem and limit the number of cases of blindness in this State. Unfortunately there were two errors in the

original act which rendered it ineffective. First—The Secretary of State was required to furnish local boards of health with copies of the law. This method of distribution of the laws is clearly outside of the duties of that department, and this supplementary act places the duty upon the State Board of Health. Second—The penalties incurred under the original act were either fine or imprisonment, the one being collectible by action of debt, and the other, a criminal offense, to be brought before the grand jury. The present supplement changes the penalty to a fine, and thereby permits of the enforcement of the law. The only other change that is made consists in reducing the penalty from \$100 to \$50, as the former amount was considered somewhat excessive. With the present law on the statute books enforced it is safe to assume that beneficial results will follow, and the number of cases of blindness in the State will show a steady decrease.

SLAUGHTER-HOUSES.

Prior to the enactment of Chapter 295 of the Laws of 1910, the slaughter-houses located in the State were under the supervision of local boards of health. The only action taken by the boards, was, as a rule, to take cognizance of nuisances caused by foul odors arising from abattoirs, or to prevent the accumulation of decomposing material or the pollution of streams by the liquid waste from such establishments. The federal control of slaughtering of animals and of slaughter-houses, did not extend to meats not intended for sale outside of any given state. For several years efforts have been made to secure the enactment of a law which would give the State Board of Health supervision over the industry. The law recently enacted requires all persons operating slaughter-houses to obtain a license from the State Board of Health, and the Board is directed to issue no license unless, in the judgment of the Board, the building in which the business of slaughtering animals is so located and constructed that the slaughtering can be done in a cleanly manner and without creating a nuisance. The power is also given the Board to revoke licenses for violation of the rules and regulations of the Board relating to the slaughtering of animals. Violations of the act are punishable by the payment of penalties, and a bill may be filed in chancery to

restrain persons or corporations from violating the act. As the law contemplated the making by the State Board of Health of rules and regulations as to the location, equipment, sanitary conditions, methods of slaughtering, &c., the following rules were adopted:

1. Every person who operates or conducts a slaughter-house, abattoir or place where animals are slaughtered for sale as human food, shall make application to the Board of Health of the State of New Jersey for a license to operate such slaughter-house, abattoir or place where animals are slaughtered for sale for human food. Such application shall be in writing, upon blanks which will be furnished by the State Board of Health upon request, and shall be signed by the person making the application. Upon receipt of an application for a license to conduct a slaughter-house, abattoir or place where animals are slaughtered for sale for use for human food, an inspection will be made of the premises designated in the application. If it appears, as a result of this inspection, that the building and surroundings are so located and constructed that the business of slaughtering and dressing animals can be there conducted in a cleanly manner and without creating a nuisance, and in compliance with the provisions of chapter 217 of the laws of 1907 and its amendments and supplements, a license will be issued forthwith. Should the inspection show that changes or improvements in the building or surroundings are necessary before the above-mentioned act can be complied with, the applicant will be so notified, and a reasonable time will be given him to make such changes or improvements. At the end of this time a reinspection will be made. If the reinspection shows that the changes or improvements needed have been made, the license will be issued; if the buildings and surroundings at the time of the reinspection do not conform to the requirements of the above-mentioned acts, the license will be refused.

2. Persons affected with tuberculosis or other communicable diseases shall not be employed in, nor shall they be permitted to enter any part of a slaughter-house where meat is killed, dressed, stored or handled. The manager of every slaughter-house, 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 so affected, to the State Board of Health.

3. No animal which shows ante-mortem evidences of disease shall be slaughtered within the limits of a licensed slaughter-house.

4. Should an animal, which before killing appears healthy, be found after killing to be affected with any contagious disease, it shall be immediately removed from the killing room and disposed of in a proper manner, by tanking or otherwise, and all knives and other implements, and all parts of the room which have come in contact with the animal, or with any part of it, or any of the discharges from it, shall be at once disinfected by a method approved by the State Board of Health.

5. Calves under four weeks old shall not be slaughtered within a licensed slaughter-house.

6. Hogs or other animals shall not be fed on slaughter-house refuse on the premises of a licensed slaughter-house.

7. Animals or parts of animals unfit for food shall not be rendered in rooms where animals intended for use as food are killed, dressed, stored or handled, or in rooms directly communicating therewith.

As it was the intention of the Board to carry out the law in a reasonable way, and knowing that structural defects existed in many slaughter-houses which it would take some time to remedy,

a notice was forwarded to each proprietor of a slaughter-house notifying him of this particular law and furnishing him a copy of the same. He was informed that when his slaughter-house was ready for inspection the State Board of Health should be notified. The plan has been effective and, in many instances, inspection has shown that a number of improvements have been introduced. There are in the State approximately 300 slaughter-houses, and of this number 93 have been inspected. Licenses have been granted to 5. The effectiveness of the law is indicated by developments in the case of a proprietor of a slaughter-house in one of the larger cities of the State who refused to take action to comply with the rules and regulations of the State Board of Health, but who has recently filed plans for a modern slaughter-house, and is now a strong advocate of the law. During the coming year careful inspection of all licensed and unlicensed slaughter-houses will be made by inspectors of the Division of Food and Drugs, and by the close of the year there will be a great improvement in existing conditions.

MARRIAGE LICENSES.

In the division of vital statistics great improvement in regard to the complete and accurate registration of marriages is expected to be brought about by the enactment of the marriage license law passed by the last Legislature. In recommending this law, the State Board of Health brought to the attention of the Legislature the necessity for the same by pointing out the large number of unconventional marriages which were of daily occurrence, and which brought disgrace to the State as well as to the families of the contracting parties. Most of these marriages took place in towns and cities on the borderline of New Jersey, where it was easy for persons desiring to marry to cross from the States of New York and Pennsylvania, and many of such marriages were found to end in disgrace and divorce.

The clergymen throughout the State are practically unanimous in their approval of the law, and but one discordant note was sounded in this respect shortly after the act was passed. This objection was raised by a member of the diocesan committee on Social Service of the Episcopal Diocese of New Jersey, which met in Trenton last May, and who remarked as follows: "It is not

certain that this change will work for the better. It is questionable if municipal clerks will take as much care in ascertaining that parties are legally qualified to marry as do the ministers of the gospel to-day, and as a presentation of a license to a minister is his legal justification for his celebration of the ceremony the clergy may grow careless and being protected by law may become more lax in their investigation of the legal capacity of the parties to enter into this contract. It may also be said that the payment of the one dollar fee and the necessity of going before a public officer to make the necessary declaration may deter persons from being married."

It will be noticed that the above statement was made before the law became operative, and now that the law has been in force for some time it will be found there are no such grounds for complaint. In many instances there is greater care taken by the registrars in issuing these licenses than was done by the clergy. The law was not aimed so much at careless or mercenary clergymen as at justices of the peace and other functionaries who are authorized by law to perform marriage ceremonies, therefore the object of the law and the result of the same has been to relieve the clergy of considerable obligation in this respect; however, no clergyman is bound to marry a couple even though they present themselves before him with a marriage license, as any person authorized to solemnize marriage is also empowered to ask any question under oath which, in his mind, may be necessary to qualify the persons for marriage.

The enactment of this law has already reduced the number of marriages in Camden and Hudson counties, and the returns of marriage certificates from these counties are now normal. As the law only became operative July 1st, 1910, there is not sufficient statistical data available from which to draw any definite deductions as to the effect the law will have upon the total number of marriages in the State. The hearty co-operation of clergymen and other officers empowered to perform marriages in the enforcement of the law has been, and will be, of great aid to the State Board of Health in its effort to secure improvement in all matters relating to the collection of vital statistics in the State.

New Jersey has always been placed in the list of the leading registration States of the United States, and with this law on the statute books it will be placed on a higher statistical plane.

SANATORIA.

The benefit to be derived from the treatment of tuberculous patients in hospitals and sanatoria, located in country districts, has led to the desire on the part of those interested in the cure and the prevention of the spread of this disease to seek healthful localities where such institutions may be placed. As the State of New Jersey is situated between the cities of New York and Philadelphia, and the facilities for transportation are unexcelled, several efforts have been made, both by resident and non-resident corporations or associations, to locate sanatoria for the care and treatment of tuberculosis within the State. The necessity for such institutions being evident, and there being many desirable places in the State for their location, the State Legislature was appealed to in order that restrictive laws might be enacted which would prevent the selection of sites which were undesirable, and also preserve individuals and communities from loss through depreciation of surrounding properties. The first attempt of the Legislature in this direction was in the passage of a law in 1895 (Gen. Stat., p. 2257), which was intended to regulate the location of pest houses, crematories and other objectionable structures. The law was general in character, and required persons or corporations desiring to locate or maintain hospitals, crematories, &c., to obtain permission from the local governing bodies of the municipalities in which such institutions or structures were to be located. No further legislation on this subject was enacted until 1907, when, in one of the municipalities of the State, an effort was made by the owner of a large boarding-house to sell the building to private individuals to be used as a sanatorium for the treatment of tuberculous patients. As the location of the building was such that if it were used for this purpose the value of the properties adjacent to it would be materially decreased, an effort was made to prevent the disposal of the property for such uses. At the following session of the Legislature a law (Chapter 170) was enacted which required persons or corporations desiring to establish or maintain tuberculosis sanatoria in which persons might be treated to obtain consent of the governing authorities of the locality in which the sanatorium was to be located. Only one exception was made in the law, and that was intended to permit the establishment of

tuberculosis sanatoria where the object was a charitable one and was not for pecuniary profit. The exception led to complications in the case of Lakewood, N. J., where parties from New York having part ownership in a large hotel, decided to make a gift of the property to a charity organization which had plans for bringing children from New York City and placing them under more healthful conditions. The children were to be selected from the more crowded and unsanitary sections of the city, and from families where they were exposed to tuberculosis. The charity was for the purpose of prevention of tuberculosis, rather than for its cure. The citizens of Lakewood were aroused at this attempt to place in the center of the town an institution of this character, as the selected location for the institution was not considered a wise one, and the very valuable properties adjacent to the sanatorium would be depreciated in value. Many of the public-spirited inhabitants of the town were connected with various charitable organizations having for their object the prevention of tuberculosis, but they were of one mind in the conclusion that the site selected for the sanatorium was objectionable. Offers of properties somewhat removed from the town were made to the projectors of the plan to establish the sanatorium in the center of the town, but these offers were refused. The agitation on this subject in the locality led to the conclusion that a question of this kind should not be decided by persons residing in the localities, as there were prejudices and proper interests which seriously interfere with a just judgment. At the legislative session of 1910 a law was enacted (Chapter 66 of the Laws of 1910) which requires all persons, associations or corporations, before establishing hospitals, sanatoria, preventoria, or other institutions for the care, board or treatment of persons affected with tuberculosis, to make application to, and receive the consent and approval of the State Board of Health, and repeals that portion of former laws which required the consent of local governing bodies. With the introduction of this act in the Legislature the sanatorium, which was originally to have been located at Lakewood, was changed to a less populous nearby section. Since the passage of the act above referred to, two applications for the location of tuberculosis sanatoriums have been made to the State Board of Health, one in Montclair and the other in Morristown. Hearings in these cases were given, and the applications were, in both instances, denied. The laws now on the statute books should

insure the inhabitants of the various localities in the State protection against the location of sanatoriums for the treatment of tuberculosis in places which are unsuitable for that purpose, and also be a protection to those planning to locate such institutions against the unreasonable prejudice which is always in evidence when the location of such an institution has been selected.

TUBERCULOSIS.

The reporting of this disease to local boards of health is compulsory, and it is intended that health authorities in the various sanitary districts of the State shall endeavor, as far as possible, to aid in the effort to limit its spread. The prevention of tuberculosis is a subject which has appealed to all broad-minded persons, and organizations, national, state and local, have been formed to aid in the common warfare against man's greatest disease enemy. These organizations have been, in our State, for the most part dependent for their support upon private subscriptions. These subscriptions have been liberal and a vast amount of good has been accomplished by means of lectures, the distribution of literature and the use of traveling exhibits showing in a manner easily understood by the masses the ravages of the disease and the methods by which the individuals may protect themselves and the community against it. Whether work of this character should be dependent upon private subscription and through many separate organizations is a question which is receiving serious consideration. These organizations will and always should exist and be of great service in the education of the public as to the danger of the disease, and in enlisting the aid and support of all who are interested in the great problems relating to mankind. While the field of opportunity for service in the fight against the great white plague is so unlimited that individual organizations may engage in it, it is evident that there should be such a division of activities that there may be no duplication of work or wasted energy. In the consideration of this question the various anti-tuberculosis organizations in the State determined that it was the duty of the State to provide funds for the education of its citizens in disease prevention, and to maintain an educational tuberculosis exhibit which could be transported from one portion of the State to the other

portion. Carrying out this idea a bill was introduced in the Legislature and became a law (Chapter 12, Laws of 1910) which appropriated ten thousand dollars to the credit of the State Board of Health to be used for educational and practical purposes in the study, treatment and prevention of tuberculosis, by (1) the publication and distribution of literature regarding and relating to this disease; (2) in the creation and maintenance of a State tuberculosis exhibit, which shall be at the disposal of all communities in this State applying for its use locally, subject to such regulations as the Board of Health may adopt; (3) and in the maintenance of a special tuberculosis inspector or inspectors, to be appointed by the State Board of Health, whose duties shall be to enforce existing laws concerning registration of tuberculosis cases, to advise local boards of health concerning disinfection, to inspect hospitals and sanatoria treating tuberculous patients, and to report on same to the State Board of Health, and to perform such other duties as may be ordered by the State Board. The total amount appropriated by the State for all purposes was exhausted, and as no money for this work was granted by the appropriation committee the Board could not comply with the requirements of the law. An effort will be made to secure this appropriation at the coming session of the Legislature. When the appropriation is available the Board will secure the services of someone thoroughly acquainted with educational work directed against the spread of tuberculosis, and as a basis for intelligent work will secure full reports of all cases of the disease occurring in the State. This can only be accomplished by the appointment of a special inspector whose duty it will be to personally investigate every failure on the part of physicians to report cases of tuberculosis. There is no doubt the law will be beneficial in its effect, and that through proper organization and well directed efforts a vigorous campaign can be carried on against the spread of the disease.

POLLUTION OF STREAMS.

The policy of nearly all legislative enactments intended to prevent pollution of streams has been to apply such laws only to streams from which water is taken for potable purposes. The crowding of population on the numerous watersheds of the State,

resulting as it does in the addition of large quantities of sewage to those streams the waters of which are not used for potable purposes, has led to an entire change in the policy, and recognizing the fact that streams overladen with sewage become a source of nuisance demanding abatement, the Legislature of 1910 passed a law (Chapter 215 of the Laws of 1910) which forbids the discharging of any sewage, excremental matter, domestic refuse, or other polluting material into any stream in the State. The law does not forbid the discharge of sewage into such streams if the sewage disposal plant has been approved by the State Board of Health. For years complaints have been made by citizens of the State of foul smelling streams which constituted a public nuisance, for the abatement of which there was no adequate law. The addition of this law, dealing with the subject of pollution of streams, to the list of laws already on the statute books will enable the Board to secure a standard of purity in the waters of streams of the State which will improve the sanitary conditions in many localities. In the enforcement of the law we have met with the hearty co-operation of those who have heretofore been accustomed to act upon the theory that the streams of the State were its natural sewers and to discharge sewage and household waste into the streams. We believe that the laws of the State on the subject of pollution of streams are now more complete and drastic than in any other State, and within a few years all the streams of the State will have been purified to a degree that is impossible in other states under their existing laws.

LICENSING MILK DEALERS.

In all the cities and boroughs of the State the power to license milk dealers was granted by the provisions of a law passed in 1882. There was some doubt as to the power of local boards of health to license milk dealers and regulate the sale of milk under this act. The act passed by the Legislature (Chapter 11 of the Laws of 1910) gives local boards of health in all municipalities and townships the power to require the licensing of milk dealers, and also to make or amend rules regulating the business of selling or vending milk or cream. Provision is made for prohibiting unlicensed milk dealers from engaging in the business of selling milk, and empowers the local board of health to revoke the licenses

of milk dealers found guilty of violating the law. As the intent of the law is to regulate the sale of milk and not to provide a revenue the fee for a license is only two dollars.

CONTAGIOUS DISEASES ON DAIRY PREMISES.

The State Board of Health was given power under a law passed in 1898 to prevent the sale of milk which was suspected to be contaminated with the emanations or exhalations of persons having infectious diseases, but no provision was made for preventing the sale of cream, skimmed milk and other dairy products similarly liable to cause disease. When a milk producer was prohibited from selling milk it was the custom of dairymen in some instances to make butter or pot cheese, and by selling the milk products in other forms than that of raw milk to evade the law. Chapter 267 of the Laws of 1910 extends the provisions of the act to all dairy products, and therefore insures greater protection to the public against the spread of communicable disease through the medium of infected milk.

EXPECTORATION IN RAILROAD CARS.

The act of 1903, which was intended to prevent expectoration in public conveyances, mentioned railroad or railway passenger cars, but no reference was made to trolley cars. The act of 1910 extended the application of the law to trolley cars. The violation of the law is a misdemeanor, and the violator is subject to a penalty of from five to ten dollars.

POLLUTION OF WATERSHEDS.

A law was passed in 1909 intended to regulate the use of water closets and urinals on railroad trains and other public conveyances. Under the provisions of the legislative enactment Boards of Water Commissioners in the State, or officials having charge of the public water supply of any city of the State, which said water supply is derived from surface drainage in any watershed wholly

within the State, could call upon the State Board of Health to prescribe and fix the territorial limitations of any given watershed. Provision is made in the law for the publication of boundaries of watersheds. After such boundaries of a given watershed are fixed and duly established, it is unlawful for any railroad company or power boat company operating boats to discharge or allow any discharge from water closets or urinals upon such watershed. A request was received from the Board of Water Commissioners of the City of Newark, N. J., that the State Board should compel a company controlling the railroad passing through the watershed from which the city water supply was derived, to close the toilets on trains passing over the watershed. In accordance with this request a communication was addressed to the railroad company, calling attention to the law and asking compliance with its provisions. The railroad company immediately ordered the closing of toilets on trains which were passing through the watershed, and this order was enforced until in September of the present year the Newark Water Commissioners notified the State Board of Health that the order of the company was not being complied with. Upon notification from the State Board the company gave assurance that in future the order would be strictly obeyed. There are a number of watersheds in the State from which water is taken for potable purposes which are traversed by railroads, and the enforcement of the law should protect such supplies from a source of pollution which has always been a menace to the health of the citizens of the State.

INFANTILE PARALYSIS.

Although no epidemic of this disease has appeared in New Jersey sporadic cases have been reported from time to time. The law passed in 1895 giving the State Board of Health the power to determine the communicable diseases which are to be reported by physicians to local boards of health limited the reportable diseases to those which were preventable and especially dangerous to the public health. Until recently there was some doubt as to whether infantile paralysis could be classified under the terms communicable and preventable. The results of investigations having now clearly established the communicability of the disease, and as it is now considered that within a short time, by the adop-

tion of isolation and the care of the discharges of persons suffering from the disease, the number of cases will be lessened, the State Board of Health decided to place the disease on the reportable list, and at a meeting of the Board, held August 30th, 1910, the following resolution was adopted: "Resolved, that in accordance with the power conferred upon the State Board of Health by the provisions of section 1 of Chapter 260 of the Laws of 1895, anterior poliomyelitis or infantile paralysis is hereby added to the list of diseases which shall hereafter be reported by physicians to local boards of health in accordance with the provisions of said act." In order that some data might be gathered as to the actual number of cases that had occurred prior to the adoption of the resolution a circular letter was addressed to each physician in the State requesting a list of all cases coming under his personal observation during the year 1909, and from January 1st to September 1st of the year 1910. Physicians were prompt in responding to the request, and up to October 31st, 1910, 102 cases have been reported in 35 localities. Local boards of health upon receipt of notice from a physician of a case of the disease were somewhat in doubt as to a proper method of procedure and appealed to the State Board of Health for advice. The knowledge of the methods by which the disease is transmitted being still uncertain a general basis of action was determined upon, and the following suggestions were made:

As the results of experiments in research laboratories have determined that in all probability the infection is transmitted through the discharges, physicians should advise that the discharges from the nose and throat, bladder and bowels be disinfected. The patient should be isolated, and if possible, one person should be detailed as nurse, and the usual precautions should be taken to prevent contact with the other members of the family. The conclusion having been reached that the infection appears to remain in a house where the disease has previously occurred, it is evident that the usual methods of disinfection of infected premises should be followed. The decision as to the keeping of children from school is a difficult one, as there is no scientific basis upon which to formulate a rule. It is deemed advisable to keep children living in infected houses from attendance upon public or private schools for a period of at least four weeks from the onset of the disease.

Report of Division of Medical and Sanitary Inspection

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

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

GENTLEMEN—I have the honor to submit the following report of the Division of Medical and Sanitary Inspection for the year ending October 31st, 1910.

This division is intended to deal with epidemics of communicable diseases occurring in State institutions, epidemics in the various sanitary districts of the State, the protection of the milk consumer against diseases disseminated by infected milk, the inspection of public institutions, including asylums, almshouses and jails, the investigations of nuisances and to be of assistance to local boards of health in the endeavor to raise the standard of local health administration throughout the State. For a number of years there was only one sanitary inspector employed by the State Board of Health, and therefore no systematic investigations could be made. Local boards of health were left to enforce sanitary regulations and could not depend upon the advice and assistance of the State Board of Health. With the increased number of inspectors in this department, an effort has been made to ascertain whether local boards of health in the various sanitary districts of the State are complying with the health laws.

A brief summary of the information which has been obtained, and the improvements which have resulted, follows:

Under the laws of the State, provision is made for the creation of local boards of health in every city, town, borough or local municipality or township. In cities, boroughs, townships and other local municipalities, these boards are created by ordinances passed by the governing body. In townships, the members of the local boards of health consist of members of township committees

and township assessors and physicians appointed by the township committee. Beginning with December 1st, 1909, a general investigation was started and especial effort was made to secure the proper reporting of contagious diseases to local boards of health and the keeping of proper records of such cases. There are in this State, 472 sanitary districts, in which there should be properly organized boards of health. These districts are classified as follows: 37 are cities; 184 are boroughs; 18 are towns; 3 are villages; 240 are townships. Of this total number of 472 sanitary districts, 303 had made no reports of contagious diseases to the State Board of Health, as required by law, from January 1st, 1909, to October, 1909, leaving a balance of 169 districts which were reporting cases of contagious diseases, as required by law. Between December 1st, 1909, and October 3d, 1910, 264 of the 303 districts from which no reports of contagious diseases were received were visited by an inspector from the Division of Medical and Sanitary Inspection, and re-visits were made to 74 of this number, making a total of 348 visits to local boards of health. From information gathered, it was found that only 20.9 per cent. of the local boards visited were making reports to the State Board of Health, while cases of notifiable diseases had been known to have occurred in 67 per cent. of the sanitary districts. In 126 of the districts, it was found that the reporting officer had no knowledge of the law requiring that weekly reports be sent to the State Board of Health. In only 74 districts visited, were blank forms furnished to local physicians upon which to make reports of cases of communicable diseases to local boards of health; in 113, no forms were furnished, and in the remaining districts, no information could be obtained as to whether such forms were in use or not. There were 12 sanitary districts in which there was no organized board of health. In 16 districts, no meetings had been held in over a year; in 33 districts, the local board of health had met to organize and had no other meeting; in 8 districts, quarterly meetings were held; in 64 districts, meetings were held monthly, and in 60 sanitary districts, meetings were held at no stated time. In 99 sanitary districts visited, ordinances and sanitary codes had been adopted by local boards of health, while in 34 districts, no action of this kind had been taken. A law was passed by the Legislature, forbidding the employment by local boards of health of inspectors who had not secured licenses from the State

Board of Health. This law, however, did not affect those acting as inspectors previous to 1905. Inquiry in regard to the violations of this law by local boards of health showed that in 24 districts, properly licensed inspectors were employed. In 123 districts, persons were acting as inspectors who were not licensed. In 35 districts, no inspector was employed. These figures are given for the purpose of showing what the conditions were at the beginning of the present year.

The beneficial results which follow a visit of a representative of the State Board of Health are becoming more and more apparent. The campaign which has been instituted for improvement in sanitary methods in the various localities of the State is one that is largely educational, and whenever unfamiliarity or lack of knowledge with regard to the duties of officials of local boards of health was found to exist, the various officials or members of the board were informed as to the requirements of the law. In nearly all of the districts which have been visited, reports of notifiable diseases are now being received at the office of the State Board of Health; record books are kept in which cases of contagious diseases are recorded; blank forms are furnished to physicians on which to report to local boards; in many instances where the boards are improperly organized, proper organization has been secured. Persons serving as licensed inspectors in the employment of local boards of health are now making application for examination for the purpose of securing the license which the law requires. It is the intention of the board to complete this inquiry as to efficiency of local boards. From results thus far obtained, we have every reason to believe that in the near future, a legally organized local board of health will be secured in each sanitary district in the State for the enforcement of ordinances and local health regulations and through which the State Board may work in the enforcement of health laws which require the existence of and action by a local board in order that they may be operative.

INSPECTION OF INSTITUTIONS.

In the annual report of last year a full record of sanitary inspections of all the State institutions was made. There are fifteen institutions of this character which depend upon the State for

maintenance. When sanitary defects were discovered in any institution a communication was addressed to the superintendent or board of managers of the institution calling attention to the defects and requiring immediate remedial action. Often the fact of the inspectors making a note of some defect led to an order by the superintendent to have the objectionable condition removed, and before the inspector left the institution improved sanitary conditions were apparent. During the year ending October 31st, 1910, twenty-six of the almshouses in the State were inspected. A detailed report on each institution is not printed in the annual report of the State Board of Health for the present year as there are many minor details which are not of especial interest, and the reports on State institutions printed last year were intended to give an idea of the thoroughness of the inspections as evidence that no detail was omitted in making the inspections. The inspection of almshouses has brought out certain general features and defects which are worthy of mention. There is a noted difference in the sanitary condition of almshouses located in the larger counties and cities and the smaller institutions which are located in rural and semi-rural districts. Almshouses in the larger counties and cities are usually buildings of modern construction, or where old buildings have been in use for a long time these have been remodeled and equipped with modern sanitary appliances. In these institutions attention has been given to securing sufficient light and ventilation and bathing facilities are furnished. Systematic supervision is also apparent in the larger institutions, and as the remuneration of superintendents is larger than in the smaller almshouses a class of men is available who are better equipped and better trained in institutional supervision. In most instances township almshouses only accommodate a small number of inmates, and the supervision of inmates is neglected. The general defects which are found in township almshouses are chiefly the following: The apartments of inmates are unclean, and in some instances this applies to the apartments of stewards. The floors of the rooms occupied by inmates are seldom properly cleaned, and there is no systematic cleaning of floors with soap and water. There is a tendency to permit inmates to keep dirty clothing in their rooms, and also to stow away in closets and bureau drawers old and unclean papers and rags. This practice makes it difficult to efficiently cleanse apartments, and causes an accumulation of old

and maybe dangerous litter and rubbish. In country districts almshouses are as a rule without modern plumbing appliances and outside privies are in use. In many instances privy buildings are old and unclean, and so constructed that flies and domestic fowls have access to exposed fecal matter. In only a few township institutions are there modern fixtures, and where such were found the equipment was inadequate and insufficient. A number of almshouses are located on farms and the poor live in old farm houses under the supervision of stewards. In this class of institutions the bathing facilities consist of tin hand basins and pails. There is no compulsory bathing. In one instance the steward of the almshouse informed the inspector that one inmate had not taken a bath in three years. Lack of hospital equipment is evident in a majority of the institutions visited. The usual practice is to treat the inmates who are ill in their repulsive apartments, and the nursing of the sick is left to inmates. In many smaller institutions inmates having tuberculosis mingle with well persons, and no effort is made to protect the other inmates. The general deduction from these inspections of almshouses is that with the exception of institutions in larger counties there is need for more careful supervision, and it may be necessary to seek for remedial legislation so that the responsibility for existing conditions may be placed upon those who are negligent in the performance of duty.

An effort will be made during the coming year, either by correspondence or personal interview with the various committees and boards of managers controlling institutions in which conditions are unsanitary, to impress upon them the necessity of making improvements. While society owes a duty to those who are dependent to see that they are properly housed and provided for, it also has the right to demand that in the care of the poor well established sanitary regulations shall be followed.

CONTAGIOUS DISEASES ON DAIRY PREMISES.

No more decided advance in the effort to prevent the transmission of disease by milk has been made by our State than the passage of Chapter 182 of the Laws of 1898. This act gave the State Board of Health or certain officers thereof who have reason to believe that milk had been contaminated by the emanations, exhalations

tions or discharges of any persons sick with a communicable disease to prohibit the sale and transportation of such milk, and making the violation of the prohibition an offense carrying with it a fine of one hundred dollars. Although this law was effective certain defects were noted in it. It was observed that cream was taken from suspected milk, and made into butter. There was nothing in the legislative act of 1898 which authorized the State Board of Health to prohibit the shipment or sale of cream taken from suspected milk when the sale of the milk had been prohibited by reason of its having been exposed to contagion by persons sick with communicable disease, nor to prohibit the sale of butter made from such cream. An instance of what sometimes takes place under such conditions occurred in the experience of one of the inspectors of the Board who witnessed a woman engaged in making butter in the kitchen of a dwelling on a dairy farm upon which there was a case of scarlet fever. The woman left the churn and administered to the wants of the scarlet fever patient in an adjoining room, taking no precautionary measures to prevent the transmission of the infection. The sale of milk on these premises had been prohibited, but the law permitted no prohibition of what may have been highly infected butter or cream. Two years ago the original law was amended, and the prohibition against all dairy products produced on infected premises was added. An additional defect in the original law consisted in the delay in receiving reports from local boards of health of cases of contagious diseases existing on dairy premises. Often the State Board of Health would be notified of such cases after a period of two or three weeks had elapsed, and any protective measures adopted after the long exposure of the milk to infection seemed useless and ineffective in preventing epidemics of milk-borne diseases. The defect in the law was remedied by supplemental legislation, and at the present time, with few exceptions, physicians promptly report cases of communicable diseases occurring on dairy premises. When a report of a case is received a representative of the board is immediately sent to the dairy, and makes a careful note of all conditions on the dairy as to the care of the sick, the isolation of the patient, the relation of those caring for the sick to the collection, storing and transportation of the milk produced upon the dairy. If, as is often the case, the dairyman has hired other help, or the milkers live in a separate house and all utensils used in

collecting and transporting milk are cleansed in a milk house well removed from the infected dwelling, no prohibition is placed against the sale of milk. On the other hand, if there is any danger of spreading disease the sale is prohibited. We believe that at the present time the prompt action which is taken under the law to prevent the sale of infected milk has lessened in a marked degree the number of epidemics which would otherwise be traceable to this source of infection. In previous reports of the Board a short statement has been made of each case of contagious disease on dairy premises reported. During the year 1910 the cases have been so numerous that only a summary giving the location of cases, the total number of cases and the action of the State Board in the premises is herewith submitted.

Reference to the table shows that 27 cases of diphtheria; 13 cases of typhoid fever, and 47 cases of scarlet fever, having been investigated, making a total of 87 cases in all. The total number of farms upon which cases of milk-borne diseases have occurred is 63. Cases of diphtheria occurred on 16 dairy premises, typhoid fever on 10 and scarlet fever on 31.

CONTAGIOUS DISEASES ON DAIRY PREMISES.

CONTAGIOUS DISEASES ON DAIRY PREMISES—Continued.

LOCATION OF DAIRY.		Date of report.	NAME OF DISEASE.				Amount of milk produced.	Place to which milk was shipped.	Remarks.
District.	County.		Diphtheria.	Scarlet fever.	Typhoid fever.	Tuberculosis.			
Upper Pittsgrove Township	Salem	Oct. 28, '09	7					Sale prohibited.	
Asbury Park	Monmouth	Nov. 3, '09	1					Milk depot.	
Elk Township	Gloucester	Nov. 3, '09	1		1	180 quarts	Camden	Effectual isolation established. Milk depot.	
Plainfield	Union	Nov. 5, '09			1				
Bridgewater Township	Somerset	Nov. 17, '09	1				Somerville	Sale prohibited.	
Plainfield	Union	Nov. 18, '09	1			Few quarts	Plainfield	Sale prohibited by local board of health.	
Mt. Laurel Township	Burlington	Nov. 19, '09			1	200 quarts	Moorestown	No action taken.	
Garfield Park	Bergen	Nov. 30, '09	1				Passaic	Sale prohibited.	
Neptune Township	Monmouth	Dec. 13, '09	4				Asbury Park	Sale prohibited.	
Franklin Township	Somerset	Not reported	4			75 quarts	New Brunswick	Isolation established.	
West Caldwell	Essex	Dec. 19, '09	1			500 quarts	Bloomfield	Isolation established.	
Upper Pittsgrove Township	Salem	Dec. 25, '09	1			125 quarts	Philadelphia	Isolation established.	
Franklin Township	Somerset	Jan. 1, '10	4			200 quarts	New Brunswick	Case recovered before report was received.	
Franklin Township	Somerset	Jan. 6, '10	1			20 quarts	New Brunswick	Case recovered before report was received.	
Caldwell	Essex	Jan. 8, '10	1				Newark	Case removed to hospital.	
West Amwell Township	Hunterdon	Not reported	2			40 quarts	Lambertville		
Huntsville	Sussex	Jan. 24, '10	1			160 quarts	Huntsville Creamery	Sale prohibited.	
North Plainfield	Somerset	Jan. 26, '10	2			150 quarts	North Plainfield	Isolation satisfactory.	
East Millstone	Somerset	Jan. 29, '10			1			No action taken.	
Franklin Township	Somerset	Feb. 2, '10	1				Millstone	Isolation established.	
Piscataway Township	Middlesex	Feb. 3, '10	1			175 quarts	New Market	Sale prohibited.	
Pittsgrove Township	Salem	Feb. 4, '10	3				Atlantic City	Isolation satisfactory.	
Upper Pittsgrove Township	Salem	Feb. 10, '10	1			120 quarts	Vineland	Isolation established.	
Newton	Sussex	Feb. 14, '10			1			No action taken.	
Lawrence Township	Cumberland	Feb. 18, '10	1			150 quarts	Millville	Proper isolation established.	
Wall Township	Monmouth	Feb. 22, '10	1			18 quarts	Point Pleasant	Sale prohibited.	
Livingston Township	Essex	Feb. 25, '10	1			500 quarts	Orange	Isolation established.	
Bridgewater Township	Somerset	Mar. -, '10			1			No action taken.	
Hillsboro Township	Somerset	Mar. -, '10			1			No action taken.	
Greenwich Township	Warren	Mar. 4, '10	1			100 quarts	Bloomsbury (Creamery)	Sale prohibited.	

LOCATION OF DAIRY.		Date of report.	NAME OF DISEASE.				Amount of milk produced.	Place to which milk was shipped.	Remarks.
District.	County.		Diphtheria.	Scarlet fever.	Typhoid fever.	Tuberculosis.			
Hillsboro Township	Somerset	Mar. 4, '10*	3			50 quarts	Raritan Creamery	Isolation established.	
Franklin Township	Somerset	Mar. 7, '10	1				New Brunswick	Isolation established.	
Burlington Township	Burlington	Mar. 17, '10	1			200 quarts	Burlington	Isolation established.	
East Brunswick Township	Middlesex	Mar. 18, '10	2			100 quarts	Milltown	Isolation established.	
Upper Pittsgrove Township	Salem	Mar. 25, '10	1			40 quarts	Monroeville	Isolation established.	
West Orange	Union	Mar. 29, '10	1			350 quarts	West Orange	Isolation established.	
Bedminster Township	Somerset	Mar. 31, '10	1					Case recovered before report was received.	
Montville Township	Morris	Apr. 1, '10	1			60 quarts	Creamery (Caldwell)	Isolation established.	
Frankford Township	Sussex	Apr. 8, '10	1			600 quarts	Augusta		
Hopewell Township	Mercer	Apr. 14, '10	1			80 quarts	Philadelphia	Isolation established.	
Lawrence Township	Mercer	Apr. 22, '10	2			175 quarts	Trenton	Isolation established.	
Hillsboro Township	Somerset	Apr. 25, '10	1				Creamery	Isolation established.	
Howell Township	Monmouth	May 6, '10	1				Lakewood	Isolation established.	
Teaneck Township	Bergen	May 10, '10	1					Case recovered before report was received.	
South Orange Township	Essex	May 12, '10	1			250 quarts	Newark and Irvington	Patient* removed from premises.	
Clinton Township	Hunterdon	May 20, '10	3			200 quarts		Case recovered before report was received.	
Bound Brook	Somerset	June 1, '10	1				Bound Brook	Isolation established.	
Harrison Township	Gloucester	June 2, '10	1			60 quarts	Camden	Sale of milk prohibited.	
West Caldwell	Essex	June 18, '10	1				Caldwell and Montclair	Isolation established.	
Hopewell Township	Mercer	July 5, '10	1			80 quarts	Philadelphia	Sale of milk prohibited.	
Mercerville	Mercer	July 18, '10	1			10 quarts	Trenton	Sale discontinued.	
Perth Amboy	Middlesex	July 25, '10	2			20 quarts	Perth Amboy	Referred to local board of health.	
Stow Creek Township	Cumberland	July 28, '10	1			10 quarts	Bridgeton	Sale discontinued.	
Garfield	Bergen	Aug. 31, '10	2			15 quarts	Garfield	Sale prohibited.	

CONTAGIOUS DISEASES ON DAIRY PREMISES—Continued.

LOCATION OF DAIRY.		Date of report.	NAME OF DISEASE.				Amount of milk produced.	Place to which milk was shipped.	Remarks.
District.	County.		Diphtheria.	Scarlet fever.	Typhoid fever.	Tuberculosis.			
East Windsor Township	Mercer	Sept. 2, '10			3	75 quarts	Philadelphia	Sale prohibited.	
East Windsor Township	Mercer	Sept. 2, '10			2	20 quarts	East Windsor	Sale prohibited.	
Stow Creek Township	Cumberland	Sept. 14, '10	1					Isolation established.	
Hopewell Township	Cumberland	Sept. 14, '10			1			Isolation established.	
Hopewell Township	Cumberland	Sept. 14, '10			1			Isolation established.	
Green Township	Sussex	Oct. 13, '10			1		Butter made	Isolation established.	
West Amwell Township	Hunterdon	Oct. 17, '10	1			25 quarts	Butter made	Isolation established.	
Bridgeton	Cumberland	Oct. 18, '10	1			Distribut'g depot	Bridgeton	Isolation established.	
Clinton Township	Hunterdon	Oct. 27, '10			1	80 quarts	Annandale Creamery	Sale prohibited.	
Total			27	47	13	5			

COMMUNICABLE DISEASES OCCURRING IN INSTITUTIONS.

Prior to 1908, epidemics of communicable diseases occurring in institutions were under the supervision of the medical attendant or board of managers of the institution, and local boards of health were required to advise with these officials and direct measures for limiting the spread of infectious diseases. This arrangement led to serious complications and conflict of authority so that in 1908 when a serious epidemic of typhoid fever occurred in the State Hospital, at Trenton, the local board of health, the board of managers of the institution, the State Board of Health and the State Sewerage Commission were making investigations as to the source of the infection, and diverse lines of inquiry were followed resulting in conflicting conclusions. That there might be no repetition of this situation the Legislature in 1908 passed a law (Chapter 292 of the Laws of 1908) giving the State Board of Health full power to deal with epidemics in State institutions. In 1909 two cases of scarlet fever were reported in the State Normal School, at Trenton; four cases of typhoid fever in the State Hospital, at

Trenton; one case of typhoid fever in the State Prison and twelve cases of diphtheria at the State Village for Epileptics. During the year 1910 thirteen cases of typhoid fever were reported in the State Reformatory, at Rahway; two in the State Village for Epileptics, at Skillman, and two in the State Hospital, at Trenton. Fourteen cases of scarlet fever occurred in the State Reformatory, at Rahway. Each of these epidemics was carefully investigated and prompt measures were adopted which we believe resulted in the limitation of the number of cases. Boards of managers of institutions have appreciated the advice given and the assistance rendered by the State Board of Health, and have heartily cooperated with the State authorities. A careful study of the reports of the various epidemics which have occurred in State institutions during the years 1909 and 1910 will show conclusively that the requirements of the law have been intelligently complied with by the Board.

The following table shows the number of cases of contagious diseases which have occurred in institutions:

CONTAGIOUS DISEASES IN INSTITUTIONS.

NAME AND LOCATION OF INSTITUTION.	Name of Superintendent.	Date of Report.	Scarlet fever.	Typhoid fever.	Diphtheria.	Chicken-pox.	Tuberculosis.
N. J. Reformatory, Rahway	Dr. Frank Moore	Oct. 16, 1909.		5			
N. J. State Village for Epileptics, Skillman	David F. Weeks, M.D.	Nov. 26, 1909.					1
N. J. Reformatory, Rahway	Dr. Frank Moore	Dec. 15, 1909.		14			
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	Dec. 28, 1909.					1
N. J. State Hospital, Trenton	Henry A. Cotton, M.D.	Dec. 28, 1909.		2			
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	Jan. 7, 1910.					3
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	Feb. 4, 1910.					
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	Feb. 6, 1910.			18		
N. J. State Village for Epileptics, Skillman	David F. Weeks, M.D.	Feb. 8, 1910.					1
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	Feb. 11, 1910.		4			
N. J. Reformatory, Rahway	Dr. Frank Moore	Feb. 14, 1910.		3			
Deats Memorial Home		Feb. 15, 1910.		1			
N. J. State Village for Ep' man.	David F. Weeks, M.D.	Feb. 19, 1910.					1
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	Mar. 7, 1910.					1
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	April 1, 1910.					
N. J. State Hospital, Morris Plains	David F. Weeks, M.D.	April 9, 1910.					1
N. J. State Village for Epileptics, Skillman	B. D. Evans, M.D.	April 26, 1910.					2
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	May 11, 1910.					1
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	May 13, 1910.					1
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	May 16, 1910.					1
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	June 7, 1910.					3
Summer Shelter, Morristown		June 10, 1910.		2			
Newark Orphan Asylum, Mountinside		June 10, 1910.					1
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	Aug. 1, 1910.					1
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	Aug. 25, 1910.					1
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	Sept. 22, 1910.		1			
N. J. State Village for Epileptics, Skillman	David F. Weeks, M.D.	Sept. 27, 1910.					1
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	Sept. 30, 1910.					1
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	Oct. 11, 1910.					2
N. J. State Hospital, Morris Plains	B. D. Evans, M.D.	Oct. 11, 1910.					2
Totals			17	13	23		2

REPORTS OF EPIDEMICS IN STATE INSTITUTIONS.

From the reports of epidemics of various diseases occurring in institutions during the year, two have been selected which are of special interest and are herewith presented:

DIPHThERIA OUTBREAK AT STATE VILLAGE FOR EPILEPTICS.

The outbreak of diphtheria which occurred, in the early part of February, 1910, among inmates of the New Jersey State Village for Epileptics, at Skillman, having terminated, the following report is hereby submitted:

In view of the experience had during an epidemic of diphtheria at the same institution, about one year previous to the present outbreak, it was thought advisable to isolate clinical and carrier cases separately, pending a test for virulence in the latter. Accordingly two isolation hospitals were opened, one for clinical and one for carrier cases, thereby hoping to lessen the exposure of any who should be found to be harboring only a non-virulent type of diphtheria bacilli.

It is doubtful if the additional labor and expense incurred in carrying out this idea has been warranted by the results. The finding of virulent organisms on the mucous membranes of carrier cases detained among other non-virulent carriers defeated the purpose sought, and possibly gave as much exposure to the non-virulent carrier cases as if they had been sent direct to the hospital in which the clinical cases were treated.

Cultures were at first taken from all individuals in the village for the purpose of locating and weeding out carrier cases. Daily examinations were afterward made of the throats of the entire population, and cultures taken from those showing any suspicious conditions as well as from persons known to have had a direct exposure. Immunizing doses of antitoxin were repeated during the progress of the outbreak in such cases and at such times as the superintendent deemed advisable.

Repeated daily cleansing and disinfection was performed in all buildings, and other measures instituted to guard against the spread of the disease through laundry work, food supply and other known channels of infection.

The following table shows the results of laboratory examinations on specimens taken from patients from the various cottages:

NAME OF DWELLING FROM WHICH CASE WAS TAKEN.	Clinical, confirmed by Laboratory tests.	Clinical, not confirmed by Laboratory.	Carrier, virulent to guinea pig tests.	Carrier, non-virulent to guinea pig tests.	Carrier, not tested for virulence.	Suspicious, but not confirmed by laboratory.	Totals.
Bergen	1	.....	1	5	6	2	15
Meadowside .....	.....	1	.....	1	2	1	5
H and L .....	.....	2	.....	.....	1	.....	3
Ward .....	.....	1	.....	.....	1	.....	2
J. ....	.....	1	.....	1	.....	.....	2
G. ....	.....	.....	.....	.....	.....	1	1
Fernwood .....	.....	.....	1	.....	.....	.....	1
Hospital .....	.....	.....	.....	1	1	.....	2
Totals	1	5	2	8	11	4	31

The original purpose to have virulence tests in all carrier cases was defeated in some cases by failure in the laboratory to isolate pure cultures from the first specimens sent, and inability to find the bacilli in subsequent specimens from the same persons. Tests were made, however, in ten carrier cases and in the original clinical case. The original clinical and two carrier cases were highly virulent to guinea pigs. Each of these three cases were twice tested with the same results.

In so far as shown by laboratory tests, which were made in 35.5 per cent. of the cases, virulent organisms were recovered in three cases only. Two of these were from Bergen, in which the outbreak occurred, and one from Fernwood Cottage.

The laboratory was unable to isolate diphtheria bacilli from repeated specimens in five of the six clinical cases. One of the non-virulent carrier cases proved to be a person who had been a persistent carrier, of a non-virulent type of the bacilli, during the epidemic which occurred in the institution about one year preceding. Specimens which have been examined from this individual at various times between the two outbreaks shows him to have been a "chronic" carrier of the organism.

Carrier cases were released from the hospital, regardless of the persistence of the bacilli in specimens, in all cases showing a non-virulent test. Several consecutive negative reports, from cultures taken at intervals of twenty-four or forty-eight hours, were required in virulent carrier and clinical cases.

The hospital was open twenty-four days, from February 6th to March 2d. Considering the delayed diagnosis in the first case, which afforded ample time for the spread of infection, together with the total number of persons admitted to the hospital, twenty-three days may be considered a short time for the termination of the outbreak. Had negative laboratory replies been required on specimens from all carrier cases, instead of depending upon virulence test for the release of patients, the result would doubtless have been decidedly different.

SCARLET FEVER AT THE NEW JERSEY REFORMATORY, RAHWAY.

The following report on the outbreak of scarlet fever, which occurred early in December in the New Jersey Reformatory at Rahway, is hereby submitted:

The first case reported occurred in an inmate employed in the overall department. The patient was taken ill on December 2d, 1909, confined in Cell C-13, in the new wing of the building, until the nature of his illness was determined on December 10th, when he was transferred to the hospital.

A careful, though rather late, inquiry conducted to learn the source of infection for the case proved fruitless. There appeared no evidence at the outset, or during the progress of the epidemic, to warrant the assumption that the source of infection for the first case, or for those which followed, was due to any condition existing in the overall department, in which about one hundred inmates were employed.

There were in all fourteen persons admitted to the isolation hospital. One suspicious case, in which a definite diagnosis was not made, was isolated in a room in the main building. The dates of attack in each case, with a possible one exception, occurred singly and within the accepted incubation period following a preceding case. A study of the dates of attack, shown in the accompanying tabulation of the cases, with the possible one exception referred to, suggest infection for each case (following the initial one) from the case which directly preceded it.

Identification number of inmates.	Date rash appeared.	Sent to hospital.	Released from hospital.	Length of detention.
1658	Dec. 3	Dec. 10	Feb. 3	65 days
1872	" 14	" 14	" 8	56 "
1298	" 21	" 22	" 3	43 "
1914	" 25	" 25	" 15	52 "
1560	" 31	" 31	" 15	46 "
1817	Jan. 1	Jan. 2	" 15	44 "
*1792	" 3	" 3	" 15	43 "
1795	" 7	" 7	" 23	47 "
1785	" 11	" 11	" 23	43 "
1877	" 15	" 15	" 23	39 "
1931	" 25	" 25	Mar. 8	42 "
1913	Feb. 7	Feb. 8	" 29	49 "
1941 .....	.....	" 15	Apr. 5	49 "
1860	Feb. 15	" 15	" 5	49 "
1858	Mar. 2	Mar. 2	" 13	42 "
Total .....	.....	.....	.....	709 days
Average .....	.....	.....	.....	47.1 days

* Suspect.

There appeared to be not more than one person affected at any one time, and no common source of infection was found. This seems rather remarkable, too, when one considers the close association which takes place between the four hundred inmates then in the institution. The facts gathered as the epidemic progressed do not clearly indicate that infection took place in any particular part of the main building or workshops. The cases did, however, all occur in persons occupying cells in the new wing of the building, yet nothing suggestive appears in the location or other relation between the cells occupied by those suffering from the disease. Nine cases came from workers in the overall shop, two from the shirt shop, one from the shoe shop, one in the tailor shop and one worker in the carpenter detail. The suspect referred to was a librarian in the institution. The first case in the outbreak occurred on December 2d, and the last one on March 2d. Fifty-six days was the longest, thirty-nine the shortest, and forty-seven and two-tenths days the average time of detention of cases in the hospital. Cases were held until convalescence was fully established and all desquamation had ceased. There were no return cases, *i. e.*, infections due to cases discharged too early from the hospital, and no fatal case occurred.

EPIDEMICS.

The study of epidemics of contagious diseases, resulting in many instances in the discovery and removal of the source of infection, is one of great interest and valuable results. These inquiries are made whenever an epidemic is reported, and each year the Division of Medical and Sanitary Inspection is called upon to aid local boards of health in investigating epidemics.

In 1909 epidemics of communicable diseases, occurring in 84 sanitary districts, were studied and inquiry was made as to 158 cases of typhoid fever; 41 cases of scarlet fever; 159 cases of diphtheria and 107 cases of small-pox. During the year 1910, 29 epidemics were investigated. Thirty-three cases of scarlet fever; 209 cases of typhoid fever; 15 cases of small-pox and 26 cases of diphtheria were subjected to careful study. This list does not include cases of communicable diseases occurring on dairy premises.

We desire to call attention to some interesting facts brought out in the investigation of a total number of 228 cases of typhoid fever. Forty-two of the above number of cases occurred in townships and 160 in municipalities.

Information gathered in conducting these investigations shows that little effort is being made by township boards of health in checking the spread of this disease, and in many municipalities much work performed by local boards fails of its purpose because it is not intelligently directed.

Flagging or posting a card upon premises on which typhoid fever exists, will have no effect in preventing the spread of the infection from those suffering from typhoid fever. Isolating the patient and disinfecting the apartment, after convalescence is fully established, will not answer. The disinfection in typhoid fever should be done before the infectious material is carried beyond the walls of the sick-room, and while this is not at all difficult, it is surprising to note in how many cases there is failure to perform this work.

What actually happens in many cases attended by untrained persons in rural districts, is that the undisinfected discharges are deposited in open privy vaults or placed in holes in the ground where domestic fowls may track the infection about the door yard, and flies may freely feed upon the dangerous material. Water in which soiled garments and bedding have been washed is thrown in the gutter or cast upon the ground near the back porch, and flies in countless numbers are permitted to pay alternating visits between the sick-room and kitchen. The law requires that physicians shall report cases of typhoid fever to the clerk, or other designated official of the local board of health. It also requires that the official who receives such reports shall record the same and that he shall, at stated intervals, transmit a portion of the

facts contained therein to the State Board of Health. While the physician's report is necessary, as it furnishes the basis of any action which may be taken by the local board of health, it in no wise contributes toward checking the spread of the infection unless followed by well-directed action.

The law which requires cases to be reported is mandatory. The law which provides for preventable measures against the spread of infection is optional, and whether or not restrictive measures shall be applied rests entirely with the local board of health. If no visit is made by a representative of the board of health to the infected premises no official investigation is conducted to learn the source of infection and no efficient effort is put forth to prevent its further spread. In investigating these cases, it has not been uncommon to find instances in which a two-ounce bottle of a five per cent. solution of carbolic acid has sufficed to disinfect the discharges from typhoid fever patients through their entire period of illness, or where carbolic acid or chloride of lime has been used in open vessels set about the sick-room.

A physician has fulfilled his legal obligations when he has reported the case and he should not be expected nor requested to direct the performance of the work, which, by statute, is placed in the hands of the local board of health. If morbidity records are to be lessened by disinfection and supervision over existing cases, then a radical change in the work of township and some municipal boards will be required.

From the reports of investigations of epidemics, one, on an outbreak of typhoid fever, which is of especial interest in that the conclusions reached from the collecting of facts indicate that many of the persons attacked with the disease, undoubtedly, were infected by eating clams taken from polluted waters.

The full report of the epidemic is as follows:

OUTBREAK OF TYPHOID FEVER IN OCEAN CITY.

An investigation was begun on September 12th of an outbreak of typhoid fever in Ocean City. Preceding the time of this inquiry no information had been received from the local board of health of Ocean City showing that typhoid fever had prevailed there during the summer months. With information from the Bureau of Health of Philadelphia, under date of September 10th, stating that more than twenty cases of typhoid fever had been reported to said bureau during the preceding week, in which infection was claimed to have taken place in Ocean City, and that eight of the persons thus affected had been guests at the Hotel Bellevue, the local board of health was called upon for information concerning the alleged outbreak.

The records in possession of the local health official then showed that three cases of typhoid fever had been reported during the summer. They had occurred in non-permanent-resident persons, occupying separate private dwellings, under dates of July 16th, August 1st and September 5th. Infection in one of these cases had surely occurred before the patient came to Ocean City, and one other was probably of foreign origin.

While the local board had no official knowledge that other cases had occurred, a rumor to this effect was under investigation, and evidence had been gathered showing that a number of guests at the hotels Bellevue and Oceanic were taken ill just preceding their departure from Ocean City, or shortly following arrival at their homes.

An inspection was at once made at the Bellevue Hotel, which was then being closed for the season, and a request was made of the proprietor for any information in his possession which might assist in procuring the names and addresses of guests who were known to have been ill prior to leaving the hotel or soon after their departure. This information was refused upon the ground that the lease had expired and the present management had no interest in the matter.

It was learned, however, through an office employe, that the hotel accommodates about two hundred guests and employs approximately forty persons in its management. Apparently reliable information was obtained showing that none of the employes of the hotel had been ill with typhoid fever. An inspection of the premises showed that the sanitary appliances in the hotel were in good repair and apparently maintained in a cleanly manner. Water had been drawn from the public supply and milk obtained from a local dealer. There were no vaults on the premises and the surroundings were found to be free from objectionable accumulations or structural conditions particularly favorable to the spread of the disease.

A visit was next made to the Oceanic Hotel, where the names of a number of persons were secured who were known to have been ill just prior to leaving or shortly following departure for their homes. Other information was freely given to aid in a search for the probable source of infection. The Oceanic Hotel accommodates about four hundred guests and employs about forty servants. In so far as known there had been no case of illness among the employes that in any way resembled typhoid fever. Except that flies were rather numerous in the kitchen and other rooms connected with the culinary department (probably due to the manner of handling and storing garbage), the sanitary conditions in and about the hotel were satisfactory.

In order that more data might be had to furnish a basis for an intelligent inquiry, a request was made of the Department of Health of Philadelphia for further and definite information pertaining to the number of cases reported to said department which gave a history of having been infected in Ocean City. Pending receipt of this information, with the knowledge at hand, and with the assistance of the local board of health, a study of local conditions, which might be responsible for the spread of infection, was continued.

So far as known at that time, none of the cases had occurred among employes of the Bellevue and Oceanic hotels. Inspection of these two premises had revealed no conditions likely to be responsible for the outbreak. The milk and water supplies were investigated with negative results and the possibility of infection from a carrier case inquired into. Considering that there were about eighty employes in the two hotels above named, none of whom had been ill, a source of infection common to guests only was sought for. Owing to the lack of information concerning the number of individuals who had contracted the disease, and their movements at the time the infection probably took place, few lines of inquiry entirely disassociated from the hotels in question could be carried out. In investigating the source of food supply, it was shown that oysters and clams were among the articles obtained by both hotels from a common source, through which the infection of typhoid fever might be conveyed. Both houses were supplied with shell fish by the same local dealer and both houses served raw clams and oysters to guests, but not to employes. It also

appeared that this same dealer was the only person in Ocean City who had furnished little neck clams to hotels during the summer. It was learned that these clams had been procured from various beds in nearby waters while oysters had been obtained from a single shipper at Maurice river. The oysters were not floated or otherwise treated in a manner likely to expose them to infection after they had been received by the dealer. A portion of the clams that were used had been taken from the flats in the thoroughfare which forms the western boundary lines of the island upon which Ocean City is situated. Numerous persons had taken clams from this thoroughfare and some had disposed of their catch to the dealer in question. While no definite knowledge was yet at hand showing that any considerable number of persons who became ill had partaken of uncooked shell fish, this line of inquiry was included in the investigation, and the facts which were gathered shows a condition to have existed which is favorable to the spread of typhoid fever infection.

It is claimed that only a small portion of the clams taken from the thoroughfare were of the little neck variety. These were practically all used to serve on the half shell. There can be no doubt that the clams which grew on beds in the thoroughfare were taken from waters which were not only grossly polluted but also infected by the discharges from typhoid fever patients. Clams served by the Ocean City dealer were at times stored on a float moored at the dock at the foot of Twelfth street. As early as the middle of July one lot was stored on this float for a period of about ten days. Other lots were subsequently thus stored on dates which could not be definitely fixed. More than a thousand clams, containing some little necks, were purchased by the dealer from a local fisherman during the first week in August, that were then stored on an adjoining float at the foot of Twelfth street.

About seventy-five dwellings built on land bordering on the thoroughfare have house drains which discharge directly into the water. In one of these houses, 1342 Pleasure avenue, a guest who came to the house on July 28th was taken ill with typhoid fever on August 1st. The case was treated in the dwelling and the discharges were disposed of through the house drain, which discharges into the thoroughfare at a point not more than one hundred yards distant from the clam floats above referred to. A drain from another dwelling discharges into the thoroughfare not more than twenty feet away from these floats.

Outlets of the public sewer discharged crude sewage into the thoroughfare at the foot of Third, Twelfth and Fifteenth streets. The summer population of Ocean City is approximately thirty thousand. The entire sewage from Ocean City is discharged into the thoroughfare, through the above-described outlets, and mingles with the waters which flow back and forth through the thoroughfare and over a number of the beds from which clams are taken, a few hundred feet distant from the sewer outlet.

The last of the data which had been requested from the Department of Health of Philadelphia, concerning cases that were accredited to Ocean City, was received on December 10th. The list included the names of thirty-one persons, and makes a total of forty-five cases which are known to have occurred among persons who had spent some time in Ocean City during the summer. Owing to the fact that the outbreak began about the middle of July, and that no effort was made to determine its source until the second week in September, by which time many of the hotels and cottages had been closed, and most of the infected persons had departed for their homes in other states, it became exceedingly difficult, if not practically impossible, to obtain full and accurate information for a satisfactory study of the cause of the epidemic. Unverified reports of cases have not been included, and there are doubtless other cases that have been entirely overlooked because of the obvious difficulties which were encountered when gathering the facts. A tabulation has been made of the data in hand, from which the following summary is given:

According to information furnished, the infection which caused cases 2, 3, 4, 5 and 25 must have been contracted before the individuals in which it occurred came to Ocean City, and cases 43 and 44 did not become ill until after

the usually accepted incubation period for typhoid fever infection following their departure.

The seven cases above referred to cannot, therefore, be chargeable to Ocean City, and the data relating to them has been excluded. Considering clams as a possible source of infection, these cases can, however, be counted as having a bearing on the outbreak, for in so far as is shown by this inquiry they were among the very first to occur and include case No. 3, which occurred in the dwelling, No. 1342 Pleasure avenue, from which a house drain discharged into the thoroughfare near the clam floats at the foot of Twelfth street. The occurrence of these cases must have contributed typhoid infection to the sewage discharged into the thoroughfare just preceding the infection of cases which took place in Ocean City.

There are six cases in which sufficient information has not yet been furnished to definitely determine whether or not infection took place in Ocean City, but inasmuch as the data furnished favors this view, they have been included among the cases shown to have contracted the disease while there. There are thirty-eight cases in which the infection is presumed to have taken place in Ocean City. The statements furnished showing where these persons resided, and whether or not they ate raw clams in Ocean City, is given in the following table:

Name of Hotel.	Ate Raw Clams.	Did Not Eat Clams.	No Information.	Total No. of Cases.
Oceanic Hotel.....	7	0	1	8
Bellevue Hotel.....	6	3	6	15
Normandie Hotel.....	4	2	0	6
Kathlue Hotel.....	0	0	1	1
	17	5	8	30
<i>Private Houses in Which Cases Occurred.</i>				
843 Second street.....	..	1	..	1
730 West street.....	..	1	..	1
Fourth and West.....	..	1	..	1
1133 West.....	..	1	..	1
516 Asbury avenue.....	..	1	..	1
Thirty-fourth street.....	..	..	1	1
Alpha Phi Club.....	..	1	..	1
Not given.....	..	..	1	1
Totals	17	11	10	38

The data shows that none of the cases which occurred in persons residing in private dwellings ate uncooked clams, while a large percentage of the cases occurring among the hotel guests are said to have eaten them.

The preceding table also shows that twenty-nine out of thirty cases occurred in persons residing in one of three houses. In looking for an explanation why patrons of other hotels should have escaped infection, we have the statement of the shell fish tradesman, who is said to be the only person from whom little neck clams can be purchased in Ocean City, that very few hotels or boarding houses were supplied with clams by him to be served on the half shell. The names of the following houses are said to have served little neck clams during the summer:

Bellevue Hotel, served frequently; Oceanic Hotel, served several times each week; Normandie Hotel, served four times during the season, hotel closed September 7th; Hotels Strand, Raleigh, Illinois and Oxford served little necks on alternating Sundays, and the Treymour and Swarthmore were supplied not more than two or three times during the entire season. One or two private houses were supplied with little neck clams on a few occasions during the summer.

The dates of attack have not been accurately supplied in a number of cases. According to what appears to be a proper arrangement they occurred:

Third week in July.....	3 cases.
Fourth " "	0 "
First " " Aug.....	4 "
Second " " "	10 "
Third " " "	9 "
Fourth " " "	14 "
First " " Sept.....	8 "
Second " " "	1 "
Third " " "	0 "
Fourth " " "	3 "
	—
	45 "

The infection, therefore, appears to have been most active in the latter part of July and during the first part of August. The first few cases in the outbreak, which had their infection before coming to Ocean City, occurred between the period of July 16th and August 4th.

The home addresses of the 45 persons infected are given as: Philadelphia, Pa., 40 cases; Ocean City, 2 cases; Camden, 1 case; Wilmington, Del., 1; Unionville, Pa., 1 case.

The data concerning the ages of the persons having typhoid fever is so incomplete that it bears no significance, and is therefore not given. No cases are recorded, however, in persons under five years of age. There were 29 females and 16 males included in the outbreak. Eight cases are known to have proven fatal, and others were still very ill at the time information was procured.

Owing to the difficulty encountered in gathering much of the data used in the study of this outbreak, too much reliance cannot be placed upon its accuracy in some cases, and so many facts are lacking in others, that no positive conclusions are justifiable as to the true source of infection which caused the epidemic, but strong presumptive evidence exists showing that many of the cases are traceable to infected clams taken from the thoroughfare.

The sewer company and all private owners of properties in Ocean City, polluting the waters of the thoroughfare by discharging sewage into its waters, have been notified to discontinue such pollutions, and there should be no repetition of the conditions which led to the epidemic of the past year.

OUTBREAKS OF CONTAGIOUS DISEASES INVESTIGATED.

LOCALITY—DISTRICT.	County.	NAME OF DISEASE.				Date of Outbreak.	Date of Investigation.
		Scarlet fever.	Typhoid fever.	Diphtheria.	Small-pox.		
Barnegat City Borough.....	Ocean.....		1			Oct. 21, 1910.	
Bedminster Township.....	Somerset.....	10			Nov. 11, 1910....	Dec. 14, 1910.	
Brick Township.....	Ocean.....		3			Nov. 15, 1909.	
Camden.....	Camden.....		15			Aug. 11, 1910.	
Clementon Township.....	Camden.....		7		July 1, 1910....	Sept. 19, 1910.	
Cape May Court House.....	Cape May.....		2		July 20, 1910....	Sept. 14, 1910.	
Dover.....	Morris.....		*		July 30, 1910....	Oct. 8, 1910.	
Flemington.....	Hunterdon.....		5			Sept. 8, 1910.	
Florence Township.....	Burlington.....		3		July 30, 1910....	Aug. 15, 1910.	
Frankford Township.....	Sussex.....		7		Aug. 17, 1910....	Oct. 13, 1910.	
Franklin Furnace.....	Sussex.....		10		July 15, 1910....	Oct. 3, 1910.	
Hammonton.....	Atlantic.....		6			Sept. 16, 1910.	
Hawthorne.....	Passaic.....		12		May 18, 1910....	Sept. 28, 1910.	
Irvington.....	Essex.....		3			May 20, 1910.	
Lambertville.....	Hunterdon.....		4		May 1, 1910....	June 16, 1910.	
Manchester Township.....	Ocean.....		6		July 18, 1910....	Aug. 24, 1910.	
Manchester Township.....	Somerset.....			*		April 12, 1910.	
Millstone Borough.....	Cumberland.....		15		April 15, 1910....	Aug. 2, 1910.	
Millville.....	Cape May.....		20		June 20, 1909....	Nov. 30, 1909.	
Ocean City.....	Cape May.....		45				
Ocean City.....	Middlesex.....		12		July, 1910....	Sept. 8, 1910.	
Perth Amboy.....	Warren.....		28		Sept. 1, 1910....	Oct. 20, 1910.	
Phillipsburg.....	Mercer.....		10			Dec. 14, 1909.	
Princeton.....	Bergen.....	20			Dec. 28, 1909....	Feb. 9, 1910.	
Ridgefield Park.....	Bergen.....		6		Mar. 8, 1910....	June 6, 1910.	
Riverside.....	Monmouth.....		5			Sept. 16, 1910.	
Sea Girt.....	Essex.....		9			Aug. 30, 1910.	
South Orange.....	Warren.....		5		Sept. 21, 1910....	Oct. 22, 1910.	
Washington.....	Warren.....		5				
	Totals.....	33	209	26	15		

* Suspect.

NUISANCES.

The laws of the State do not empower the State Board of Health to take action to abate nuisances except in cases where nuisances maintained in one sanitary district affect an adjacent sanitary district. Under these conditions the State Board of Health may, after arriving at a conclusion that a nuisance affecting the health of the inhabitants of any sanitary districts exists, apply to the Court of Chancery for an injunction. However, it is the custom of many local boards of health, when there is doubt as to the existence of an alleged nuisance and as to the legal method to be adopted to abate the nuisance, to ask for the advice and assistance of the State Board of Health. Under such circumstances local boards of health are aided and advised, and the opportunity is given of coming into more intimate relation with local boards of health which usually results in improved local sanitary administration. The nuisances which have been investigated during the year are generally of local interest only, and the following table shows the character of this work:

MISCELLANEOUS COMPLAINTS INVESTIGATED.

LOCALITY—DISTRICT.	COUNTY.	DATE OF INVESTIGATION.	NATURE OF COMPLAINT.	ACTION TAKEN.
Allenhurst Borough	Monmouth	Aug. 17, 1910	Refuse on bathing benches.	No cause for action.
Bordentown City	Burlington	July 18, 1910	Unclean pigeon coots.	Referred to local board of health with advice.
Camden City	Camden	Dec. 3, 1910	Shipments on railroad of decomposing butchers' offal.	Conferred with railroad authorities.
Centre Township	Camden	July 15, 1910	Commercial storage of stable manure.	Referred to local board of health.
Edgewater and Ford Lee	Bergen	Aug. 2, 1910	Municipal refuse dump.	Referred to local board of health.
Hawthorne Borough	Passaic	Aug. 16, 1910	Flooding of low lands.	No action.
Hawthorne Borough	Passaic	Aug. 16, 1910	Polishing of wells by lye-tory waste.	No action.
Hawthorne Borough	Passaic	Aug. 16, 1910	Swamp land drainage of.	No action.
Kearny Town	Hudson	June 3, 1910	Sewage in open ditch.	Referred to local board of health with advice.
Long Branch City	Monmouth	Aug. 16, 1910	Unclean and crowded hotel property.	Referred to tenement house commission.
Middletown Township	Monmouth	May 21, 1910	Fish rendering plant.	Referred to Attorney-General.
Montclair City	Essex	Sept. 15, 1910	Garbage and nightsoil dump.	Nuisance abated.
Mt. Arlington Borough	Morris	Aug. 23, 1910	Unsatisfactory camp conditions.	Referred to local board of health with advice.
Neptune and Ocean Townships	Monmouth	June 4, 1910	Dead fish in Deal lake.	(Cause undetermined, nuisance abated by local board of health.
Palisades Park Borough	Bergen	July 14, 1910	Overflowing cesspool.	Referred to local board of health with advice.
Sayreville Township	Middlesex	July 6, 1910	Commercial storage of stable manure.	Advised local board of health concerning abatement.
Sea Isle City	Cape May	Aug. 19, 1910	Camp sanitation.	Abated prior to inspection.
Sea Side Park	Ocean	Aug. 3, 1910	Garbage dump.	Nuisance abated.
Shady-Side	Bergen	Sept. 16, 1910	Sewage in public streets.	Attention of local board of health directed to conditions.
Trenton	Mercer	April 4, 1910	Privy vault and cow yards.	Referred to committee in charge.
Union Township	Bergen	July 26, 1910	Feeding garbage to hogs.	Advised local board the method of procedure to abate (nuisance).
Union Township	Union	July 2, 1910	Feeding garbage to hogs.	Advised local board the method of procedure to abate (nuisance).
Weehawken Township	Hudson	Aug. 17, 1910	Defective drainage in railroad station.	Referred to railroad authorities.
Westfield	Union	Nov. 15, 1910	Ventilation of toilets in public school building.	Advised local board of education as to procedure.
West Long Branch	Monmouth	Oct. 25, 1910	Town refuse disposal plant.	Advised local board of health as to procedure.
Williamstown	Gloucester	Sept. 30, 1910	Nuisance due to canning factory refuse.	Advised local board of health as to procedure.

Report of the Division of Creameries and Dairies.

GEORGE W. MCGUIRE, Chief.

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

GENTLEMEN—I have the honor to submit herewith the annual report of the operations of this division for the year ending October 31st, 1910.

The work of the division has been carried out during the year on the same lines adhered to during the previous year. We are able to report a decided improvement in the public milk supplies in those sections of the State where our efforts have been chiefly centered. The employment of one additional inspector this year has enabled us to extend our inspection work to other localities which, through their boards of health, have requested aid in the investigation of the sources of their milk supplies. The interest taken by health authorities in the sanitary inspection of the dairies from which they draw their local supplies is increasing rapidly, and if our work is to be extended beyond its present limits and performed with the same thoroughness that we have been able to attain so far, it is imperative that more help be provided.

A summary showing the details of our year's work is printed in the end of this report.

INSPECTION OF CREAMERIES.

At the close of the fiscal year ending October 31st, 1910, there were operating in the State 212 creameries subject to Chapter 139 of the Public Laws of 1906; 511 visits were made to these establishments by the inspectors of this division for the purpose of investigating the methods used in caring for the milk and its prod-

ucts there handled; 4,712 New Jersey farmers produce and supply 578,099 quarts of milk daily to these creameries, and besides this, it is estimated, as closely as figures can be obtained, that over 2,000 farmers in the adjoining states of New York and Pennsylvania send milk to the receiving stations in their respective states for re-shipment to the creameries in New Jersey.

There are 154 licensed creameries in the State, and 58 applications to operate other creameries were held by the Board for further action because it was found, after inspection, that they did not meet with the law's requirements. Further on in this report will be found a statement showing the results of the inspections of these unlicensed creameries, with the reasons why licenses were not issued to them.

The law is specific in its provisions regarding the location, construction and drainage systems of creameries, and the rules of the Board require certain essentials relative to the sanitary handling of the milk received in them. It was for the purpose of learning whether these rules and regulations were observed that our inspectors made the large number of visits reported above.

The act specifically provides for impervious floors, pure water supplies, proper washing and cleansing facilities, good drainage, &c., and defines a creamery to be "any establishment where milk is received or stored for sale or distribution by wholesale, or for the manufacture of the same into butter, cheese, condensed milk or other food for human beings." Before the passage of this act, many creameries had wooden floors, which, when they became worn and leaky, created a nuisance resulting from the escaped waste fluids underneath the floors from which foul odors emanated permeating the milk rooms. Unsanitary milk pipes and pumps were numerous. The creameries were seldom screened against flies, and the fly breeding places in and about the place were many. As a result of the work in creamery inspection since 1906, these defects have been remedied in all licensed creameries. When milk pumps are used, they are of a type which is readily taken apart and the interior surfaces exposed for cleaning. All milk vats in these creameries are now provided with metal covers which prevent the entrance of flies, dust and dirt. Wooden floors have given place to concrete floors, and defective drainage systems have been reconstructed.

During the year several operators were cited to appear before the Board to answer why they had not obeyed orders given them to improve methods or abate nuisances detrimental to the milk supply handled in their creameries. In addition to this, 293 letters were sent by the chief of the division, advising improvements necessary for the better protection of the milk. The owners of eight creameries, being unable or unwilling to meet the Board's requirements regarding the handling of milk while in their care, retired from the business and the creameries were abandoned.

Previous to the year 1910, the only ice cream establishments that have been regularly inspected and licensed have been those in which the product is manufactured in the same building where milk and cream are received, handled, or stored for market purposes. Early in the year a communication was received from the owner of a creamery in Salem county, informing the Board that he had relinquished the business of receiving and shipping milk and cream for public distribution and that he proposed to use the creamery for the sole purpose of manufacturing ice cream for the wholesale trade, and wished to know whether or not he could operate his plant under the license already granted to him. Pursuant to this communication, the Attorney-General was asked to advise the Board whether, under the creamery act, factories "in which milk or cream is received, handled, stored, or manufactured into butter, cheese, or other articles of food for human consumption," would include establishments where milk and cream were so received and manufactured into ice cream.

We were informed that such places came under the classification of creameries, as defined by Chapter 139 of the Public Laws of 1906, and that it was clearly the duty of the Board to license them whenever they met the requirements of the law. Before this time there were a number of creameries in which a large proportion of the milk received was manufactured into ice cream, and their operations were under the scrutiny of this division, but we recognized that with the force at our command, we could not give to all the ice cream factories in the State the attention they should receive. With the addition of an extra inspector, appointed in February, however, we have made a careful investigation of the conditions existing in a large number of these plants, and thus far fifty-one have been visited, with the result that forty-nine have

sent written applications for a license. Of these only fifteen met the requirements of the law, and the remaining applications for license were refused either on account of unsanitary conditions in and surrounding the premises, or because the creameries are located in buildings used in part for dwellings.

Eleven of the places examined are located in cellars or in the basements of dwelling-houses. Most of these places were found to be unfit for creamery purposes on account of poor light, drainage and ventilation. In a few instances the defective drainage constituted a nuisance and the places were condemned on that ground alone.

Few people realize the extent of the ice cream business in this country at the present time. The consumption of this commodity is said to have increased tenfold in the past ten years. The reports of the inspectors who gathered the data from the fifty-one ice cream factories inspected show that a total of 2,980,160 quarts was manufactured in those factories alone, during the year. Ice cream is no longer a luxury to be enjoyed by the few, but is eaten as a food every day in hotels, restaurants and boarding houses, and served to invalids in their homes and in hospitals. Like milk and its products, ice cream is eaten in an uncooked state, and for this reason great care should be taken to protect it against the defilement to which it is subjected in most of the factories that have been visited by our inspectors. Our investigations thus far have been for the purpose of learning if these creameries meet the State's requirements regarding the construction of buildings, character of equipment, and efficiency in the management.

We have found that very few of them, in comparison with the total number, have proper facilities for handling this delicate product in a manner calculated to prevent its contamination, and if it is true, as is claimed, that the cases of ptomaine poisoning ascribed to ice cream are due to putrefactive organisms introduced by the washing of cans and containers with cold, dirty water, or placing the finished product in rusty, unclean cans, no time should be lost in reforming the ice cream factories in this State and compelling them to place their establishments in a condition of strict cleanliness and sanitation to meet the requirements of the law.

In the inspection of creameries where milk and cream are handled for public distribution, this department has insisted on clean receptacles, utensils, milk vats, &c. The law provides that there shall be in such establishments an ample supply of water and adequate facilities for heating the same. Few, if any of them, are now without some sterilizing outfit, either in the form of a closed chamber where all utensils can be exposed to live steam, or some other steaming device whereby the interior of the cans can be subjected to a steam bath after washing. In but ten of the ice cream factories so far inspected have we found any sort of equipment to meet this requirement. The work of washing cans and utensils used for ice cream is done in a haphazard way. Frequently a copper candy kettle is filled with water and placed over a slow fire. When slightly heated, the water is dipped out in small quantities and poured into a can setting on the floor, where the attempted washing takes place.

In other factories the discarded water used for cooling the cylinder of a gas engine is used; in such cases the warm water is limited as to quantity and the washing imperfectly done.

Another matter brought out in our inspections is the fact that the empty cans are returned to the factory in a dirty condition, often containing foreign materials and nearly always in such an unsanitary condition as to require the most careful and painstaking work to render them fit to be used again for the purpose for which they were intended. There is no doubt that ice cream is often packed in returned cans before they have been properly cleaned. This deduction is arrived at from the known lack of washing facilities in most of the factories.

Section 14 of Chapter 217 of the Laws of 1907 reads as follows: "It shall be the duty of any person, persons or corporation to whom milk is shipped by any person in this State, before returning to such shipper the can or vessel, to remove all milk from such can or vessel and to thoroughly rinse such can or vessel with pure water, or to cause the same to be done; and it shall be the duty of any person, persons or corporation shipping milk to any point or points within or without this State to thoroughly cleanse, or cause to be cleansed, the can or vessel used for transporting such milk before the milk is placed therein."

In view of the conditions we have found and their admittedly serious effect upon the public health in known instances, I recommend that the above section be amended so as to include all containers used in shipping ice cream. When received by the manufacturers, all returned cans should be placed on racks where exposure to pure air may be had, and not stored in some dark, damp room, as is the general practice in most of the creameries thus far inspected.

LIST OF CREAMERIES LICENSED BY THE STATE BOARD OF HEALTH, SHOWING THE LOCATION OF PLANT AND THE NAME OF THE OPERATOR.

<i>Atlantic County—</i>	
Atlantic City.....	Supplee's Alderney Dairy Company.
<i>Burlington County—</i>	
Columbus	Supplee's Alderney Dairy Company.
Pemberton	Peter Cosgrove.
Wrightstown	McEwan Milk Company.
<i>Camden County—</i>	
Camden	William E. Cramer.
Camden	Excelsior Ice Cream Company.
Camden	Garden State Dairies Company.
Camden	L. Haines Ice Cream Company.
Camden	Harry R. Read Company.
<i>Cumberland County—</i>	
Bridgeton	Arctic Ice and Milk Company.
Bridgeton	Bridgeton Condensed Milk Company.
<i>Essex County—</i>	
Caldwell	Harry F. Backus.
East Orange.....	Monroe & Heberling.
Irvington	J. T. Castle Ice Cream Company.
Irvington	Louis Silberman.
Newark	Harry F. Backus.
Newark	August Beckmeyer.
Newark	Botkin & Durling.
Newark	Wolf Cohn.
Newark	Halprin Brothers.
Newark	Jacob Max.
Newark	Newark Milk and Cream Company.
Newark	New Jersey Ice Cream Company.
Newark	Seiler Brothers.
Newark	Levi Smith.
<i>Hudson County—</i>	
Hoboken	Keystone Dairy Company.
Hoboken	McDermott Dairy Company.
Jersey City.....	Greenfield Dairy Company.
Jersey City.....	Howell Condensed Milk Company.

Hunterdon County—

Annandale	Annandale Milk and Cream Company.
Barbertown	Wm. Strouse.
Barley Sheaf.....	J. Max.
Bloomsbury	C. W. Van Natta.
Califon	Philips & Waldron.
Cherryville	C. R. Peterman.
Clinton	James Wyckoff.
Clover Hill.....	A. C. Durling.
Everettstown	Geo. H. Scott.
Flemington	Seiler Brothers.
Frenchtown	Robert Harberson.
Hampton	Marchant Brothers.
Hoffmans	Isaac H. Hoffman.
Idell	Wm. Strouse.
Jutland.....	Geo. N. Robinson.
Lebanon	Geo. Clark & Son.
Little York.....	S. V. Eckel & Son.
Locktown	Locktown Dairymen's Association.
Milford	Henry Hauptfuehrer.
Mount Pleasant.....	Geo. H. Scott.
New Germantown.....	A. C. Durling.
Oak Grove.....	C. R. Peterman.
Oak Summit.....	Harry Sassaman.
Pittstown	Empire State Dairy Company.
Readington	Farmers' Exchange Company.
Reaville	Farmers' Exchange Company.
Ringoes	Harberson Dairies Company.
Ringoes	William Strouse.
Rosemont	William Strouse.
Sergeantsville	William Strouse.
Sunnyside	James Wyckoff.
Three Bridges.....	Amwell Valley Dairy Company.
West Portal.....	C. W. Van Natta.
White House.....	A. C. Durling.

Mercer County—

Harbourton	Samuel A. Burns.
Hopewell	Hernig & Northrup.
Trenton	William Alfather.
Trenton	Castanea Dairy Company.
Trenton	Hildebrecht Catering Company.
Trenton	Manning & Brink.
Trenton	Alvah Smith.

Middlesex County—

Cranbury	Holeman Jordan.
Highland Park.....	W. W. Ten Eyck.
New Brunswick.....	M. J. Graham.
New Brunswick.....	New Brunswick Hygienic Milk Company.
Three-Mile Run.....	A. DeHart Voorhees.

Monmouth County—

AllentownAllentown Dairy Association.
 Asbury Park.....Reid Ice Cream Company.
 Colt's Neck.....Colt's Neck Creamery Company.
 West End.....Slawson-Decker Company.

Morris County—

Flanders Wm. McLaughlin.
 FlandersWillswood Farms Dairy Company.
 German Valley.....S. N. Dilts.
 German Valley.....J. T. Welch.
 Middle Valley.....Geo. Clark & Son.
 MorristownLuther Kountz.
 MorristownHerman Viedt.
 MorristownRudolph H. Kissel.
 NaughtrightDuBois Brothers.

Passaic County—

CliftonJohn Lotz.
 PatersonM. W. Frank.
 PatersonM. Potash.

Salem County—

AllowayF. A. Shivelor.
 DaretownAbbott's Alderney Dairy Company.
 ElmerCooper H. Oliphant.
 HarmersvilleJ. Q. Davis.
 MonroevilleWilson Dairy Company.
 SalemAbbott's Alderney Dairy Company.
 SalemBridgeton Condensed Milk Company.
 SalemJ. Q. Davis.
 SharptownWm. Richman.
 WoodstownSupplee's Alderney Dairy Company.

Somerset County—

BernardsvilleHeman Childs.
 FlagtownJ. Max.
 LamingtonLuther Childs.
 LyonsLuther Childs.
 MontgomeryFarmers' Exchange Company.
 NeshanicHalprin Brothers.
 North Branch.....Geo. W. Field.
 PottersvilleA. C. Durling.
 RaritanWm. Arkenburg.
 SkillmanJ. B. Longshore.

Sussex County—

AndoverFulboam Dairy Company.
 AugustaT. O. Smith's Sons.
 BalevilleAlex. Campbell Milk Company.
 BeemervilleBorden's Condensed Milk Company.
 BranchvilleBorden's Condensed Milk Company.
 CloveS. C. Hayne.
 GlenwoodD. Bailey.
 HamburgDiamond Dairy Company.
 HuntsvilleBorden's Condensed Milk Company.
 LafayetteNewark Milk and Cream Company.
 McAfeeH. S. Chardavoynne.
 MonroeWilliam Provost.
 MonroeR. F. Stevens Company.
 MulfordsBeakes Dairy Company.
 NewtonDairy Products Company.
 PapakatingBorden's Condensed Milk Company.
 Price's Crossing.....Orange Co. Milk Association.
 QuarryvilleHorton-Lewis Cream Company.
 Roy's Crossing.....Fulboam Dairy Company.
 SpartaGeorge Ihnken.
 StillwaterMcDermott Dairy Company.
 StockholmGeorge Ihnken.
 SussexBeakes Dairy Company.
 SussexHorton-Lewis Cream Company.
 SussexDennis Reardon.
 SwartswoodGeorge Lodes.
 TranquilityMutual Milk and Cream Company.
 VernonReid Ice Cream Company.
 WarbasseHenry Tepperwin.
 Woodruff's Gap.....H. S. Chardavoynne.

Warren County—

AllamuchyAlex. Campbell Milk Company.
 BlairstownEmpire State Dairy Company.
 BridgevilleH. A. Rausch.
 BroadwayGeorge L. Savidge.
 ChangewaterR. F. Stevens Company.
 DelawareF. W. Jennsen.
 Great Meadows.....Sandford Dairy Company.
 HackettstownAlex. Campbell Milk Company.
 HainesburgIra C. Hunter.
 HixonC. Van Herwarde.
 Long Bridge.....Mutual Milk and Cream Company.
 MarksboroMutual Milk and Cream Company.
 VailsKeystone Dairy Company.

The creameries in the following list are still unlicensed, having failed to meet the requirements of the State Board of Health:

ALLENHURST, Monmouth county. (Grenell & Schenck.) This ice cream establishment is located in the basement of a dwelling house. The dwelling portion of the building, however, was unoccupied at the time of inspection. The conditions found were fair, and, unlike most of the other unlicensed creameries, a steam outfit for cleansing cans was provided. A reinspection, however, will be necessary to observe the methods in handling the raw and finished materials before a license will be recommended.

ASBURY PARK, Monmouth county. (W. J. Cooper.) This creamery is fairly well conducted, and a careful handling of the product was noticed. A license was refused this creamery, however, because it is connected with the dwelling house.

ASBURY PARK, Monmouth county. (W. J. Conce.) This creamery has an indirect communication with a dwelling, but when this is closed up, according to instructions given, a license will be recommended.

ASBURY PARK, Monmouth county. (Lane & Reynolds.) Application was received from this firm for a license for the operation of a creamery, but an inspection showed that it did not meet the requirements of the act, and they were so informed. Subsequently they informed us that they would construct a new building for the purpose of manufacturing ice cream, and in accordance therewith an inspection of the premises was made. A license will be recommended for this firm.

ASBURY PARK, Monmouth county. (T. J. Winckler.) This creamery is located in the basement, over which there are store and lodge rooms. The raw materials and the finished product are carefully handled in this place, yet the location, being as it is in the basement, gives poor ventilation, and on account of imperfect sewerage disposal this renders the air of the room far from pure. A license will not be recommended for this place until some changes have been made.

ATLANTIC CITY, Atlantic county. (Abbott's Alderney Dairy Company.) This creamery is located on the corner of Memorial and Hann avenues, Atlantic City. It is constructed and equipped in a manner calculated to insure the milk against all contamination, except that part of the building is used by the manager and his family as dwelling apartments. This is in direct violation of section one of the Creamery act, and the owners were notified by the Board to cease using any part of the building for dwelling purposes. They asked, however, for an extension of time extending over their busy season, which the Board granted. On October 31st the creamery was found to be operated in conformity with the law, and a license was accordingly recommended.

ATLANTIC CITY, Atlantic county. (Samuel Wells, 16 South New Jersey avenue.) During the summer season about 1,200 quarts of milk are handled daily in this creamery. The building is not constructed in conformity with the provisions of the Creamery act, nor is the proper equipment installed to protect the milk against contamination. This creamery was included in the order of the Board giving an extension of time to Atlantic City creameries, in order that their business might not be seriously affected during the busy summer season. The owner has been notified that considerable improvements will be necessary before a license can be issued to him.

ATLANTIC CITY, Atlantic county. (Edward F. Price, 129 North Pennsylvania avenue.) About 2,000 quarts of milk are handled daily in this creamery. A number of improvements were suggested to the owner as necessary before a license could be recommended, among which were the installation of screens for the protection of the milk against flies; proper covers for milk vats; thorough cleansing of the interior surfaces and repainting, better ventilation, &c. Some of these suggestions were complied with, but a license cannot be recommended until more perfect conditions prevail in this creamery.

ATLANTIC CITY, Atlantic county. (Caleb E. Shreve, 915 Pacific avenue.) A license was refused this creamery because a part of the building was occupied

in the summer time as a dwelling. The owner having rented his residence for the summer season, fitted rooms in the creamery building for dwelling purposes. This creamery was included among the others in which a limited time was given to vacate the living rooms. Improvements are being made in this establishment, which, when completed, will render it in a proper condition to be licensed.

ATLANTIC CITY, Atlantic county. (Wilson Dairy Company, S South New York avenue.) About 2,500 quarts of milk are handled daily in this creamery. It is located in part of two dwellings, although the rooms are not intimately connected with the creamery. The owner has been notified, however, to change the construction of the building so as to meet with the requirements of the act. He has informed the Board that negotiations are pending for a new site on which to build a creamery, and that he will be in readiness to apply for a license before the beginning of another season.

BAPTISTOWN, Hunterdon county. (Geo. H. Scott.) The owner of this creamery has been cited a number of times to appear before the Board to answer why the defects on his creamery premises are not remedied, and from time to time he has been warned that on failure to comply with the Board's requests legal action will be taken to compel an enforcement of the provisions of the act. Since his last appearance before the Board he has made some improvements on the premises, and is at present engaged in changing his drainage system. Unless sufficient progress has been made in the improvement of this creamery before another warm season opens, a recommendation will be made to the Board to enforce the penalty provision of chapter 139 of the laws of 1906.

BELLE MEAD, Somerset county. (Farmers' Exchange Company.) The Board refused to license this creamery because the conditions were becoming continually worse on account of the increased business for which the facilities in the old structure were inadequate. The Board informed the owners that a license could not be issued, and they accordingly began the erection of a new and modern plant, which is now in course of construction.

BEVANS, Sussex county. (Seiler Brothers.) After notice from this Board last year to repair the floors and drainage system in this creamery, the work was undertaken, new cement floors were constructed, the ceiling repaired, and the interior cleansed and painted. Since that time, however, the drainage system has become impaired, and the owners have been requested to construct a new system that would not become a nuisance. This work is said to have been done, and they are awaiting a reinspection from this Board.

CAMDEN, Camden county. (A. B. Butcher.) This creamery has not been licensed because the methods used in handling the materials did not meet with the approval of the inspector. The owner was notified that the practice of handling ice cream with bare hands, and otherwise subjecting it to defilement, must be discontinued, and also that better facilities for washing cans and utensils must be installed. A license cannot be recommended until after further investigation.

CAMDEN, Camden county. (Francisco Ice Cream Company.) This ice cream establishment manufactures about 150,000 quarts of "Snowflake" per year. An application for a license was received and refused because there was a door opening from the kitchen into the ice cream rooms; the facilities for washing containers and utensils were defective, and the raw materials and finished product were not protected against flies. The owner was so notified, and the application is held pending a reinspection.

CAMDEN, Camden county. (Charles Pfisterer.) The license applied for to operate this creamery is withheld for the following reasons: A door opens from the kitchen into the ice cream room; the facilities for heating water for washing containers and utensils are inadequate; no protection is had against the entrance of flies into the creamery rooms; the interior surfaces of the creamery need cleansing and painting, and the toilet room needs ventilation. We are informed that part of these improvements have been completed, but a license will not be issued until the entire recommendations have been complied with.

CAMDEN, Camden county. (Frank G. Taylor.) The application for a license for this creamery was withheld because there is a direct entrance from the ice cream factory into the dwelling apartments. The owner has been notified to have the same disconnected.

CHESTER, Morris county. (Seiler Brothers.) This creamery is fairly well managed, but has never been licensed on account of its location, which is directly over a spring, and the floors have never been in a satisfactory condition. At the time of the last inspection, the inspector was informed that a new creamery was a possibility in the near future.

DAVIS STATION, Monmouth county. (Wills-Jones Dairy Company.) This is a new creamery for the receiving and preparation of milk for the Philadelphia market. Several inspections have been made; the structure is now ready to be licensed, and a recommendation for said license will be made.

ELMER, Salem county. (Isaac B. Reeve.) After a number of inspections this creamery is ready for a license. There have been new cement floors placed in the creamery, and covers are now installed for the protection of the milk while contained in vats.

FRANLIN PARK, Middlesex county. (Samuel Adler.) When a license for this creamery was first applied for, the inspection showed that the building was unsuitable for the business and that the sanitary conditions of the whole premises were bad. Several inspections of the place were necessary before sufficient improvements were completed to warrant the recommendation of a license. The last inspection showed that the building had been reconstructed with a cement floor, better washing facilities and better methods in handling the product, and a license will therefore be recommended.

GREAT NOTCH, Essex county. (J. G. Sprattler.) The owner of this creamery began its operation in a building that did not conform to the requirements of the law. He was so informed, and is now engaged in building a new structure in compliance with the act.

HACKENSACK, Bergen county. (J. Stickel.) This is an ice cream factory, in which it is estimated that 180,000 quarts of ice cream are manufactured per year. Neither the construction, equipment or methods in this establishment meet with the requirements of the law nor the approval of this Board. Several inspections have been made of the premises, and a written application for a license has been received from the owner. He has been notified that unless conditions are changed, no license can be granted. At the time of the last visit to this creamery, the inspector was informed that the owner had purchased a plot of ground on which a new building for manufacturing ice cream is to be erected, and the work of construction begun.

HOPE, Warren county. (H. R. Hurley.) This is a creamery for the manufacture of butter. The creamery has recently changed hands, and the inspection showed that the conditions under the new management were not satisfactory. The owner has been notified that unless he improves his methods of handling the milk and cream entrusted to his care, a license will not be issued to him.

IRVINGTON, Essex county. (Samuel Lemmerman.) The 500 quarts of milk handled daily in this creamery is sold in the city of Newark, but the conditions under which it is prepared and handled were in violation of all sanitary requirements. The owner was given a limited time in which to reconstruct his building and improve his methods. A new building, water supply and drainage system are under way, and when completed the milk handled in this creamery may be fit for human food. No license will be recommended until the conditions are satisfactorily improved.

LODI, Bergen county. (Jerry Morano.) This is an ice cream factory, and was found to be operated without any regard for cleanliness in the manufacture and handling of the product. The owner was notified that he was violating the provisions of chapter 139 of the laws of 1906, and if upon a reinspection the creamery is found to be still in operation under former conditions, a recommendation will be made to the Board to prosecute the owner.

MONTAGUE, Sussex county. (Seiler Brothers.) This creamery was opened for business during the year, but the sanitary conditions were found to be very bad, and the methods of handling milk imperfect. The owners were informed that there must be a radical change in the methods of handling milk, and that improvements must be made in the conditions in and about the creamery premises before a license could be granted. The improvements are said to have been made, and the premises will be reinspected before a license is recommended.

MORRISTOWN, Morris county. (Wilbur F. Day.) This is an ice cream establishment, and fairly well conducted, but is located in a building part of which is used as a dwelling. The owner of the building has decided to detach the ice cream manufacturing room from the dwelling, after which a license will be recommended.

NEWARK, Essex county. (Wilbur F. Day.) This is an ice cream establishment, and is located in a building part of which is used as a family dwelling. The owner has been notified that he is operating this creamery in violation of law, and therefore no license can issue. A reinspection will be made of these premises.

NEWARK, Essex county. (Antonio Devito.) No sanitary methods are in use in this creamery. The ice cream manufactured therein is not protected against defilement. The place, the apparatus and the utensils were found to be unclean, and the washing facilities very inadequate. The owner was notified that no license could be granted him until many changes had been made in the conduct of this creamery.

NEWARK, Essex county. (Grand Columbia Ice Cream Company.) The condition of the interior of this creamery was found to be unclean, and the washing facilities very inadequate. No license can be granted until radical changes have been made in the methods and in the sanitary condition of the premises.

NEWARK, Essex county. (J. Musa.) This establishment was formerly located in a room of a building occupied by the Rescue Mission of Newark. The food product manufactured in this room was subjected to all kinds of contamination, and the owner was notified to cease operations in this building at once. He has erected a new building, in which he is manufacturing ice cream, but a license has not yet been issued on account of its not being fully completed.

NEWARK, Essex county. (H. Allen Osborne.) The owner of this creamery, having failed to comply with the requirements of the law on numerous occasions, was refused a license and ordered by the Board to discontinue the handling of milk at 44 Green street. He subsequently appeared before the Board and made a very strong plea for a reconsideration of this action. The matter was referred to the chief of this division with instructions to permit the handling of milk in the creamery if improved conditions warranted it. There has been very great improvement in the methods in handling milk in this establishment, and a license will be recommended in the near future if the present conditions continue.

NEWARK, Essex county. (Geo. D. Pappas.) This ice cream establishment was located in a dwelling house which was occupied by five families of colored people, and the conditions under which the materials and finished product were handled were contrary to all sanitary rules and the requirements of the law. The owner was notified, and he immediately moved into other quarters and abandoned the business of manufacturing ice cream for the wholesale trade.

NEWARK, Essex county. (Geo. N. Phillips.) This ice cream establishment is fairly well conducted, but the washing facilities are inadequate. The operators have been notified by the owners of the building to move, and they are contemplating the erection of a modern ice cream plant. No license could be issued to them until their washing facilities had been improved.

NEWARK, Essex county. (Wm. Provost.) A very modern creamery building is in course of erection by this operator, and when completed the granting of a license will be recommended.

NEWARK, Essex county. (Verazzano Ice Cream Company.) This creamery was operated in violation of the law on account of part of the room being

occupied as a family dwelling. The washing facilities are inadequate and the whole place is in an unsanitary condition. The owners have suspended operations until the beginning of the next season, and have been notified that before manufacturing ice cream, it will be necessary for them to receive a license from the State Board of Health.

NEW BRUNSWICK, Middlesex county. (T. P. Kolb.) An inspection of these premises showed that they did not meet the requirements of the law, and the owner was so notified. On a recent inspection of the place the inspector was informed that a new building, to comply with the law in every respect, will be erected for the purpose of manufacturing ice cream before another season.

NEW BRUNSWICK, Middlesex county. (New York Ice Cream Company.) Inspection of these premises shows that they in no way comply with the requirements of the Creamery act. The sanitary conditions are not satisfactory. The washing outfit is not adequate, and the methods in vogue in handling the product do not meet the approval of this Board. The operators of this creamery have been informed of the defects herein stated, and have been warned that unless a future inspection shows more satisfactory conditions, the Board will be asked to enforce the penalty clause of chapter 139 of the laws of 1906.

NEW BRUNSWICK, Middlesex county. (M. Wolloch.) This creamery is located in a cellar, and the conditions noted at the time of inspection were unsatisfactory and the washing facilities poor. The owner was notified of the result of the inspection, and he has promised either to select a more suitable site for his business or to relinquish it altogether.

OCEAN GROVE, Monmouth county. (Wilbur E. Day.) This creamery is part of a two-story wooden structure, the upper rooms of which are used as a dwelling. The kitchen and the ice cream room are connected by two or three doors, and laundry work is done in the ice cream rooms. The floors are wood, connected with the city sewer. The owner of this creamery has been notified that he is operating in violation of the Creamery act, and reinspections will be necessary before action is taken.

PASSAIC, Passaic county. (Samuel Ellenberger.) This creamery was found to be in a very unsanitary condition, with practically no facilities for heating water for washing cans and utensils. The owner was notified that he was violating the Creamery act, and he thereupon gave up the business for the season. He states that, before the beginning of another season, he will have ample equipment for carrying on the work in a proper manner.

PASSAIC, Passaic county. (Lieberman Bros.) An inspection of this plant showed that the ice cream room was entirely unfit for the purpose of handling a food product. It was located in a close proximity to a number of dirty tenement yards, horse stable and garbage dump. The drainage was bad, the wooden floors broken, the space underneath the creamery filthy, and it was in every way totally unfit for the handling of a food product. The owner was so notified and gave up the business.

PASSAIC, Passaic county. (John D. Pappas.) This establishment is used for the manufacture of ice cream, and at the time of inspection new machinery was being installed. A reinspection will be necessary before a license can be granted.

PATERSON, Passaic county. (F. W. Bindhammer.) This creamery is located in the cellar of a dwelling house. The conditions in and surrounding the creamery room were unclean, the ventilation bad, and the washing facilities entirely inadequate. The owner of these premises was notified that he was operating his creamery in violation of the law, and since he was unable to comply with the requirements, he gave up the manufacture of ice cream for wholesale trade.

PATERSON, Passaic county. (J. V. Ernest.) This creamery is located in the basement of a business building, but is entirely unfit for the handling of ice cream in a sanitary way. Some correspondence has been had with the owner of this creamery, with a view to making changes that would comply with the law. A reinspection will be made before any definite action is taken.

PATERSON, Passaic county. (R. C. Hill.) The conditions on these premises, on first inspection, did not meet the requirements of the law, and several visits were necessary before the proper changes were made. A license will probably be recommended after the next inspection.

PATERSON, Passaic county. (C. C. Moulton.) This is a basement creamery, located in a place which is entirely unfit for carrying on the business of manufacturing ice cream. The owner has been so notified, and a reinspection will be necessary before further action is taken.

PATERSON, Passaic county. (Henry Schoenwe.) This creamery is located in the basement of a dwelling house, and the food is fairly handled. The law, however, is violated in that the creamery room is located in a building part of which is used as a dwelling.

PATERSON, Passaic county. (P. J. Hunter.) This creamery is located in a basement, which is fairly well lighted, with good floor and good sanitary surroundings. The food product seemed to be carefully handled, and the establishment could be licensed were it not for the fact that the building is used in part as a dwelling.

PATERSON, Passaic county. (Saul Weinstein.) This establishment is located in part of a dwelling house, with poor washing facilities and poor equipment throughout. The owner has discontinued the manufacture of ice cream for the season, and has been informed that if he attempts to operate next season without a license he will be prosecuted.

PLUCKEMIN, Somerset county. (James Woods.) The owner of this creamery, being unable to comply with the Board's requests, has abandoned the creamery.

TRENTON, Mercer county. (Alpha Buttermilk Dairy.) This is a creamery in which butter, buttermilk and pot cheese are made for sale at wholesale. This creamery is kept in a sanitary manner, is equipped with all proper appliances and well managed. A technical violation of the law exists in that a family occupies the third story of the building in which the creamery is located. The owner fitted up this creamery at a considerable expense before informing himself as to the provision of the law which prohibits the operation of a creamery in a building used for dwelling purposes. The owner has been before the Board, and has promised to find other suitable quarters for his business within a reasonable time, and the Board has allowed him to continue until he is able to find a suitable location.

TRENTON, Mercer county. (Smith & Wendland.) This is an ice cream factory, but the first inspection showed that the building and equipment did not meet with the requirements of the act. A reinspection will be made before a license will be recommended.

WASHINGTON, Warren county. (Geo. R. Uehlein.) This is an ice cream establishment, the owner of which is desirous of having a new creamery before next season, and he has submitted plans to this Board for its approval or rejection.

WOODBURY, Gloucester county. (G. W. Scheminant, Jr.) An application for a license was received from the owner of this creamery, but the inspection of the premises showed that the washing facilities were entirely inadequate, and the water supply was not sufficient for the purpose. The owner was notified of the defects found as a result of this inspection, and requested to correct them. If upon a reinspection the conditions warrant it, a license will be recommended.

INSPECTION OF DAIRIES.

During the year 1910, 1,478 inspections of dairy premises have been made by the officers of this division, as compared with 1,223 inspections made in the previous year. This increased work was made possible by the employment of one additional inspector in February last. The new inspector is located in the city of New Brunswick, from which point he can conveniently reach the thickly settled dairy districts in the upper and middle counties, with the minimum of cost for railroad travel.

The work during the year has been chiefly confined to the inspection of those dairy premises which produce milk for distribution in certain cities and towns having sanitary codes which require milk dealers to secure licenses before engaging in the business of selling milk, and where permits are granted only after the stipulations of these codes have been complied with. As a result of this co-operative work during the past year, an increased number of municipalities have revised their ordinances and now require that all milk sold within their territorial limits shall come from dairies which have been inspected by the officers of the State Board of Health and awarded a rating of not less than 60 per cent. of the perfect score (100 per cent.), based on our official score-card. Requests have been received from thirty municipalities, asking that their milk supplies be investigated. For the past two years periodical inspections have been made for eighteen of them. In other cases initial inspections have been made of the entire supply, or an examination has been made of certain dairies where suspicion has been aroused as to the general condition of the product by reason of complaints received from physicians or private citizens. The places for which regular inspections are now made are Asbury Park, Bordentown, Bound Brook, Burlington, Collingswood, Dover, Hopewell, Lawrenceville, Metuchen, Millburn, New Brunswick, Orange, Paterson, Perth Amboy, Princeton, Rahway, Roselle and Summit.

The following statements briefly show the results of the work done by the division in investigating the sources of the milk supply of the eighteen municipalities above referred to:

ASBURY PARK.

At the request of the local board the dairies supplying Asbury Park with milk have been annually inspected by officers of the State Board of Health. The following table gives the result of the inspections made for two years, and while the average scores of the dairies inspected are precisely alike for both years, considerable improvement has been made in the nearby dairies which ship regularly to that city. Asbury Park derives its supply, during the summer months, from the sources that are most available to meet the increased demand of the crowded season. These dairies cannot be investigated on short notice. A considerable quantity of milk and cream is shipped from the State of New York, of which no records could be obtained.

The re-inspections indicated in the table show the improvement of the nearby dairies which depend upon the Asbury Park market, and the increased rating allowed these dairies on re-inspection is typical of the results that are obtained from the permanent milk producers located within easy shipping distance from Asbury Park:

YEAR.	Number of dairies inspected.	Highest score.	Lowest score.	Average score.	Number of re-inspections of dairies below 60% on first inspection.	Average score of dairies below 60% on first inspection.	Average score of same dairies re-inspected.
1909.....	288	78.25%	35.50%	57.25%	6	54.25%	60.50%
1910.....	155	75.25%	39.00%	57.25%	18	52.00%	63.00%

BORDENTOWN.

The revised sanitary code of the city of Bordentown requires all dairies supplying milk to that municipality to reach at least 60 per cent. of perfection, as indicated on the official score-card of the State Board of Health. A number of inspections have been made of the dairies supplying this municipality, and a notable improvement was shown after the first two inspections. The lapse of time between the last two inspections, however, was undoubtedly the cause of the small falling off in the average score obtained.

The first inspection, in January, 1909, was followed by another three months later, and a special inspection of the dairies which fell below the 60 per cent. mark was made in May of that year. The last inspection was not made until September, 1910, and the inspector's report shows that the dairymen whose premises he visited had become somewhat lax in their methods on account of the impression received that no further inspections would be made. The health board of Bordentown was informed of this condition and has requested a new inspection, which will be made in the near future.

The following table shows the results of the inspections made of the dairies supplying Bordentown with milk, from January, 1909, until September, 1910:

DATE.	Number of dairies inspected.	Highest score.	Lowest score.	Average score.	Number of re-inspections of dairies below 60% on first inspection.	Average score of dairies below 60% on first inspection.	Average score of same dairies re-inspected.
Jan., 1909...	20	68.00%	49.00%	58.00%			
April, 1909...	24	72.50%	47.00%	60.75%			
Sept., 1910...	17	66.80%	50.25%	59.00%	8	56.25%	62.50%

BOUND BROOK.

Two annual inspections of the dairies supplying Bound Brook with milk have been made, and the last inspection shows a decided improvement in the sanitary condition of the premises where the milk is produced and the methods used in handling the product. Each dairyman was sent a copy of the card showing the items scored, and a copy was also sent to the local board of health for filing purposes. There are a number of dairies supplying Bound Brook which are to be highly commended. Six out of fifteen dairies were awarded ratings over 70 per cent., and only two fell below 60 per cent. The lowest of these is 52.50 per cent. The following table shows the improvement in the average score of these two inspections:

YEAR.	Number of dairies inspected.	Highest score.	Lowest score.	Average score.
1909.....	14	93.75%	29.75%	59.00%
1910.....	15	80.00%	52.50%	68.00%

BURLINGTON.

Four general inspections of the dairies supplying the city of Burlington with milk have been made, beginning in February, 1909. The local board of health of Burlington has taken a great interest in the milk supply of that city, frequently communicating with this division regarding the character of the different supplies, and has assisted our officers very materially in their work of dairy inspection in that locality. The following table shows the results of the four general and one special inspections made for the city of Burlington:

DATE.	Number of dairies inspected.	Highest score.	Lowest score.	Average score.	Number of re-inspections of dairies below 60% on first inspection.	Average score of dairies below 60% on first inspection.	Average score of same dairies re-inspected.
Feb., 1909...	23	82.50%	42.75%	55.50%			
Apr., 1909...	23	71.00%	50.75%	62.50%			
Nov., 1909...	25	80.00%	49.25%	61.25%			
Apr., 1910...	23	79.75%	44.50%	61.25%	9	54.50%	59.75%

COLLINGSWOOD.

In July, 1909, the local board of health of Collingswood made a request of the State Board of Health for an inspection of all the dairies supplying Collingswood with milk, and accordingly sixty-three dairies were inspected during July and August of that year. This included forty-six dairies supplying two creameries with milk, which it was necessary to inspect, as the mixed milk of the creameries was sent to local dealers in Collingswood. The result of that inspection showed a maximum score of 73 per cent., a minimum score of 40.25 per cent., and an average score of 55.75 per cent. The Collingswood sanitary code, adopted October 3d, 1909, after the inspection referred to, provides that no milk shall

thereafter be sold or offered for sale in the borough of Collingswood which shall be produced on dairies receiving a rating below 60 per cent., as based on the official score-card of the State Board of Health. A re-inspection of twenty-one of the dairies mentioned above showed an average score of 57 per cent., as against 53.50 per cent. on the first inspection; thus showing a marked improvement in the re-inspected dairies. To get a full idea of the improvement in these twenty-one dairies, it may be stated that the percentages shown on the last inspection grew from 1 point to 14.75 points, showing that many of them had made splendid improvement.

YEAR.	Number of dairies inspected.	Highest score.	Lowest score.	Average score.	Number of re-inspections of dairies below 60% on first inspection.	Average score of dairies below 60% on first inspection.	Average score of same dairies re-inspected.
1909.....	63	73.00%	40.25%	55.75%			
1910.....	34	70.25%	39.50%	55.75%	21	53.50%	57.00%

DOVER.

The first request for a general inspection of the dairies supplying Dover with milk was received from the secretary of the local board of health on September 1st, 1910. An inspection was accordingly made. There were forty-three dairies inspected, including the supply of one creamery. The average score was 59.50 per cent. A letter was sent to every dairyman whose score was less than 60 per cent., informing him that the inspection made of his dairy premises did not meet the requirements of the local board of health of Dover, within whose territory his milk was distributed, nor the approval of the State Board of Health, and urging him to make such improvements as would at least meet their minimum requirements. A re-inspection of these dairies will be made in the near future.

HOPEWELL.

At the request of the local board of health, annual inspections are made of the dairies supplying Hopewell with milk. A marked improvement was shown in the last inspection over that made in 1909, as is indicated in the following table:

NAME.	1909 Inspection.	1910 Inspection.
Joseph E. Lee.....	47.50%	59.25%
Wm. H. Scomp	50.25%	57.25%
David W. Sheppard.....	51.25%	65.75%
Average score.....	50.00%	61.00%

LAWRENCEVILLE.

Since 1908 eight complete inspections have been made of the dairies supplying the Lawrenceville schools with milk. Copies of the reports of these inspections have been sent to the president of the board of trustees. The following table will show the scores recorded:

NAME.	April 1908.	June 1908.	Aug. 1908.	Sept. 1908.	Dec. 1908.	March 1909.	Dec. 1909.	Nov. 1910.
Cook, Richard.....	53.50%	69.00%	64.00%	75.00%	74.00%	76.50%	78.75%	75.00%
Cranston, Wm.....	39.00%			stopped	selling	milk.		
Hendrickson, Wm.....	53.25%	58.00%	65.50%	65.00%	60.75%	66.25%	67.00%	61.25%
Hill, Thomas G.....	45.75%	58.00%	60.50%	59.75%	stopped	selling	milk.	
Phillips, Jennie.....	46.00%	50.00%	41.75%	54.25%	65.75%	62.75%	58.50%	57.50%
Pierson, Alfred.....	39.50%	47.00%	51.75%	51.75%	65.75%	70.00%	75.25%	76.00%
Scudder, Gertrude.....	46.00%	56.00%	38.50%	65.25%	67.75%	stopped	selling	milk.
Average score.....	46.00%	56.00%	57.00%	61.75%	66.75%	69.00%	70.00%	67.50%

METUCHEN.

Regular inspections have been made since 1908, by request of the local board of health of Metuchen, and the results show an increase in the average score for each year:

YEAR.	Number of dairies.	Average score.
1908.....	5	63.00%
1909.....	8	70.00%
1910.....	4	70.25%

MILLBURN TOWNSHIP.

Much interest is manifested by the citizens of Millburn township in their public milk supply, and at their request two periodical inspections have been made of the dairies supplying that municipality with milk, and one re-inspection of those dairies which fell below their requirements of sixty per cent.

YEAR.	Number of dairies inspected.	Highest score.	Lowest score.	Average score.	Number of re-inspections of dairies below 60% on first inspection.	Average score of dairies below 60% on first inspection.	Average score of same dairies re-inspected.
1909.....	40	93.00%	40.00%	64.50%	.....	.....	.....
1910.....	83	94.50%	48.50%	68.75%	3	55.00%	68.00%

NEW BRUNSWICK.

Since 1907 periodical inspections have been made of the dairies supplying the city of New Brunswick with milk. Much interest has been manifested by the local board of health of New Brunswick in the city's milk supply, and perhaps no other board has given more attention to this important article of food. During the summer of 1909 the board employed an inspector who devoted almost his entire time to the inspection of the milk supply. The extraordinary work performed during that year accounts for the very high average obtained in the inspection of 1909. As a sixty per cent. average is considered a fair one for ordinary milk, the figures shown in the table below speak volumes for the improved conditions brought about by the inspections of the dairy premises supplying this municipality with milk:

DATE.	Number of dairies inspected.	Highest score.	Lowest score.	Average score.	Remarks.
Dec., 1907.....	81	91.00%	33.00%	48.00%	First complete annual inspection.
Aug., 1908.....	41	94.00%	31.25%	52.50%	New dairies and re-inspection of dairies below 60% on first inspection.
Dec., 1908.....	40	73.25%	31.25%	54.00%	New dairies and re-inspections of dairies below 60% on former inspections.
June, 1909.....	98	96.75%	35.50%	69.75%	Second complete annual inspection.
Jan., 1910.....	30	93.75%	31.75%	64.00%	New dairies and re-inspections.
June, 1910.....	81	87.50%	41.75%	63.00%	Third complete annual inspection.

ORANGE.

The local board of health of Orange requested this Board to make an investigation of the milk supply of that municipality in November, 1908. A large part of this supply is furnished by several creameries, and it was necessary to inspect every dairy supplying them with milk in order to get a correct knowledge of the condition of the milk furnished the city of Orange. During the years 1908 and 1909, 151 dairies were inspected. Subsequently, in January, 1910, eighty-five dairies were inspected. During the month of October, 1910, we were requested to make the annual re-inspection of dairies supplying Orange with milk, and this work is now going on.

After the initial inspection in 1908, the dairies within the territorial limits of the city were looked after by the local health authorities, and they have depended upon the State Board to inspect those dairies outside of their jurisdiction, which furnish the major portion of the supply. The following table will show a great improvement in the conditions on dairy premises supplying the city of Orange with milk:

DATE.	Number of dairies inspected.	Highest score.	Lowest score.	Average score.
1908-1909.....	151	84.00%	33.00%	61.75%
Jan., 1910.....	85	79.50%	42.00%	66.25%

PATERSON.

The first general inspection of dairy premises for the city of Paterson was begun this year at the request of the local board of health. The officers of this division were ably assisted in this inspection by the food and drug inspector, Dr. William S. Green, who accompanied the inspector of this Board on his visits to each dairy inspected. The conditions found on many dairy premises supplying Paterson with milk were such as to render the milk handled thereon unfit for human food, and when the attention of the health officer of Paterson was called to it, strong measures were taken by that board in co-operation with this department to prevent the public distribution of such milk. Each dairyman was furnished a copy of the score made of his premises, and letters sent by this office were supplemented by the health officer of Paterson, and the improved conditions gained can be seen by a reference to the tables below. A number of the dairymen have retired from the business and others are engaged in improving their dairy premises. A re-inspection of all these premises during the next year will undoubtedly show much greater improvement. On the first inspection of these 220 dairies, 116 of them were below 60 per cent. At the last inspection only 25 of them were below this mark, which speaks highly for the work done toward improving the public milk supply of the city of Paterson.

DATE.	Number of dairies inspected.	Highest score.	Lowest score.	Average score.	Number of re-inspections of dairies below 60% on first inspection.	Average score of dairies below 60% on first inspection.	Average score of same dairies re-inspected.
June, 1910.	220	85.75%	33.00%	58.75%	.....	.....	.....
July, 1910...	123	73.50%	37.00%	63.50%	92	51.50%	65.50%

PRINCETON.

The table below shows improvements in the general average sanitary condition of dairies supplying the borough of Princeton with milk. These inspections were inaugurated in 1907 and regular inspections have been made each year, and reports of the same sent to the local board of health, which takes a great interest in the condition of the milk supply.

YEAR.	Number of dairies inspected.	Highest score.	Lowest score.	Average score.	Number of re-inspections of dairies below 60% on first inspection.	Average score of dairies below 60% on first inspection.	Average score of same dairies re-inspected.
1907.....	9	73.00%	20.00%	41.25%	.....	.....	.....
1908 (Apr.).	15	82.00%	34.00%	53.00%	.....	.....	.....
1908 (Nov.).	36	68.25%	33.00%	56.00%	7	55.50%	62.00%
1909.....	33	82.50%	43.50%	62.75%	.....	.....	.....
1910.....	21	79.25%	41.50%	62.75%	.....	.....	.....

RAHWAY.

The local health officer of Rahway sent a request for a complete inspection of all the dairies supplying that city with milk, the result of which was that the average score of the twelve dairies inspected was 64.75 per cent. Dr. Sell, the health officer, has been regularly inspecting the dairies in Rahway for some years, and has succeeded in securing better methods in the production of milk, as the result of this inspection shows.

ROSELLE.

The local board of health of Roselle requires a standard of sixty per cent. and a rigid examination of the dairies supplying that municipality with milk, and it is furnished by this division with the records made by our inspectors of each dairy. When any dairy falls below the requirement of sixty per cent., the milk from such dairy is excluded from sale until the conditions are improved. The following table shows the result of the inspections for the last two years:

YEAR.	Number of dairies inspected.	Highest score.	Lowest score.	Average score.	Number of re-inspections of dairies below 60% on first inspection.	Average score of dairies below 60% on first inspection.	Average score of same dairies re-inspected.
1909.....	150	79.25%	29.50%	58.75%	32	51.00%	56.50%
1910.....	92	86.50%	43.00%	64.50%	16	52.50%	56.25%
*Sept., 1910,	5	90.00%	58.50%	69.75%	.....	.....	.....

* Local dairies only.

SUMMIT.

Regular and periodical inspections are made by the officers of this division of the dairies supplying Summit with milk, and the local board of health of that city renders valuable assistance in the work. The following table shows that improvement is being made in the milk supply:

YEAR.	Number of dairies inspected.	Highest score.	Lowest score.	Average score.	Number of re-inspections of dairies below 60% on first inspection.	Average score of dairies below 60% on first inspection.	Average score of same dairies re-inspected.
1909.....	138	93.00%	35.25%	61.00%	9	52.50%	62.25%
1910.....	123	94.50%	42.00%	64.00%	47	53.75%	59.50%

In addition to the above list, which represents the annual inspections made by this division in co-operation with the local boards of health of eighteen municipalities, the following special inspections have been made by request of local health authorities:

BERNARDS TOWNSHIP.

This inspection was made at the request of the health officer of Bernards township, Somerset county. Inspections were made of ten dairies, the products of which entered largely into the supply of Bernardsville. The highest rating given to any dairy during the inspection was 95 per cent. and the lowest 42.25 per cent. The average of the ten dairies inspected was 65.50 per cent.

ENGLEWOOD CLIFFS.

Twelve inspections were made at the request of the local board of health of Englewood Cliffs. These include only two dairies, ten of the inspections being made of one dairy, which was finally abolished after legal action had been instituted by this Board. The average score on the first inspection of these dairies was 39.75 per cent. and on the subsequent inspections 34 per cent.

HIGHTSTOWN.

On complaint of the unsanitary condition of a dairy, received by the local health authorities and reported to the State Board, the premises were inspected by an officer of this division, and the score was 29.75 per cent. The local board was given a report of the conditions found, and proper steps were taken for their betterment.

HOBOKEN.

Three milk depots were inspected at the request of the local board, and a full report, showing the sanitary condition of the premises and the methods in use in handling milk, was sent to the local board.

JERSEY CITY.

Pursuant to a communication received from a civic association composed of private citizens of Jersey City, complaining of the unsanitary condition of several cow stables, and of the possible unwholesomeness of the milk produced thereon, an investigation was made of eight dairies located within the city limits. The lowest score awarded these dairies was 24.50 per cent. and the highest 59.50 per cent. The inspections revealed that the places and the methods used in handling milk were utterly unfit for the purpose. Several visits were made by the inspectors to the office of the local board of health at Jersey City, and correspondence between that office and this department took place regarding the abolishment of these dairies, the health officer of Jersey City promising that the permits issued to these dairymen would be immediately revoked, and the production of the milk on the premises thereby stopped. This method of procedure is decidedly the proper one where a municipality has an ordinance requiring milk dealers to be licensed before they are permitted to distribute milk within the city limits. But in this case the promises have not as yet resulted in any change in the situation, and in order to prevent the further sale of this milk under present conditions, it will be necessary for this Board to take legal action.

KEARNY.

Three dairy inspections were made in the town of Kearny at the request of the local board of health, the scores running from 40.25 per cent. to 82.75 per cent. Two of the dairies were found to be in a deplorable condition, many of the cows in one of them being afflicted with cow-pox and an ulcerated condition of the teats. The local board of health of Kearny was notified by the State Board of Health that the milk produced on these two dairies was unfit for human consumption, and they thereupon revoked the permits issued to the dairymen, and the sale of milk was immediately stopped.

NEWARK.

Six dairy inspections have been made at the request of the Newark board of health. These dairies score from 17 per cent. to 48.50 per cent. Two of the dairies were abolished by order of the board of health of Newark; two are making improvements, and two others are still under surveillance with the possibility that they will be required to retire from the business.

RUTHERFORD.

Two inspections were made at the request of the Rutherford board of health, which show an average rating of 71.50 per cent.

SOUTH ORANGE TOWNSHIP.

One general inspection of the dairies of South Orange township was made, the average score of which was 50.25 per cent. Several of these dairies were found to be in an unsanitary condition, and the milk produced thereon unfit for human food. Part of this milk was sold in the city of Newark, and was promptly excluded when the attention of the local board was called to it. The health officer is active in milk inspection, and future reports will no doubt show a great improvement in the milk supply of this township.

TRENTON.

Four requests for inspections of individual dairies supplying milk to the city of Trenton have been received from the local health officer of that city. These dairies were inspected, instructions were given for improvement in the conduct of the dairies, and reports were sent to the city board of health.

WASHINGTON.

The local board of health of Washington requested a general inspection of the milk supply, and twenty dairies were inspected, reports of the results being sent to the local board. The average score of the dairies inspected was 59 per cent.

WESTWOOD.

On a complaint from a physician of Westwood, six inspections were made of dairies supplying that locality with milk. A report of the inspection was sent to the local board of health. The average score was 62.75 per cent.

WOODBIDGE TOWNSHIP.

Seventeen inspections were made of dairies in Woodbridge township at the request of the local board. The average rating given these seventeen dairies was 52.50 per cent., and a report of the inspection, showing the conditions found on each dairy, was sent to the local board.

To continue the work of annually inspecting these dairies and inspecting the dairies which are found to be handling milk in an unsanitary way, is taxing our time to its very limit, and if the public milk supply of these municipalities is to be held at the high standard which the work of the Board has brought about, it is imperative that at least one more inspector be provided for the coming year. Requests for dairy inspections have already been

received from other cities, and, if this is undertaken, it must be at the risk of slighting the work which should be continued in other directions.

The city of Trenton has passed a new sanitary code during the past year containing the following section:

SECTION 8. No milk shall hereafter be sold, exposed for sale or delivered within the city of Trenton by any person, which shall have been produced in dairies having a rating below sixty per cent. as based on the score-card in use by the Board of Health of the State of New Jersey, which score-card and ratings are adopted by the board of health of the city of Trenton.

The board of health of Trenton has requested, and is very anxious to have, a complete inspection of all the sources of its milk supply, and an effort will be made during the coming year to comply with this request. There are probably between three and four hundred dairies furnishing the city of Trenton with milk, many of which, it is thought, do not at present measure up to the sanitary requirements necessary to safeguard the product.

The city of Perth Amboy has also requested the inspection of all the sources of the milk supply of that city. The letter states that the board is now issuing licenses to run for one year, and that it is especially desirable to have a record of the condition of each dairy. As a large portion of the milk used in Perth Amboy is drawn from five creameries, it will be necessary, in order to furnish a full report of the hygienic condition of the entire supply, for our inspectors to visit over 200 dairy premises. Our men are now covering the territory where these dairies are located. We are being assisted by the local authorities in the inspection of the dairies located within driving distance of the city, and the expense of conveyance to these places is borne by the local board. This board has also adopted the score-card system of inspecting dairies. The following section is from their recently revised code:

No milk shall hereafter be sold or offered for sale or exchange in the city of Perth Amboy, which shall be produced on dairies having a rating below sixty per cent. as based on the score-card adopted by the Board of Health of the State of New Jersey.

A reference to a table elsewhere in this report will show the amount of work done in the city of Paterson during the year, with the assistance of their local health officers. The permit system of Paterson enabled the local board to insist upon milk dealers handling only such milk as was produced in dairies having a

rating which met their minimum requirements; if the record furnished them by this division showed inferior condition, a permit was refused until a reinspection of the premises could be made. It is the intention of the health authorities of Paterson to eliminate all bad dairies in this way, and thus to raise the hygienic standard of this milk supply. The action of the board in passing the following resolution will be very effective in any future work we may be called upon to do in relation to the milk supply of the city of Paterson:

"When the State Board of Health shall notify this board that a dairy whose products are sold in this city has an official score-card record below the State standard of sixty per cent., the proper officers of this board shall serve notice in writing upon the proprietor of such dairy to the effect that, if after the expiration of a reasonable length of time (the time to be stated in the notice), the defects of said dairy be not removed to the extent that the score rating be raised to said standard of sixty per cent., dairy products from said dairy will be excluded from sale or delivery in this city.

"That the State dairy score-card and creamery score-card as in use by the State Board of Health is hereby adopted by this board."

Any local board of health having reason to doubt the wholesomeness of the milk produced on certain dairy premises, may apply to the State Board for an investigation of these places. In response to such requests, received from time to time during the year, work of this kind has been done for the local boards of Bernardsville, Englewood Cliffs, Hightstown, Hoboken, Kearny, Newark, Rutherford, South Orange, Trenton, Washington, Westwood and Woodbridge.

A case in point occurred in the borough of Englewood Cliffs, Bergen county, where the local health authorities, having been unable to prevent the sale of milk from a dairy located within the limits of its jurisdiction, requested the State Board to investigate the evil and remedy it if possible. This dairy constituted a nuisance, not only on account of the offensive odors and polluted drainage caused by the large accumulation of manure and other filth on the premises, but also—which was even more serious—by reason of the lax and dirty methods of handling the milk.

After investigation, a notice was served on the dairyman to improve the conditions, but as he utterly failed to fulfill the requirements, the State Board directed that he be prosecuted. Suit was accordingly entered, and the case was tried before the district court of the first judicial district of the county of Bergen, and a conviction secured. The court imposed a fine of \$25 and costs on the de-

fendant. After the imposition of the fine, the dairyman sold his cows and is now receiving his entire supply in sealed bottles from a creamery in New York state.

It is gratifying to report that most of the local boards of health take a lively interest in their public milk supplies, and frequently solicit the aid of the State Board to prevent the distribution of impure milk within their limits. It is only by such aid that they are enabled to ascertain the exact sanitary conditions under which milk is produced and handled on those dairy premises which are located outside of their territorial limits. It is an almost perfect system of milk inspection when State authorities furnish the evidence of dairy conditions and local boards require dealers to secure permits before engaging in the business of selling milk within their jurisdictions. By this manner a dealer reported by the State officers to be handling an unsafe milk can be reached, and the sale of his product prohibited by the local board simply revoking his permit. There have been instances during the year, however, when local boards failed to act under the power given them by their own ordinances, even when the unsanitary dairies were located within their own limits. A notable example of this dereliction is cited elsewhere in this report. In view of this fact, a law should be passed making it mandatory upon local boards of health to revoke permits once given to milk dealers, where the State Board of Health has reported conditions on dairy premises which in its judgment render the milk unsafe for human consumption.

CERTIFIED MILK.

The production and sale of certified milk is increasing in New Jersey, and besides the dairies already producing this superior grade of milk for sale in this State, others are arranging their plants preparatory to engaging in the business. Certified milk, properly handled, is an ideal milk, and, on account of the high price paid by the consumer and his obvious confidence in the purity of the product, the dairies producing this milk have received much attention from the officers of this division during the past year.

During the year one of the dairies producing certified milk in New Jersey retired from the business for the reason, it is said, that the strict requirements of the Medical Milk Commission could

not be met. There are now eight dairies, two of which are located in the vicinity of Elmira, New York, and the remaining six in New Jersey, distributing about 10,000 quarts of certified milk daily in this State. These dairies, and the methods employed in them, have all been carefully investigated during the year, and, with two exceptions, each medical commission, in response to a request from the State Board of Health, has returned a list of questions to this office, fully answered, showing the grounds upon which said milk is certified to by such commission. A similar list of questions, bearing upon the methods in vogue at the dairy, were sent to each dairyman, and, with two exceptions, have been returned satisfactorily answered. The medical milk commissions, of which the Secretary of the Board is an *ex-officio* member, frequently examine the milk and all the details of its production before certifying to the product, and when such a commission finds upon inspection that a dairy farm with its herd, stable, dairy buildings and general surroundings has been put in proper condition for the production of high grade milk, and is managed according to the suggestions of the commission, chemical and bacteriological examinations of the milk produced on the farm are ordered. If it is found by the experts appointed by the commission that the dairyman has attained the standards set, the milk commission will undertake to certify that the milk from such an approved dairy meets its requirements. All of these commissions require that the bottles, after being filled, shall be labeled across the cap, bearing the words "certified milk" with the name of the dairyman, together with the date of milking. This insures the customer against any danger of receiving milk that is not fresh. The following form contains a list of the questions sent to each medical milk commission, and returned to this office, fully answered, by six of them:

BOARD OF HEALTH OF THE STATE OF NEW JERSEY, Division of Creameries and Dairies.

Production and Sale of "Certified Milk" in the State of New Jersey.

1. The name of the Medical Milk Commission.
2. Dates of organization and incorporation.
3. Names and addresses of officers and members.
4. Address of the secretary.
5. What medical society appointed or endorses your commission?
6. Name and address of the chemist appointed by your commission.
7. Name and address of the bacteriologist appointed by your commission.

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8. Name and address of the visiting physician appointed by your commission.
9. Name and address of the attending veterinarian appointed by your commission.
10. Number and location of dairies producing certified milk under your supervision.
11. Names and post-office addresses of the owners of these dairies.
12. What method of personal supervision is followed by the members of your commission, and how often do individual members inspect dairies under its control.
13. Minimum number of visits to dairies per month required of the visiting physician.
14. Minimum number of milk examinations per month required of the chemist and bacteriologist.
15. What provision is made for the isolation of sick employes found on the dairy premises?
16. Are the dairy cattle tuberculinized?
17. What disposition is made of animals which react?
18. What are the requirements of your commission for certification?

Please file with this office a copy of the agreement between your commission and the dairymen whose milk you certify.

The following is the form mentioned above which was sent to the certified milk producers, and which, with one exception, was returned satisfactorily answered:

BOARD OF HEALTH OF THE STATE OF NEW JERSEY,
Division of Creameries and Dairies.

Production and Sale of "Certified Milk" in the State of New Jersey.

1. Name and location of dairy or dairies owned or conducted by you, your firm or corporation.
2. Do you produce or distribute milk which is sold as certified milk?
3. Name of the Medical Milk Commission certifying to the milk produced or sold by you, your firm or corporation.
4. Names and post-office addresses of the medical milk commissioners certifying to this milk.
5. Are you under agreement or contract with the above-named Medical Milk Commission to produce certified milk?
6. What is the date and duration of such agreement?
7. The number of quarts of certified milk produced daily on your dairy or dairies.
8. Names and post-office addresses of the chemist, bacteriologist, visiting physician and attending veterinarian appointed by the commission.
9. Is the milk regularly analyzed and how often?
10. Is the milk regularly examined by a bacteriologist and how often?
11. Are the employes regularly inspected by a physician and how often?
12. Are the animals regularly inspected by a veterinarian and how often?
13. Are the dairy cattle regularly tuberculinized and how often are they re-tested?
14. What disposition is made of the animals which react to the tuberculin test?
15. Is the certified milk produced or sold as such by you, your firm or corporation marked with the date and name of the Medical Milk Commission certifying to the milk?
16. What is the retail price of the certified milk thus produced?

Please file with this office a copy of the agreement between the Medical Milk Commission and yourself, your firm or corporation.

A tabulation is given herewith showing the dairies distributing certified milk in New Jersey, with their location, names of operators, and the medical milk commissions certifying to each dairy:

NAME OF DAIRY.	P. O. ADDRESS.	MEDICAL MILK COMMISSION.
Fairfield Dairy Company.	Caldwell, Essex county, N. J.....	Essex County Medical Milk Commission. Floy McEwen, M.D., Sec'y, Newark, N. J.
Haddon Farms.....	Haddonfield, Camden county, N. J.....	Milk Commission of the Philadelphia Pediatric Society. Samuel McC. Hamill, M.D., Philadelphia, Pa.
Noe, Farm, Incorporated.	Madison, Morris county, N. J.....	Union County Medical Milk Commission. No. 3. D. E. English, M. D., Sec'y. Summit, N. J.
Purity Milk Farms.....	Pennington, Mercer county, N. J.....	Kings County Medical Milk Commission. Walter D. Ludlum, M.D., Sec'y, Brooklyn, N. Y.
Raritan Valley Farms..	Raritan, Somerset county, N. J.....	Union County Medical Milk Commission. No. 2. Arthur Stern, M. D., Sec'y. Elizabeth, N. J.
Walker-Gordon Farms..	Plainsboro, Middlesex county, N. J.....	Milk Commission of the Walker-Gordon Laboratory Company. Linnaeus E. LaFetra, M. D., Sec'y. New York City.
Quarry Farm.....	Elmira, New York.....	Milk Commission of the Elmira Academy of Medicine. Ross G. Loop, M.D., Sec'y. Elmira, N. Y.
Riverside Farms.....	Owego, New York.....	Milk Commission of the Medical Society of the County of Kings. Walter D. Ludlum, M.D., Sec'y, Brooklyn, N. Y.

Report on the State Laboratory of Hygiene.

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

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

GENTLEMEN—I have the honor to submit the following report on the operation of the Laboratory of Hygiene for the year ending October 31st, 1910.

The work of the laboratory falls into three classes. The examination of specimens sent by physicians from suspected cases of communicable diseases, and certain other investigations relating to diseases of parasitic origin, the analysis of samples of food and drugs, and the analysis of samples of water and sewage. This report deals only with the bacteriological work, the other operations of the laboratory being described in the reports of the Chief of the Division of Food and Drugs and of the Chief of the Division of Sewage and Water Supplies.

The primary purpose of examination of specimens from suspected cases of communicable diseases is the *protection of well persons by enabling physicians and boards of health to recognize sources of infection*, and thereby placing them in a position to intelligently combat the distribution of infectious material. Many physicians overlook this aspect of the laboratory work, concerning themselves chiefly with the welfare of their patients, and relying upon the activity of the local boards of health to prevent the spread of communicable diseases. While the control of communicable diseases is one of the principal functions of the local boards of health, the duty of every physician to co-operate with local boards and render them any assistance in his power cannot be too strongly insisted upon. It is upon the physician that the family, in which a case of communicable disease occurs, relies for those careful and explicit instructions regarding the care of the patient which, in

most municipalities, they can obtain from no other source, and the observance of which are so vital in controlling the spread of disease. As our knowledge of the spread of communicable diseases increases it becomes more and more evident that *contact*, more or less direct, between the patient and well persons is the most common and hence most important method of transmitting infection. The proper care of the patient and of his immediate surroundings is, therefore, the most important means of limiting the spread of infection. The physician is the person to see to it that this care is properly and continuously exercised, and for this reason the State Board of Health provides him with facilities, in the case of certain diseases, for ascertaining whether or not his patient is infectious, and, if so, when he ceases to distribute infectious material.

During the last few years the importance of so-called "carrier" cases, well persons who are infected with disease-producing organisms, and are, therefore, likely to infect others, has been recognized in the spread of communicable diseases. There can be no doubt that a large number of cases of diphtheria contract the disease by coming in more or less intimate contact with diphtheria carriers. It has been shown repeatedly that well persons may harbor the diphtheria bacillus in their throats and noses for months, or even years, and that these bacteria ordinarily remain virulent. A number of cases of typhoid fever are on record which can be traced directly to carriers of the typhoid bacillus, and there is ample evidence to show that persons who have had typhoid fever may eliminate typhoid bacilli in their excretions either continuously or intermittently for long periods of time, and it has already been shown that cholera may be spread in the same way.

It therefore becomes important to recognize carrier cases in order that proper precautions may be taken by physicians and local boards of health to keep them from becoming centers of infection, and the examination of specimens from well persons who may be suspected of being carriers of one or the other of these diseases becomes an important part of the work which the laboratory does in protection of the public health.

With the diagnosis of diseases which are not known to be transmissible the State Board of Health has no concern. This is a matter having no direct bearing on the public health, and is properly left to the physician or to the pathologist whom the physician employs.

It will, therefore, be seen that the legitimate functions of a public diagnostic laboratory fall within rather narrow limits, being practically confined to the examination of specimens from suspected cases of those communicable diseases for the diagnosis of which laboratory methods have been perfected to such an extent that accurate results may be promptly obtained. Within this limited sphere the usefulness of the laboratory is unquestioned, and it is being more and more appreciated by physicians and by the general public. This is well shown by the increase in the number of specimens which are received for examination each year. Just how great this increase is can be seen by an inspection of the following table, which shows the number and kind of specimens examined each year since the laboratory was founded:

TABLE A—SHOWING THE NUMBER OF SPECIMENS OF EACH KIND EXAMINED SINCE THE LABORATORY WAS ORGANIZED.

	1896 and 1897	1898	1899	1900	1901	1902	1903
Diphtheria.....	627	600	577	974	1,864	1,487	2,000
Tuberculosis.....	238	516	766	892	1,211	1,467	1,858
Typhoid fever.....	27	175	339	481	739	884	1,333
Malaria.....		4	*	53	113	196	151
Miscellaneous.....	7	18	*	30	28	55	132
Totals.....	914	1,313	1,682	2,380	3,955	4,080	5,559

	1904	1905	1906	1907	1908	1909	1910
Diphtheria.....	2,949	2,896	3,277	3,348	6,090	14,688	8,284
Tuberculosis.....	2,344	2,691	2,948	2,402	3,637	4,208	4,520
Typhoid fever.....	1,272	1,263	1,556	1,975	2,543	2,261	3,023
Malaria.....	98	109	126	149	178	197	244
Miscellaneous.....	67	84	126	119	170	240	398
Totals.....	6,730	7,048	8,033	8,993	12,613	21,594	16,424

* The number of these specimens have not been recorded.

This table shows that by far the greatest proportional increase in the number of specimens has occurred in the last three years, and that this increase is due to the examination of a much larger number of diphtheria specimens. And this larger number of diphtheria specimens was caused by systematic efforts on the part of the State Board of Health and certain local boards to detect carriers. Carriers, being well persons who present no appearances calculated to cause them to be suspected of harboring diphtheria bacilli, can only be discovered by examining large groups of indi-

viduals. This has been done in the State Village for Epileptics at Skillman, at the Rahway Reformatory, and at certain public schools in Asbury Park, Salem, Ocean City and other places. And it is safe to assume that much use will be made of the laboratory in this direction in the future, so that a continued increase in the number of diphtheria specimens is to be expected.

The growth of the laboratory work as evidenced by the examinations other than diphtheria is also large enough to be very gratifying, because it is apparent that this growth is due to increased appreciation on the part of physicians of the assistance which the laboratory renders to them in the diagnosis of certain communicable diseases.

The table also shows that the work of the laboratory is almost exclusively of a routine nature. In the past every effort has been made to perfect this routine so that our work will be as accurate as possible and results will be reached as promptly as is consistent with good work. These efforts will, of course, continue, but the laboratory and the state of sanitary science has now reached a point where it will be very profitable to regularly perform certain other lines of work which we have been unable to undertake heretofore because of lack of necessary funds and equipment. The equipment of the laboratory is now ample to enable us to do the routine work with accuracy and celerity, but we lack certain facilities for engaging in important investigations which are frequently requested but which we cannot undertake as matters of routine until provision is made for satisfactorily performing them. We are still unprovided with a room in which we may keep animals for experimental purposes. The writer has recommended in each of his annual reports for the last seven years that such a room be obtained, but so far without results. The need for an animal room increases every year. Could we make systematic tests for virulence of diphtheria cultures, the public would be spared much inconvenience in the matter of quarantine restrictions. Our tests for rabies, because of lack of quarters for animals, are carried on under considerable difficulties. It is not feasible, without an animal room, to undertake routine examinations for glanders, although these are frequently requested by veterinarians; and many other investigations which we could properly and profitably make, had we the necessary animals properly housed, have to be refused. It is earnestly hoped that a recently proposed plan of enlarging the laboratory will soon assume tangible shape.

The laboratory is greatly in need of increased office room. At the present time our office is so crowded that we cannot house the clerical force really needed to transact business and properly keep our records, and our work suffers, not because we have no funds available to employ an extra clerk but because we have no place where such a clerk can work.

We are also in need of a room which can be devoted to special investigations. Our working space is entirely used for the apparatus and equipment necessary for routine work. In order that we may co-operate in a satisfactory manner with the Division of Medical and Sanitary Inspection in epidemiological studies, involving the detection of typhoid carriers, an additional bacteriologist should be employed. At the present time only one besides the director is available, and his time is entirely taken up by routine work. The employment of an assistant would also enable us to comply with numerous requests for bacterial milk analyses.

During the past year the postal regulations governing the transmissal of specimens from communicable diseases have been so altered that it has been necessary to change the style of the mailing cases used for sending specimens from suspected cases of diphtheria and tuberculosis. The diphtheria mailing case now consists of a pasteboard outer can with screw cover, within which is a tin case, also with screw cover, holding a sterile swab contained in a glass tube. The case for transmissal of specimens of sputum consists likewise of a pasteboard outer case with screw cover, in which is a screw-topped tin case holding a quarter-ounce vial in which the sputum is placed. The use of this style of case, which is more costly than the single case previously employed, adds considerably to the cost of maintaining the laboratory.

These mailing cases, together with those for sending specimens from suspected cases of typhoid fever, malaria and gonorrhoea, are kept in stock in 478 conveniently located repositories in the State. For the convenience of physicians a list of these repositories has been placed at the end of this report. Physicians are requested to report promptly to this office if they are unable at any time to obtain mailing cases at any of the above-mentioned localities. We endeavor to keep a full stock of mailing cases at each one of these localities, but it occasionally happens, because of unusually large demands, the supply at some of them becomes temporarily exhausted.

Attention is again directed to the improper and dangerous prac-

tice, indulged in by some physicians, of sending specimens through the mails in containers other than those furnished by the laboratory. The container provided by the physician, besides being in violation of the postal regulations, is usually not sufficiently substantial to safely withstand the rough handling in the mails, and such containers frequently reach the laboratory broken. This results in a possible infection of other mail matter and exposes those handling the mails to danger. It is to be regretted that some physicians are so careless of the rights of their neighbors as to expose them to the danger of contracting contagious diseases in this manner.

The laboratory is open for the reception of specimens from 8:00 A. M. until 4:30 P. M. except Saturdays, when it closes at noon, and Sundays and holidays, when it is open from 10 A. M. until 12 M. The last mail received at the laboratory reaches the post-office at 7:30 P. M. Specimens arriving on this and earlier mails will be examined the following morning. Specimens to be examined for diphtheria and typhoid fever are examined twice daily, at 8 A. M. and at 4 P. M. Diphtheria specimens received in the morning are planted on serum and examined at 4 P. M. In case the diphtheria bacillus is found at this examination a report is sent at once. If diphtheria bacilli are not found the culture is re-incubated and examined the following morning. Specimens received after 12 M. are not examined until the next morning. Direct examinations of swabs from diphtheria patients will be made if a request to that effect accompanies the specimen, but *this method of examination is not reliable* and this laboratory will not vouch for the accuracy of its results. We are still unable to comply with requests for virulence determinations except in special cases.

We are also still unable, except in special cases, to comply with requests for the examination of feces, urine and blood for typhoid bacilli, but it is hoped that before the end of the coming year additional facilities will be provided which will enable us to make these examinations regularly for all who desire them. Examinations of feces and urine are of considerable value in detecting carrier cases, and typhoid bacilli can frequently be detected in the blood before a positive Widal reaction can be obtained.

During the year 398 specimens have been examined which have been classified as "Miscellaneous." The following table shows in detail the character of these examinations and the number of each kind:

TABLE B.—SHOWING THE NUMBER AND KINDS OF MISCELLANEOUS SPECIMENS EXAMINED DURING THE YEAR.

	Positive.	Negative.	Total.
Gonorrhoea	133	160	293
Rabies	29	14	43
B. typhosus, urine.....	...	19	19
B. typhosus, feces.....	...	16	16
Anthrax	5	5	10
B. tuberculosis, urine.....	2	3	5
B. tuberculosis, feces.....	...	1	1
Pus for tuberculosis.....	...	5	5
Glanders .....	...	2	2
Treponema pallidum.....	...	2	2
Tetanus	1	...	1
Pneumococcus .....	...	1	1
Totals	170	228	398

It will be seen by inspecting this table that most of these examinations were made of specimens from suspected cases of gonorrhoea. These examinations call for no special comment except that their number is rapidly increasing.

During the year forty-three specimens were examined for rabies, an increase of fifteen over the previous year. *Rabies is increasing rapidly in this State*, and it is to be expected that the number of these specimens will increase further in years to come. It seems necessary to again direct the attention of physicians to the fact that the safest, and, in the end, the most rapid method of ascertaining whether or not an animal really has rabies, is to confine it securely, keep it under competent veterinary observation and let it die from the disease. Then if any doubt arises as to the diagnosis the head of the animal should be sent to the laboratory. In animals dying with the disease negri bodies can always be found in the hippocampus major in considerable numbers, and a laboratory diagnosis can be quickly made. If animals are killed early in the disease these bodies may be so few in number or so localized as to escape detection, and it is then necessary to resort to animal inoculation and wait two or three weeks or even longer until the animal dies of the disease.

More care should be exercised by those who send the heads of rabid animals to the laboratory. The animal should be killed in such a manner that the brain is not injured. The head should be removed immediately after death and placed in a *tight* container, which, in warm weather, should be surrounded by a liberal quantity of ice and should be shipped to the laboratory by prepaid express or sent by messenger. Every precaution should be taken to

TABLE—LIST OF REPOSITORIES FOR MAILING CASES.

Allentown	G. M. Carslake, Druggist.
Alloway	W. L. Ewen, Druggist.
Andover	J. C. Clark, Physician.
Anglesea	Margaret Mace, Physician.
Arlington	W. E. Doremus, Physician.
"	A. A. Strasser, Physician.
"	J. B. Thompson, Druggist.
Asbury Park	Board of Health.
Atco	J. I. Hiverder, Physician.
Atlantic City	City Hospital.
"	Cuscaden, Inc., Druggists.
"	H. H. Deakyne, Druggists.
"	Board of Health.
"	C. H. Jackson, Druggist.
"	Lawrence's Pharmacy.
"	Municipal Hospital.
"	Wm. F. Ridgway, Druggist.
Atlantic Highlands	Board of Health.
"	Geo. D. Fay, Physician.
Audubon	Audubon Drug Company.
"	I. G. Seiber, Physician.
Barnegat	F. N. Bunnell, Physician.
Bay Head	W. H. Katzenback, Physician.
Bayonne	J. A. Balinky & Son, Druggists.
"	Board of Health.
"	J. H. Burchell, Druggist.
"	Landell's Drug Store.
"	Strauss Bros., Druggists.
"	D. I. Nalitt, Physician.
Bedminster	J. B. Beekman, Physician.
Belmar	Board of Health.
"	Seaside Pharmacy.
Belleville	A. H. Osborne, Druggist.
Belvidere	Faust Bros., Druggists.
Berlin	Board of Health.
"	Frank Stern, Physician.
Bernardsville	H. Hemmendinger, Druggist.
"	J. Meigh, Physician.
Beverly	E. S. Adams, Physician.
"	Warren Street Pharmacy.
Blairstown	Wm. C. Allen, Physician.
Bloomfield	Wm. W. Kwylar, Druggist.
"	G. M. Wood, Druggist.
Bloomsbury	James A. Betts, Physician.
"	E. L. Reigle, Physician.
Boonton	A. E. Carpenter, Physician.
"	John L. Taylor, Physician.
"	Cuthbert Wigg, Physician.
Bordentown	Deacon's Drug Store.
"	S. W. Fitzgerald, Druggist.
Bound Brook	Fetterly & Loree, Druggists.
"	Lloyd & McNabb, Druggists.
Bradley Beach	W. K. Bradner, Physician.
Branchville	J. C. Price, Physician.
Bridgeton	Chas. T. Dare & Son, Druggists.
"	Blew & Blew, Druggists.
"	Albert S. Elwell, Druggist.
"	John H. Moore, Physician.

Bridgeton	Board of Health.
Burlington	Harold B. Allen, Druggist.
"	John W. Davis, Druggist.
"	H. B. Weaver, Druggist.
Butler	S. E. Estler, Druggist.
Caldwell	Edwin E. Bond, Physician.
"	Wm. N. Hasler, Druggist.
"	Essex County Penitentiary.
Camden	Barrett Bros., Druggists.
"	Board of Health.
"	George M. Beringer, Druggist.
"	Camden City Dispensary.
"	Wm. A. Chamberlain, Druggist.
"	E. W. Collins, Druggist.
"	Cooper Hospital.
"	Henry Curtis, Druggist.
"	R. I. Haines, Druggist.
"	Oscar N. Hinski, Druggist.
"	E. G. Hummel, Physician.
"	John W. Kohlman, Druggist.
"	Wilson J. Leib, Druggist.
"	George J. Pechin, Druggist.
"	William P. Weiser, Druggist.
"	Lewis H. Wilson, Druggist.
Cape May	V. M. D. Marcy & Co., Druggists.
"	James Mecray, M.D., Druggist.
Cape May Court House	Willets Corson, Druggist.
Carlstadt	Albert Niederer, Druggist.
Carteret	Reason's Pharmacy.
Cassville	Otto C. Thompson, Physician.
Cedarville	Walter P. Glendon, Physician.
Chatham	Weber & Co., Druggists.
"	W. J. Wolfe, Physician.
Chester	Harris Day, Physician.
"	Alonzo P. Green, Druggist.
"	W. A. Green, Physician.
Clayton	C. F. Fisler, Physician.
Clifton	Clifton Pharmacy.
"	Lester F. Meloney, Physician.
Clinton	Wm. H. Baker, Druggist.
Closter	Chas. A. Richardson, Physician.
Collingswood	William Chamberlain, Druggist.
"	Edward B. Rogers, Physician.
Columbus	J. E. Dubell, Physician.
Cranbury	B. F. Van Dyke, Physician.
Cranford	John Marien, Druggist.
"	John R. Reay, Druggist.
Crosswicks	Charles L. Dey, Physician.
Daretown	George Fitch, Physician.
Dayton	Edgar Carroll, Physician.
Delanco	H. K. Weiler, Physician.
Dennisville	Eugene Way, Physician.
Dover	Killgore & White, Druggists.
Dumont	J. E. Pratt, Physician.
Dunellen	Edward Pennock, Druggist.
East Orange	Wm. T. Bowman, H.O.
"	J. G. Boytine, Druggist.
"	Frank Fieger, Druggist.
"	Gillbard's Drug Store.
"	Grove Street Pharmacy.

East Orange	T. G. Schriver, Druggist.
Eatontown	H. T. Partree, Physician.
Edgewater	Board of Health.
"	Paul Goldberg, Druggist.
"	S. T. Hubbard, Physician.
Egg Harbor City	Board of Health.
Elizabeth	B. F. Davis, Druggist.
"	General Hospital.
"	Richard Frohwein, Druggist.
"	C. W. Gorsuch, Druggist.
"	Samuel M. Jacobson, Druggist.
"	Walter I. McCann, Druggist.
"	Clover & Drake, Druggists.
"	Elias W. Pierson, Druggist.
"	Wm. H. Riebel, Druggist.
"	Board of Health.
"	Wm. R. Richart, Druggist.
"	Harry P. Reebel, Druggist.
"	Martin & Riebel, Druggists.
"	Sampson's Pharmacy.
"	Henry J. Schmidt, Druggist.
"	Harry Schmidt, Druggist.
"	St. Elizabeth's Hospital.
"	F. C. Strutzlen, Druggist.
Elmer	Board of Health.
Englewood	Lewis W. Brown, Druggist.
"	R. Rockefeller Company, Druggists.
"	Wm. E. Schneider, Druggist.
Englishtown	Wm. E. Anderson, Physician.
Fairton	Harry E. Lore, Physician.
Far Hills	F. L. Field, Physician.
Farmingdale	V. Bacon, Druggist.
"	W. R. Kinmouth, Physician.
Flemington	Franklin C. Burk.
Fort Lee	Carl L. Richter, Druggist.
"	Max Wyler, Physician.
Franklin Furnace	Chas. M. Dunning, Physician.
Freehold	W. B. Duryee, Druggist.
"	Joseph H. Rossell, Druggist.
Frenchtown	F. H. Decker, Physician.
Garfield	Bradley A. Reynolds, Druggist.
German Valley	S. G. Lee, Physician.
"	William James, Physician.
Glassboro	F. G. Thoman, Druggist.
Gloucester	Atlantic Pharmacy.
Grantwood	M. P. Brewster, Physician.
Guttenberg	Jacob B. Zimmerman, Druggist.
Hackensack	Alex. Denig, Druggist.
"	Eugene A. McFadden, Physician.
"	Hackensack Hospital.
"	C. V. S. Rea, Druggist.
"	C. R. Shryer, Druggist.
"	D. St. John, Physician.
"	T. E. Van Stone, Druggist.
Hackettstown	C. V. Rea, Druggist.
"	A. C. Van Syckle, Physician.
Haddonfield	R. Williard, Druggist.
Haddon Heights	Chas. E. Shillet, Druggist.
Hainesport	Wm. C. Parry, Physician.
Haledon	Leo Joffe, Druggist.

Hamburg	Joseph G. Coleman, Physician.
Hamilton Square	F. B. Zant, Physician.
Hammoncton	Chas. Cunningham, Physician.
Hampton	Morris Allbright, Druggist.
Harrison	John T. McClure, H.O.
"	Chas. W. Rothe, Druggist.
"	M. F. Squirer, Druggist.
Hasbrouck Heights	J. A. Powelson, Druggist.
Highlands	John L. Opperman, Physician.
Hightstown	D. H. Cunningham, Druggist.
"	Harvey G. Rue, Druggist.
Hoboken	Frank O. Colis, Druggist.
"	A. J. Dittmar, Druggist.
"	William Kamlah, Druggist.
"	Chas. H. Schmidt, Druggist.
"	Adolph Schmidt, Druggist.
"	Jefferson Pharmacy.
"	St. Mary's Hospital.
"	Chas. Sunkel, Druggist.
"	J. F. Zennick, Physician.
Hopewell	G. E. Pierson, Druggist.
Hudson Heights	W. Y. Lins, Jr., Druggist.
Imlaystown	Franklin C. Price, Physician.
Irvington	Harry McDavitt, Druggist.
Island Heights	Henry M. Davis, Physician.
Jamesburg	J. C. Shinn, Physician.
Jersey City	Board of Health.
"	James D. Adams, Druggist.
"	J. G. Block, Druggist.
"	Boulevard Pharmacy.
"	H. A. Buckner, Druggist.
"	Wm. Buchbinder, Druggist.
"	L. E. Carpenter, Druggist.
"	Frank O. Cole, Druggist.
"	James Foulke, Druggist.
"	John C. Gallagher, Druggist.
"	J. M. Holloway, Physician.
"	F. Lischke, Druggist.
"	Charles Loeller, Druggist.
"	H. F. W. Mayer, Druggist.
"	C. J. McCloskey, Druggist.
"	G. A. H. Meilke, Druggist.
"	Stein & Company, Druggists.
"	Robert V. Smith, Druggist.
"	E. H. Struckman, Druggist.
"	Walter R. Taft, Druggist.
"	R. E. Wilhelm, Druggist.
"	Geo. H. White, Druggist.
Kearny	Albert E. Giessler, H. I.
Kenvil	E. W. Kirkpatrick.
Keypport	R. O. Walling, Druggist.
"	W. E. Warn, Druggist.
Lakehurst	Preist's Pharmacy.
Lakewood	Lakewood Pharmacy.
"	Leon A. Taylor, Druggist.
"	D. H. Hills Drug Company.
"	F. A. Seaman, Druggist.
"	H. J. Terwillinger, Druggist.
Lambertville	S. W. Cochran & Co., Druggists.
Landing	Board of Health.

Lawrenceville	E. K. Fee, Physician.
Layton	Edw. W. Jones, Physician.
Leesburg	Geo. S. Spence, Physician.
Lindenwald	Geo. W. Evans, Assessor.
Lodi	U. S. Pharmacy.
Long Branch	J. W. Bennett, Physician.
"	Frank O. Gano, Druggist.
"	Board of Health.
"	Monmouth Memorial Hospital.
"	S. J. Wooley, Physician.
Lumberton	J. H. Stermer, Druggist.
Lyndhurst	John W. Clark, Physician.
Madison	Harvey C. De Hart, Druggist.
"	Chas. B. Gee & Son, Druggist.
"	W. H. Larison, Druggist.
Magnolia	Leslie C. Lyon, Physician.
Maplewood	B. B. Ranson, Physician.
"	G. H. Taylor, H.O.
Matawan	Board of Education.
"	Nathan Ervin, Physician.
Mays Landing	Henry C. James, Physician and Druggist.
Maywood	Frank Freeland, Physician.
Medford	Henry P. Thorne, Druggist.
Mendham	Leo Robinson, Druggist.
Merchantville	J. W. Kohlerman, Druggist.
Metuchen	Alfred E. Ellis, Physician.
"	L. Y. Lippencott, Physician.
Middletown	D. D. Hendrickson.
Midland Park	Joseph Payne, Physician.
Midvale	Shippee's Pharmacy.
Millburn	George S. Campbell, Druggist.
Millville	Emergency Hospital.
"	Smith & Reeves, Druggists.
"	Geo. W. Weber, Druggist.
Montclair	Mountainside Hospital.
"	M. J. Synott, Physician.
"	Chester H. Wells, H.O.
Moorestown	Frank G. Stroud, Physician.
Morristown	Board of Health.
"	All Souls' Hospital.
"	Henry M. Smith, Druggist.
Mount Holly	H. B. Allen.
"	Jones' Pharmacy.
Mullica Hill	Samuel Ashcraft, Physician.
Netcong	Drake Bostedo, Druggist.
"	H. W. Thayer, Druggist.
Newark	Thomas W. Corwin, Physician.
"	W. H. Warren & Co., Druggists.
New Brunswick	L. H. Hoaglandy, Druggist.
"	Monigan's Pharmacy.
"	Schuyler H. Rust, Druggist.
"	P. A. Tilley, Druggist.
"	Van Deursen Pharmacy.
Newton	Isreal L. Hallock, Inspector.
"	H. C. Ryerson, Druggist.
Norma	D. S. Rappaport, Physician.
Nutley	James Crammond, Druggist.
"	Henry T. Lefferts, Druggist.
Oakland	E. W. Hamilton, Physician.

Ocean City	Board of Health.
"	Maddock's Drug Store.
Ogdensburg	L. C. Burd, Physician.
Old Bridge	I. C. Crandell, Physician.
Oradell	F. O. Blenckstone, Physician.
"	Board of Health.
"	C. W. Datesman, Physician.
Orange	John F. Behrens, Druggist.
"	Beegles' Drug Store.
"	C. E. Dooling, Physician.
"	J. C. McNutt, H.O.
"	A. Mosler, Druggist.
"	Orange Memorial Hospital.
Palmyra	Lewis C. Sharp, Physician.
Park Ridge	Henry C. Neer, Physician.
Passaic	Board of Health.
"	Henry Balson, Druggist.
"	William C. Berger, Druggist.
"	Carroll Drug Co., Druggists.
"	General Hospital.
"	Otto Laue, Druggist.
"	Walter Peters, Druggist.
"	Post & Freidrich, Druggists.
"	Eugene Richter, Druggist.
"	R. Hood, Druggist.
"	St. Mary's Hospital.
"	W. H. Stemmerman, Druggist.
"	St. Stephen's Pharmacy.
"	Van Riper Co., Druggists.
Paterson	Eye and Ear Infirmary.
"	Board of Health.
"	Maxwell Bukofzer, Druggist.
"	Louis Patmer, Druggist.
"	G. E. Pellett, Druggist.
Paulsboro	W. J. Moore, Druggist.
Pensauken	F. A. Seaman, Druggist.
"	Gerhard Loeling, Physician.
Penn's Grove	Robbins' Pharmacy.
Perth Amboy	G. W. Fithian, Physician.
"	John L. Lund, Physician.
"	W. E. Ramsey, Physician.
Phillipsburg	Wm. C. Hoffman, Druggist.
"	Clarence E. Griffin, Physician.
Pitman	C. D. Phillips, Physician.
Plainfield	Board of Health.
"	E. F. Chaplin, Druggist.
"	Hodge's Pharmacy.
Pleasantville	Thos. F. Crawford, Druggist.
"	J. H. North, Physician.
Point Pleasant	A. B. Johnson, Druggist.
Pompton Lakes	W. S. Colfax, Physician.
Port Norris	Samuel L. Day, Physician.
Princeton	W. L. Briner, Druggist.
"	Marsh & Company, Druggists.
Rahway	George F. Brown, Druggist.
"	Davis' Pharmacy.
"	New Jersey Reformatory.
"	Joseph G. Smith, Druggist.
Ramsey	H. R. Parvin, Druggist.
Raritan	A. B. Rohn, Druggist.

Red Bank	Chas. A. Mintin, Druggist.
Ridgewood	E. B. Thornton, Druggist.
"	H. A. Rice, Druggist.
"	W. L. Vroom.
Ridgefield Park	Charles Albert Knox, Physician.
"	H. C. Elsing, Physician.
Ringoes	Peter R. Young, Physician.
Riverside	Louis M. Hires, Riverside.
Riverton	Alex. Marcy, Physician.
"	C. Street Mills, Physician.
Rockaway	F. W. Flagge, Physician.
"	Geo. M. Foster, Physician.
Roebling	Paul Traub, Physician.
Roselle	Jay W. Rewalt, Druggist.
Roselle Park	George H. Horning, Druggist.
"	William Morris, Clerk.
Rosemont	G. N. Best, Physician.
Rutherford	Board of Health.
Salem	Wm. M. Andrews & Co., Druggists.
"	Board of Health.
"	Davis Drug Company.
Sea Bright	Sea Bright Pharmacy.
Seaside Park	Martin Goldsmith, Druggist.
Skillman	State Village for Epileptics.
Somerville	John D. Case, Druggist.
"	Philip P. Corn, Druggist.
South Amboy	Board of Health.
"	E. Meacham, Physician.
South Orange	William H. Britton, Druggist.
South River	L. Evan Selover, Physician.
Springfield	J. A. Stites, Physician.
Spring Lake	D. H. Hills Drug Company.
"	Ann May Hospital.
Stanhope	Nelden's Pharmacy.
Stewartsville	F. W. Curtis, Physician.
Succasunna	N. H. Adsit, Physician.
Summit	Wm. Tyler Green, Druggist.
"	Wm. H. Rogers, Druggist.
Sussex	Board of Health.
"	H. D. Van Gaasbeek, Physician.
Swedesboro	Guest & Guest, Druggists.
Tenafly	Board of Health.
"	J. M. MacKellar, Physician.
Toms River	Board of Health.
"	Frank Brouwer, Physician.
Town of Union	August Frank, Druggist.
"	R. F. Hellstern, Druggist.
"	J. Quigley, Physician.
"	David Weisman, Druggist.
Trenton	Baker's Drug Store.
"	W. H. Barnes, Druggist.
"	Thos. A. Brown, Druggist.
"	Oscar Davidson, Druggist.
"	Board of Health.
"	Freeman's Pharmacy.
"	W. H. Harbourt, Druggist.
"	Holcombe Bros. Drug Store.
"	H. S. Houghes, Druggist.
"	William Jackson, Druggist.
"	I. J. Keuper, Druggist.

Trenton	G. S. Laird, Druggist.
"	Lewis W. Long, Druggist.
"	G. M. Lynch, Druggist.
"	James L. Mathis, Druggist.
"	T. H. Mackenzie, Physician.
"	McKinley Hospital.
"	Mercer Hospital.
"	Christian Pharmacy.
"	New Jersey State Prison.
"	Laboratory of Hygiene, State House.
"	Howard N. Richards, Druggist.
"	E. E. Riggs, Druggist.
"	Scott's Drug Store, Chestnut avenue.
"	Scott's Drug Store, Stuyvesant avenue.
"	Scott's Drug Store, Beatty street.
"	St. Francis Hospital.
"	John J. Strasser, Druggist.
"	David E. Stretch, Druggist.
"	Chas. Stuckert, Druggist.
"	W. Scott Taylor, Druggist.
"	Chas. S. Thatcher, Druggist.
"	Tidd's Drug Store.
"	Wendel's Drug Store.
Union	J. M. Stites, Physician.
Verona	Henry Fray, Druggist.
"	H. P. Whitehorne, Physician
Vineland	Baker House Pharmacy.
"	W. R. Faulkner, Physician.
"	N. J. State Home for Feeble-Minded Womer
"	Red Cross Pharmacy.
Waldwick	S. E. Robinson, Physician.
Washington	Jenkins Meeker, Druggist.
"	Opera House Pharmacy.
Weehawken	August Frank.
"	William Kyvitz, Druggist.
"	Red Cross Pharmacy.
"	B. Stermick, Druggist.
"	William Koitz, Druggist.
Wenonah	Board of Health.
Westfield	George W. Frutchey, Druggist.
West Hoboken	Frank H. Eckert, Druggist.
"	Joseph J. Parentini, Druggist.
"	R. Steuer, Druggist.
West New York	J. F. Justin, Druggist.
"	J. J. Lauterbach.
West Orange	A. M. Bretzfeld, Druggist.
"	George J. Geiger, Druggist.
Westville	Charles E. Davis, Druggist.
Westwood	D. B. Palmer Company, Druggists.
"	G. M. Levitas, Physician.
Wharton	H. W. Kice, Physician.
Williamstown	J. G. Edwards, Physician.
Woodbine	I. P. Behrman, Physician.
Woodbridge	R. A. Hirner, Inspector.
"	B. W. Hoagland, Physician.
"	Ira T. Spencer, Physician.
Woodbury	A. L. Marshall, Druggist.
"	Merrit Drug Store.
"	W. H. Sutton, Druggist.
Woodstown	C. P. McGeorge, Physician.
Wyckoff	Walter F. Keating, Physician.

Report of the Division of Food and Drugs.

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

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

GENTLEMEN—I have the honor to submit the following report on the Division of Food and Drugs for the year ending October 31st, 1910.

The work of this division consists of investigations relating to the operation of certain laws governing the manufacture, distribution, sale and transportation of food and drugs, the enforcement of which have been entrusted to the State Board of Health by the Legislature.

The appropriation made for this purpose for the fiscal year ending October 31st, 1910, was \$15,000.00. In making investigations necessary for the enforcement of the law three inspectors, two chemists, one clerk and one laboratory assistant are employed beside the chief of the division. It will be apparent to any one familiar with this State that this force is not large enough to adequately patrol the State. New Jersey has now a population of over 2,500,000, and the number of food and drug handling establishments is correspondingly large. With the force now available it is impossible even to adequately supervise the sale and distribution of milk, the food which needs the most careful and constant supervision. Most of the violations of the food laws which are now practised are in the nature of frauds, having for their object the deception of the purchaser, whereby the vendor obtains a larger profit than would otherwise be the case. It is very seldom that foods are offered for sale which contain added poisonous or injurious ingredients which may render them injurious to health. Milk, however, is of all the foods the one most widely used and one of the most perishable. It necessarily forms an important part of the diet of invalids and it is almost the sole sustenance of young

children, and both of these classes of persons are more than ordinarily susceptible to the harmful efforts of injurious food. The State Board of Health for these reasons devotes the entire efforts of the Division of Creameries and Dairies and a large part of the work of this division to the control of the milk supply. In order that this may be adequately accomplished, the dairies on which the milk is produced and the creameries in which it is handled must be inspected for the purpose of enforcing such sanitary precautions as will prevent the contamination of milk. This is the function of the division of creameries and dairies. The control of the retail dealers and the detection of adulteration falls within the province of this division. New Jersey is one of the great milk producing States, and nearly all of its product is sold as milk, comparatively little of it being manufactured into butter, cheese, or other dairy products. In order that a sufficient restraint may be placed upon the adulteration of this product, frequent samples should be collected from each producer, wholesaler and retailer. That this is not possible with a force of three inspectors will readily be seen, when it is remembered that there are nearly ten thousand producers in the State, together with a correspondingly large number of wholesalers and retailers. The most that we can do is to make infrequent visits to as many localities as possible. Many places in the State are seldom or never visited. This is true particularly of the small towns off the lines of railroad, which are difficult of access and which support only one or two stores and one or two milk dealers. These towns are neglected because it is felt that the large amount of time required to make inspections in them can be used to better advantage in the larger places. Until a larger force of inspectors is available it will not be possible to adequately cover the State nor to visit many localities in it at all.

Food inspection in this State is a costly process. In order that a man may be a successful inspector he must be able to command the confidence and respect of the persons with whom he has to deal, and in order that he may be able to do this, he must display much tact and discretion in all his official relations; he must be absolutely fair, and he must above all things be honest. Men with these characteristics who are willing to undertake the arduous and unpleasant duties of an inspector are hard to obtain, and it is therefore a source of gratification to the writer that the present inspection force displays these attributes in a marked degree, and, by

their devotion to duty do all that is in their power to further the efforts of the Board in securing a better food supply to the citizens of the State. These men are underpaid for the character of work they do, but their salaries amount to a considerable sum. Their necessary expenses, however, are unduly large because of certain requirements of the food and drug law. Section 25 of that act provides that no proof of an analysis of any sample may be introduced in court as evidence unless the sample was taken in the presence of a witness or witnesses, and divided by the inspector into two or more parts, which parts must be placed in suitable containers, sealed in the presence of the person from whom the sample was obtained, or of the witness, and one of the parts delivered to the person selling the sample. This provision was intended to safeguard in every possible manner the person from whom the sample was taken, and no objection can be made to it on theoretical grounds. From a practical standpoint, however, it is objectionable both because the inspector is compelled to employ a witness to accompany him who must be paid for his services, time and traveling expenses, but also because it compels the inspector to disclose his identity. This immediately puts the vendor on his guard and renders the detection of violations of the law difficult. The expenses of an inspector are, under the present system, nearly double what they would be if he could work alone and was not compelled to divide his samples.

Attention was directed in last year's report to the manifest impropriety of returning costs which have been paid by our inspectors when prosecutions are begun, to the State Treasury when judgment is rendered in favor of the State. This is not required by law and is a serious drain on our appropriation. These costs should revert to the appropriation for the enforcement of the Food and Drugs act where they properly belong, and it is hoped that the Board will devise some method whereby this may be accomplished.

The number of samples of food and drugs examined during the year was 6,535, a number smaller by 1,030 than were examined the year previous. This decrease is due to two causes, the reduction of the annual appropriation from \$20,000 to \$15,000, and the duty imposed on this division by the Board of making the inspections required by the Slaughter-house act and the act regulating oyster and clam grounds. No appropriations were made

for the enforcement of these laws, and, inasmuch as they both directly relate to the purity of foods it was deemed proper to make certain investigations for the purpose of enforcing them, using the funds available for the enforcement of the other acts relating to food and drugs.

The following table shows the number of samples of food and drugs examined during the years 1906 to 1910 inclusive.

TABLE 1.—SHOWING THE NUMBER AND KINDS OF SAMPLES EXAMINED DURING THE YEARS 1906, 1907, 1908, 1909, 1910.

ARTICLES EXAMINED.	1906.			1907.			1908.		
	Above Standard.	Below Standard.	Total.	Above Standard.	Below Standard.	Total.	Above Standard.	Below Standard.	Total.
Milk and cream.....	1,856	585	2,441	2,317	521	2,838	2,356	449	2,805
Foods other than milk.....	731	295	1,026	592	175	767	2,698	326	3,024
Drugs.....	138	267	405	204	367	571	550	169	719
Kerosene oil.....				63	6	69	31		33
Totals.....	2,725	1,147	3,872	3,176	1,069	4,245	5,635	946	6,581

ARTICLES EXAMINED.	1909.			1910.		
	Above Standard.	Below Standard.	Total.	Above Standard.	Below Standard.	Total.
Milk and cream.....	3,561	401	3,962	3,700	392	4,092
Foods other than milk.....	2,660	284	2,944	1,978	197	2,175
Drugs.....	595	67	662	119	149	268
Kerosene oil.....						
Totals.....	6,816	752	7,568	5,797	738	6,535

It will be seen from an inspection of this table that while the number of samples examined since 1906 has steadily increased (with the exception of 1910) the number of samples found to be below the legal standard has been less each year. The ratio of the number of adulterated samples to the total number was 1 to 3.37 in 1906, while in 1910 it was 8.85; which means that in five years the proportion of adulterated articles found has been reduced to nearly one-third of what it was at the beginning of that period. This shows in a most convincing fashion what marked improvement has taken place within the last few years in the quality of food and drugs offered for sale.

It should not be assumed that the ratio of 1 to 3.37 for 1906 or that of 1 to 8.85 in 1910 is a measure of the amount of adulterated foods offered for sale in those years. The actual proportion is much less than this. Certain large classes of foods are never adulterated and hence need to be examined but seldom. Other classes are infrequently adulterated and hence do not need continuous attention at our hands. The inspectors use much care in selecting samples for analysis, so that as a rule samples do not come to the laboratory for examination unless there is some reason to suspect that they are offered for sale in violation of the law, or else belong to a class of articles which are known to be likely to be adulterated or misbranded.

The following tables show in detail the number of samples of foods other than milk and cream which were examined during the year.

TABLE 2.—GIVES A DETAILED STATEMENT REGARDING THE FOODS EXAMINED DURING THE YEAR.

	Number Above Standard.	Number Below Standard.	Total Number of Specimens.
Allspice, ground	75	1	76
Baking powder	1	...	1
Butter	178	127	305
Cake	2	...	2
Chocolate	5	1	6
Cider	23	3	26
Cinnamon, ground	131	...	131
Cloves, ground	90	1	91
Coffee, ground	10	...	10
Cocoa	3	...	3
Color	6	...	6
Flour, wheat	3	...	3
Flavor, ginger	1	...	1
Flavor, raspberry	2	...	2
Flavor, rose	1	...	1
Ginger, ground	111	1	112
Honey	2	...	2
Lard	9	...	9
Lemon extract	1	1	2
Mace, ground	48	...	48
Molasses	70	...	70
Mustard, ground	159	6	165
Nutmegs, ground	10	...	10
Oleomargarine	98	12	110
Paprika	17	...	17
Pepper, black	286	1	287
Pepper, red	75	1	76
Pepper, white	230	5	235
Rolls	...	1	1
Sausage	12	2	14
Sugar, granulated	1	...	1
Syrup, maple	3	...	3
Syrup, nectarine	1	...	1
Red grape wine	1	...	1
Tongue, smoked	...	1	1
Vanilla extract	1	...	1
Veal	...	1	1
Vinegar, cider	224	13	237
Vinegar, white	83	4	87
Yeast	5	15	20
Totals	1,978	197	2,175

TABLE 3.—SHOWS THE NUMBER AND KIND OF DRUGS EXAMINED DURING THE YEAR.

	Number Above Standard.	Number Below Standard.	Total Number of Specimens.
Aqua hamamelidis	2	1	3
Aqua hydrogenii dioxidi	1	...	1
Linimentum camphoræ	5	16	21
Liquor calcis	2	...	2
Opii pulvis	1	...	1
Potassii bitartras	6	...	6
Sodii boras	35	...	35
Sodii nit as	1	...	1
Spiritus menthæ viridis	46	88	134
Tinctura iodi	19	27	46
Tinctura opii	1	17	18
Totals	119	149	268

MILK AND CREAM.

During the year 4,092 samples of milk were examined, 392 of which were found to vary from the legal requirements. Of these, 306 samples of milk contained less total solids than the statutory requirement of 12 per cent. Eighty-two samples of milk were adulterated with added water and two samples of cream were found to contain less than the required 16 per cent. of butter fat. For the first time in the history of milk inspection in this State no preservatives were found. That the use of preservatives has diminished to such an extent that no sample was found which contained them in over four thousand examined, most of which were collected during the summer months, is a most significant fact, showing as it does that one of the methods used to conceal improper dairy conditions and methods of handling and transportation of milk has been practically abandoned. This is due in large measure to the enforcement of law, but it is also due to a general improvement in the method of producing and handling milk, which has also been brought about by the enforcement of law, and to the widespread adoption of pasteurization on the part of creameries and even retail distributors. It is to be regretted that most of this so-called pasteurization, as it is carried on in a commercial way, while it enhances the keeping quality of the milk, does not really accomplish the purpose for which the method was originally devised—the destruction of all harmful bacteria. It is to be regretted

that the working force of the division has been so fully occupied with other matters that the investigation of certain problems relating to the sanitary quality of the milk sold in this State could not be investigated. The rapidly increasing proportion of our milk which is pasteurized before it is offered for sale, makes it very desirable that some supervision should be exercised over the methods used. To do this properly would entail extensive bacteriological tests in many portions of the State, which we have been unable to make because of lack of time. The extent of infection of market milk with tubercle bacilli derived from tubercular cows should also be investigated. In order to do this it will be necessary to make use of large numbers of animals for experimental purposes, and, at the present time, there is no place available in which to keep such animals. In view of the fact that it is now well established that bovine tuberculosis is transmissible to children, such an investigation, which, if carried to completion would remove tuberculous cows from our milk producing herds, would be of the greatest importance in that it would result in the saving of lives which are now sacrificed to the ignorance or cupidity of the dairyman. It is also very desirable that we be prepared to undertake a study of bacterial content of the milk sold in different parts of the State. The laboratory is equipped with the apparatus needed to do this work, but it has not been undertaken because no bacteriologist who could devote sufficient time to it was available. If we had one man who could do this work, much could be accomplished in securing a cleaner milk supply for our citizens.

BUTTER AND OLEOMARGARINE.

Next to milk and cream the sale of butter and its substitutes has been given the most attention. This is not due to any deleterious properties of butter substitutes, but to the fact that fraud is still widely practiced in this State in their sale. The price of butter is now so high, and the manufacturers of oleomargarine make such skillful imitations that unscrupulous retailers can deceive their customers with the spurious product in almost every case. To prevent this the law provides that every person selling oleomargarine at retail shall, at the time of sale, inform the purchaser that the substance is not butter, and shall also affix to the

package a label bearing the words "Oleomargarine." It would seem that these requirements would be ample to protect the purchaser, but this has been found not to be the case as can readily be seen by inspecting table two, which shows that out of 415 samples of butter and oleomargarine sent to the laboratory by inspectors of this division no less than 139 were sold in violation of the law. That these frauds are still perpetrated is due to the smallness of our inspection force, to certain inherent weaknesses in the law, and to the unfavorable attitude of some of our courts. Before the dishonest dealer can be compelled to sell oleomargarine legally in this State, radical changes will need to be made in our law, and certain suggestions for such changes will be found later in this report.

SPICES.

The active campaign against sellers of adulterated spices, which was conducted last year by this division, has resulted in a marked improvement in the quality of these goods offered for sale. Out of 416 samples of pepper examined this year, which were collected from all sections of the State, and mostly from bulk goods, experience having shown that these are most likely to be found of poor quality, only six were adulterated—an exceedingly good showing. One sample of cayenne was adulterated. The record for the other spices examined is equally good, but six samples of ground mustard out of 159 being adulterated, and one sample of ground ginger out of 111. When it is remembered that at least half of all the spices offered for sale ten years ago were adulterated, the value of the enforcement of the food laws is evident.

VINEGAR.

Three hundred and seven samples of vinegar were examined, of which seventeen varied in some way from the legal standard. The sale of one kind of vinegar for another has now almost ceased, and purchasers may be assured that they are in almost every case obtaining exactly what they demand. Most of the seventeen samples found to be below the legal standards were condemned because of trifling deficiencies in acidity or total solids. In no instance was evidence of flagrant violation of the law obtained.

As has already been pointed out, it is impossible with our limited force of inspectors to adequately cover the State. An attempt has been made, however, to cover as much ground as possible, and the table which follows shows the extent to which this has been accomplished:

TABLE 4.—SHOWING THE PLACES VISITED BY INSPECTORS AND NUMBER OF VISITS TO EACH PLACE.

Allenhurst	1	Clifton	1
Allentown	1	Clinton	4
Alloway	1	Clover Hill	1
Atlantic Highlands	2	Collingswood	9
Audubon	2	Coytesville	5
Andover	2	Cranbury	2
Annandale	1	Cranford	2
Asbury Park	7	Crosswicks	1
Ahead	1	Delanco	3
Atlantic City	20	Dividing Creek	1
Augusta	3	Dorchester	1
Avon	2	Dover	18
Barley Sheaf	1	Dunellen	1
Barnsboro	2	East Newark	2
Basking Ridge	4	East Orange	6
Bayhead	1	Eatontown	2
Bayonne	5	Edgewater	1
Bedminster	1	Egg Harbor	5
Belleville	2	Elberon	1
Delmar	2	Elizabeth	21
Belvidere	3	Elmer	1
Berlin	4	Englewood	5
Bernardsville	3	Englishtown	2
Beverly	3	Ewan	1
Blairstown	4	Fair Haven	1
Bloomfield	3	Far Hills	1
Bloomington	1	Flagtown	1
Bloomsbury	1	Flemington	6
Boonton	2	Florence	2
Bordentown	5	Fort Lee	2
Bound Brook	3	Freehold	1
Bradley Beach	1	Frenchtown	2
Branchville	3	Garfield	1
Bridgeboro	1	Garfield Park	1
Bridgeport	1	German Valley	1
Bridgeton	7	Gibbsboro	1
Bridgeville	2	Glassboro	3
Bridgewater Township	1	Gloucester	5
Burlington	7	Groveville	1
Butler	5	Haddonfield	7
Califon	1	Haddon Heights	2
Camden	106	Hackettstown	5
Cape May	2	Hainesburg	1
Cedarville	2	Hammonton	3
Chatham	1	Hampton	1
Chester	2	Harmersville	1
Clayton	1	Harrison	12
Clementon	1	Harrisonville	1

Helmetta	2	New Village	1
Highland Park	6	Norma	1
Hightstown	1	North Bergen	1
Hilton	1	North Branch	1
Hoboken	12	North Vineland	1
Holly Beach	1	Ocean City	1
Hope	1	Ocean Grove	1
Hopewell	2	Orange	15
Irvington	7	Orston	1
Jersey City	55	Oxford Township	2
Jutland	2	Oxford Furnace	1
Kearny	5	Palisades Junction	1
Keypoint	2	Palmyra	4
Kinkora	1	Passaic	20
Kirkwood	1	Paterson	26
Lafayette	1	Paulsboro	2
Lambertville	2	Penn's Grove	2
Lannington	1	Perth Amboy	23
Laurel Springs	1	Phillipsburg	6
Lebanon	2	Pitman	4
Leesburg	1	Pittstown	1
Lincoln	1	Plainfield	5
Little Falls	1	Pleasantville	2
Long Branch	8	Pluckemin	1
Lyons	2	Point Pleasant	2
Lyons Farms	3	Port Norris	1
Madison	4	Princeton	2
Magnolia	1	Quinton	1
Manasquan	1	Rahway	4
Maplewood	1	Raritan	4
Marksboro	3	Red Bank	4
Marlboro	2	Ridgefield Park	2
Matawan	1	Ringoes	2
Maurice River	1	Riverside	5
May's Landing	1	Riverton	3
Mendham	1	Roebling	3
Merchantville	4	Roselle	11
Metuchen	2	Roselle Park	14
Middle Valley	1	Rosenhayn	2
Milford	3	Rutherford	1
Millburn	1	Salem	10
Millhurst	1	Sewell	2
Milltown	1	Sharptown	3
Millville	7	Shewsbury	2
Monmouth Junction	1	Skillman	2
Monroe	1	Somerville	5
Monroeville	1	South Amboy	4
Montclair	3	South Orange	1
Moorestown	3	Spring Lake	1
Morristown	22	Stanhope	1
Mount Holly	6	Stirling	3
National Park	1	Stillwater	1
Neshanic	2	Stockholm	1
Netcong	1	Summit	11
Newark	105	Sunnyside	2
New Brunswick	13	Swedesboro	2
New Egypt	1	Tenafly	1
New Germantown	1	Tennent	1
Newport	1	Three Bridges	1
Newton	4	Toms River	1

Tranquility	1	West Millington	2
Trenton	19	Westmont	3
Troy Hills	1	West New York	2
Tuckerton	4	West Orange	1
Union Hill	13	West Portal	1
Vails	2	Wharton	2
Verona	5	White House Station	2
Vincetown	1	Westville	4
Vineland	5	Wildwood	1
Warbasse	1	Williamstown	1
Washington	3	Woodbridge	2
Wenonah	3	Woodbury	6
West Berlin	1	Woodlyn	1
West Collingswood	1	Woodstown	5
West End	1	Wrightstown	1
Westfield	3	Yardville	1
West Hoboken	8		

This table shows that 217 different cities and towns have been visited during the year, and that the total number of inspection visits to cities and towns was 1,076, a large number for a force of three inspectors to make in a year when it is remembered that a considerable portion of their time is necessarily occupied in attendance at court. These inspections were made for various purposes. In nearly all the cities and towns mentioned in the above table, milk samples were collected, and in most of them, in addition to the milk, samples of food and drugs were also obtained. In many places inspections having for their object the investigation of sanitary conditions in food producing establishments were made. The cleanliness of empty milk cans which were being returned by retailers to producers has been generally investigated. The number and variety of these inspections are shown in the following table:

TABLE 5.—SHOWING THE NUMBER AND KIND OF PLACES VISITED BY THE INSPECTORS DURING THE YEAR FOR THE PURPOSE OF COLLECTING SAMPLES AND GATHERING INFORMATION REGARDING SANITARY CONDITIONS.

	<i>Milk Wagons.</i>	<i>Milk Depots.</i>	<i>Grocery Stores.</i>	<i>Drug Stores.</i>	<i>Milk Cans.</i>
November	188	79	479	45	287
December	81	48	624	51	182
January	132	139	574	45	27
February	197	60	520	60	112
March	387	69	477	48	725
April	394	72	638	95	...
May	316	65	305	37	121
June	566	48	297	9	295
July	500	55	248	3	167
August	221	41	71	2	184
September	148	21	48	..	191
October	19	12	103	1	81
Totals	3,149	709	4,884	397	2,372

	<i>Meat Markets.</i>	<i>Bottling Establishments.</i>	<i>Slaughter Houses.</i>	<i>Miscel- laneous Inspections.</i>
November	45	..	..	3
December	34	..	..	..
January	13	..	..	..
February	23	..	..	..
March	46	..	..	..
April	35	..	1	..
May	26	8	..	..
June	7	26	1	5
July	36	20	8	8
August	4	..	39	10
September .....	..	9	33	..
October .....	..	..	11	..
Totals	269	63	93	26

This table shows that during the year 2,372 empty milk cans were examined. A vigorous crusade was begun last year to enforce section 12 of the Food and Drugs act, which requires the cleansing of all containers used for holding milk before they are returned to the person who supplied the milk. Many dirty cans were discovered and warning notices were sent to those responsible for the violations, informing them that a repetition of the offence would result in prosecution. It is very gratifying to be able to state that almost without exception the persons so notified immediately ceased shipping dirty cans, and it has not yet been found necessary to start any prosecution to stop this practice. Our inspections this year show a very marked improvement in the condition of empty milk cans, very few having been discovered which were not in clean condition.

The table also shows that sixty-three establishments where soft drinks are bottled were inspected during the year. The manufacture and bottling of soft drinks is a business which is badly in need of careful and thorough investigation, and it is to be regretted that more time could not be spent on this work. The few inspections made show the business is frequently conducted in improper places by persons ignorant of the first principles of cleanliness, and that the finished product is consequently dirty and may in some cases be dangerous to health. On each of the premises inspected one or more violations of the sanitary law were discovered, and in all but seven their violations were deemed of sufficient importance to warrant the issuing of orders to make changes and improvements in the equipment and methods of the establishments.

The Board of Health is authorized to issue such orders by section 8 of the sanitary law, which also provides a penalty for violating the order. Compliance with these orders necessitated, in some instances, the entire reconstruction and re-equipment of bottling plants, and, in two instances in which bottling establishments were maintained in filthy, ill lighted and badly ventilated cellars, the proprietors were required to leave the premises and find other and more suitable localities in which to conduct their business. When these orders were issued it was anticipated that considerable trouble would be experienced in securing compliance with them, but no difficulties were actually encountered, the persons affected complying with the orders with surprising readiness. It is hoped that during the coming year a general investigation of bottling plants can be undertaken. Among the inspections classed as miscellaneous were a number made at stands located in or near railroad stations, where newspapers, periodicals, candy and other articles were offered for sale. It was found that candies were freely exposed in these stands to contamination by flies, dust and dirt, and that most of these stands were so situated that the amount of contamination of the candies so exposed was very great. This was particularly true of certain stands located in the stations of the tunnel of the Hudson and Manhattan railroad, at the Pennsylvania and Erie stations, Jersey City, and the Lackawanna station at Hoboken. All of these stands were operated by one corporation, and a notice was served on this corporation ordering it to adequately protect all foodstuffs offered for sale in these places within thirty days. This order was promptly complied with, and all candies and other foods now exposed in these places are securely protected from contamination by paper wrappers.

INSPECTION OF SLAUGHTER-HOUSES.

The interest of the people in meat and slaughter-house inspection has been rapidly increasing during the past few years. The legislature passed at its last session "An act providing for licensing, regulation, conduct and operation of slaughter-houses, abattoirs or places where animals are slaughtered for human food." The enforcement of this act was entrusted to the State Board of Health, and it provided among other things that the said Board

should make such rules and regulations as were deemed necessary to properly carry out the provisions of the act. The regulations adopted in compliance with this provision provide, among other things, that: "Every person who operates or conducts a slaughter-house, abattoir or place where animals are slaughtered for sale as human food shall make application to the Board of Health of the State of New Jersey for a license to operate such slaughter-house, abattoir or place where animals are slaughtered for sale for human food. Such application shall be in writing, upon blanks which will be furnished by the State Board of Health upon request, and shall be signed by the person making the application.

"Upon receipt of an application for license to conduct a slaughter-house, abattoir or place where animals are slaughtered for sale for use for human food, an inspection will be made of the premises designated in the application. If it appears, as a result of this inspection, that the building and surroundings are so located and constructed that the business of slaughtering and dressing animals can be there conducted in a cleanly manner and without creating a nuisance, and in compliance with the provisions of Chapter 217 of the Laws of 1907 and its amendments and supplements, a license will be issued forthwith.

"Should the inspection show that changes or improvements in the building or surroundings are necessary before the above mentioned acts can be complied with, the applicant will be so notified, and a reasonable time will be given him to make such changes or improvements. At the end of this time a re-inspection will be made. If the inspection shows that the changes or improvements needed have been made, the license will be issued; if the buildings and surroundings at the time of the re-inspection do not conform to the requirements of the above-mentioned acts, the license will be refused."

In accordance with the above regulations, and under the direction of the State Board of Health, the Division of Food and Drugs undertook the important duty of attempting to safeguard the meat supply of this State by making comprehensive sanitary inspections of numerous slaughter-houses. Because of the smallness of our force and because of lack of funds, the Legislature having failed to grant any appropriation for carrying out the provisions of the Slaughter-house act, we have been seriously handicapped. In-

formation in our possession shows there are over three hundred slaughtering establishments doing business in this State. Of this number, 113 have made application for license to conduct a slaughter-house. During the past six months ninety-three inspections have been made, fifty-six notices, as a result of these inspections, have been sent to owners informing them of certain changes that must be made before a license can be granted, and five licenses have been issued.

As a result of these inspections it has been found in most cases that changes in either the plant, equipment or methods are necessary. It is the practice of this division to point out to the applicant the desired changes, and its requirements are in accordance with broad and well-known sanitary principles. It requires that each room used for killing purposes be well lighted and ventilated, that the floor be of some impervious material, and the side walls and ceiling of some material which can be readily cleansed, that running water be provided and that proper lavatory accommodations be installed. The premises about the plant must be kept clean. All cattle pens must also be kept in good condition, while the common practice of feeding of slaughter-house to hogs is forbidden. An adequate system of drainage is insisted on, and it is regarded as very important that all workmen keep themselves in a proper state of cleanliness.

The slaughter-houses in this State divide themselves broadly into two classes, the city killing establishments and the country slaughter-houses. To make regulations which will apply equally well to each class is almost an impossibility. In small towns and in country districts private slaughter-houses are a necessity. A private slaughter-house may belong to one or several persons, and in it several butchers may arrange to kill animals. Sanitary defects in places of this character are frequently encountered. The drainage may be defective, the water-supply inadequate or the collection, storage and removal of garbage and filth may be very imperfectly carried out. Such places are exceedingly difficult to regulate and control. The enforcement of the same regulations in the smaller places that are found to be necessary in larger establishments, where many animals are slaughtered daily, would inflict much hardship on the owners without a commensurate improvement in the quality of their product. Each slaughter-house presents different problems, the solutions of which in a manner

calculated to adequately safeguard the public and at the same time impose no unnecessary burdens on the owner, require individual treatment and are frequently a matter of great difficulty. We have, therefore, proceeded with great caution in requiring changes in the structure of buildings, only insisting upon the improvements which seem necessary in order that a clean and healthful product may be produced.

In most instances persons instructed to make changes in their slaughter-houses have signified their willingness to comply with the orders of the Board, and seem to be anxious to do everything in their power to make their places comply with the law. In order to make certain, however, that these changes have been made in a proper manner, and especially to ascertain whether or not the methods in use are cleanly and the product so cared for that its quality is not impaired, frequent re-inspections of all slaughter-houses will be necessary for some time to come. In order that these inspections may be made it will be necessary to make provision for at least one man who can devote his whole time to the work. Enough has already been done to demonstrate the need for it, and, in order to carry it to a successful conclusion, adequate facilities must be provided.

There is no legislation in force in this State requiring the inspection of meat at the time of slaughter. Several cities have adopted ordinances which provide for suitable meat inspection, but a State law is greatly needed which will secure the condemnation of those found to be unfit for use as food. The enforcement of such an act would necessarily be very costly, and would result in profound changes in the system of slaughtering now in vogue, but the need for such law is so apparent, and the benefits which would be derived from its enforcement would be so great, that the writer is confident that the Legislature will take action before long. The federal inspection of meat which enters into inter-state commerce has worked wonders in the establishments affected by it, but the enormous amount of meat slaughtered for use within the State is not properly supervised during slaughter at the present time and consequently much diseased and unwholesome meat is now offered for sale.

The inspectors of the division have acquired considerable familiarity with the quality of food and drugs on sale in this State, especially of substances sold in packages, and are therefore able to

select such articles which they may suspect are offered for sale in violation of law, collecting only occasional samples of those brands which previous investigations have shown to meet the legal requirements. Many articles are therefore examined which never reach the laboratory for analysis because there is no need to examine them frequently. The inspectors have also acquired to a marked degree the power of distinguishing the difference between oleomargarine and butter by inspection alone, and are therefore able to cover much ground in investigating the illegal sale of butter without overburdening the laboratory with great numbers of samples.

The following table shows the number of articles examined by inspectors during the year which were evidently in compliance with the law and of which no samples were taken:

TABLE 6.—SHOWING THE NUMBER OF ARTICLES EXAMINED BY INSPECTORS DURING THE YEAR WHICH WERE EVIDENTLY IN COMPLIANCE WITH THE LAW AND OF WHICH NO SAMPLES WERE TAKEN.

	Milk.	Butter.	Food.	Drugs.
November	323	530	833	156
December	156	844	1,304	372
January	261	622	1,010	213
February	408	589	1,181	259
March	796	689	1,106	343
April	589	837	1,781	391
May	525	552	937	192
June	738	412	623	70
July	622	291	730	22
August	370	85	144	2
September	318	20	7	...
October	28	44	10	16
Totals	5,134	5,515	9,606	2,036

This table shows that altogether 22,351 separate articles were examined by the inspectors and found to comply with the law, and these together with the 6,535 samples examined in the laboratory makes a grand total of 28,886 articles of food and drugs examined during the year.

The table which follows shows the number and kind of samples, arranged by months, selected by inspectors as requiring further investigation and sent by them to the laboratory for analysis.

TABLE 7.—SHOWING THE NUMBER OF SAMPLES COLLECTED BY THE INSPECTORS DURING THE YEAR, ARRANGED BY MONTHS.

	Above Standard.	Below Standard.	Total.	Suits.
November	451	27	478	10
December	452	79	531	19
January	389	40	429	14
February	417	92	509	43
March	519	108	627	23
April	607	79	686	29
May	735	77	812	40
June	602	53	655	21
July	658	58	716	30
August	594	59	653	33
September	195	32	227	19
October	178	34	212	15
Totals	5,797	738	6,535	296

It will be observed that the number of samples collected in September and October is smaller than that for the other months of the year. This is due to the inspection of slaughter-houses which requires considerable time for each inspection, and to the fact that the inspectors were on vacation during parts of these months.

INVESTIGATION OF OYSTER AND CLAM BEDS.

The Legislature of 1910 passed an act (Chapter 97 of the Laws of 1910) which has already been briefly referred to, requiring the State Board of Health to inspect all places within the State where oysters and clams are grown. The text of this act is as follows:

"A FURTHER SUPPLEMENT to an act entitled 'An Act for the preservation of clams and oysters,' approved April fourteenth, one thousand eight hundred and forty-six.

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

1. It shall be the duty of the Board of Health of the State of New Jersey annually, or oftener if said board shall deem it necessary, to inspect, or cause to be inspected, the various oyster and clam beds and other places within the State of New Jersey from which oysters and clams are taken to be marketed and sold for consumption as food, for the purpose of ascertaining the sanitary conditions of such oyster and clam beds and other places, and the fitness of the oysters and clams in such places, or which are taken therefrom, for use as articles of food. The said Board of Health of the State of New Jersey shall keep, or cause to be kept, an official record of each inspection so made, and shall, as soon as possible thereafter, issue certificates, setting forth the result of such inspection to the owners, lessees or proprietors of such oyster or clam beds, or other places.

2. Any person who shall gather with intent to sell for food any oysters or clams from oyster beds or clam beds or any other place within the jurisdiction or forming a part of the State of New Jersey, which have been condemned by said Board, in accordance with section one of this act, shall be liable to a penalty of one hundred dollars, to be recovered in an action of debit by and in the name of the Board of Health of the State of New Jersey.

3. This act shall take effect immediately.

Approved April 6, 1910."

This act greatly increases the burdens of the State Board of Health, but no appropriation was made for its enforcement. The work which we have been able to do, therefore, has been merely preliminary, consisting of inspections of the water of certain localities and of samples of clams and oysters grown therein. Oysters and clams are grown to a greater or less extent along the entire coast of our State, from New York Harbor to about the mouth of the Cohansy in Delaware Bay, a distance of about two hundred miles. From Manasquan Inlet to Cape May, a distance of about one hundred miles, these bivalves are grown in an intricate network of salt water bays and channels back of the beaches, which are of great extent and difficult of access. It will therefore be readily seen that the mere inspection of these waters every year is an undertaking of considerable magnitude, and, when all the other investigations which must be made in order to arrive at a proper estimate of the sanitary quality of the shellfish are taken into account, the task becomes of herculean proportions.

During the year inspections have been made and samples of water and shellfish collected from the Maurice River Cove, Maurice River, Jarvis Sound, Richardson's Sound, Great Egg Harbor and the adjoining thoroughfares, Lakes Bay, Beach Thoroughfare, Great Thoroughfare, Absecon Bay, Absecon Creek, Great Bay, Little Egg Harbor, Tuckerton Creek and West Creek. Within these waters the largest oyster grounds of the State are located and these were therefore selected as starting points.

Cumberland County.—Our inspections in Maurice River Cove were more extensive and much more complete than in other localities, from which scattered samples only could be taken. The investigations in the cove, while they were of a preliminary character, sufficed to give a fair idea of conditions existing in that body of water at the seasons when the inspections were made, and furnished sufficient data on which to base plans for a more extended

and complete investigation if the necessary funds are made available by the Legislature.

Before stating the results obtained from the inspections made and the samples collected in Maurice River Cove it is necessary to again emphasize the fact that the present report is purely preliminary in character and that the results so far obtained are necessarily very incomplete. Much more extended investigations must be made before a trustworthy opinion can be given regarding the healthfulness of the oysters grown in this locality. Such investigations will include not only numerous other examinations of water and oysters from the cove, but of the waters adjacent thereto and especially of streams entering Delaware Bay both above and below the oyster grounds. These investigations must necessarily also include careful and minute inspections of the banks of these streams and their tributaries for the purpose of locating possible sources of pollution upon them, the examination of their waters for the purpose of obtaining some idea of the extent of this pollution, a careful study of the prevalence and distribution of typhoid fever in the area comprising the watershed of these streams, a study of the methods of sewage disposal in use in this area for the purpose of estimating the chance which exists for typhoid bacilli to gain entrance into the streams and find their way to the bay; a study of stream and tidal flows, including an investigation of the effect of the wind in altering the direction of the flow of water and stirring up the bottom mud, and finally a continuation of these investigations for a period sufficiently long to include all ordinary changes in natural conditions which may be expected to occur on or near the oyster beds.

The act states that "it shall be the duty of the Board of Health of the State of New Jersey * * * to inspect or cause to be inspected the various oyster and clam beds * * * ."

What this means is not altogether clear. If the word "inspect" is to be taken in its ordinary sense the purpose of the act will not be accomplished, as no satisfactory knowledge of the sanitary conditions of the oyster and clam beds or of the oysters and clams taken from them can be obtained by inspection alone. I have therefore assumed that the Legislature meant by the word "inspection," as used in this act, any method of investigation which will throw light on this very difficult problem.

The act also requires annual or more frequent inspections of all the oyster and clam beds in the State. If this requirement is to be interpreted literally it is utterly impossible of fulfillment by the State Board of Health with its present force of employes. There are several thousand leased oyster grounds in the State, there are numerous natural beds from which marketable oysters are sometimes taken in addition to these leased grounds, and the number of clam beds is legion. It is a physical impossibility to inspect each of these beds annually. Nor is such a procedure necessary to ascertain the quality of the oysters and clams produced on them for use as food. It is fair to assume that two oyster beds located in close proximity, over both of which the same water flows, will produce oysters of the same sanitary quality. A reasonable procedure, therefore, would consist in defining areas in which conditions are uniform and investigate these areas as a whole, rather than to attempt to perform the impossible task of examining each particular bed. This method will result in a substantial compliance with the spirit of the act, and has been adopted.

The Maurice River Cove is that portion of the Delaware Bay extending from Egg Island Point to Cape May Point. The leased oyster grounds occupy an area extending southward from a line beginning at False Egg Island Point and running in a southwesterly direction, to another line somewhat below Pierce's Point, and from the shore westwards to some distance beyond Dead Man's Shoal. The depth of water in that portion of the cove in which oysters are planted varies from 5 to 30 feet. The bottom is mostly mud, although isolated areas of hard sand occur.

The only stream of importance entering the cove is the Maurice River, which drains a considerable portion of Cumberland county, including the city of Millville, which is at the head of navigation, and up to which the river is a tidal stream. Millville has recently installed a sewage disposal system which, at the present time, is working in a fairly satisfactory manner, and the effluent from it is of such a character that it will have little or no effect on the sanitary quality of oysters placed in the stream at Maurice River and Bivalve, which are about twenty miles away. Besides the effluent from the Millville plant the river receives more or less drainage from several small unsewered towns along its banks. An investigation of the quality of the water of the Maurice River will

be made later, but there can be no doubt that it carries some polluting matter at the present time.

The other streams emptying into the cove drain very thinly populated areas and are practically negligible as carriers of polluting material. It is probable, however, that waters from the Cohansey, which is polluted to a considerable extent, may reach the oyster grounds, and there can be no doubt that some of the water of the upper Delaware, carrying the sewage of Philadelphia, Trenton and numerous smaller places, ultimately finds its way over the oyster beds.

It should be borne in mind, however, that the lower Delaware Bay is a very large body of water, and the dilution of the sewage which finds its way into it is very great. Moreover, a considerable amount of sedimentation must take place during the passage of the water from Philadelphia to the Maurice River Cove, a distance of about eighty-five miles. The relative effects of these various sources of pollution on the water of the cove can only be ascertained by carrying out all of the investigations above outlined. To ascertain the total effect of these sources of pollution in terms of *B. Coli communis* a number of samples of water and oysters were taken from various points in the cove.

The examination of these samples were limited to tests for *B. Coli communis*, the quantities of water used in every case being 1 cc., 0.1 cc. and 0.01 cc., all tests being made in duplicate. In order to avoid changes which might occur in the samples in transit if they were transported to the laboratory, they were planted directly into small vials containing about 4 cc. of lactose peptone bile. Upon reaching the laboratory the contents of these vials were emptied into fermentation tubes containing bile medium and these tubes were incubated for seventy-two hours at 37.5° C., the amount of gas formed being noted each day. It was found that a considerable number of these samples, in one dilution or another, produced small amounts of gas, usually less than five per cent. Plates were made on litmus lactose agar from fifteen of these atypical tubes and the routine tests for *B. Coli communis* applied, but in no instance was it found in the water samples except in those which gave 10 per cent. or more gas in seventy-two hours.

The oysters, twelve constituting a sample, were wrapped in clean oilcloth as soon as taken from the beds and transported to the laboratory. 1 cc. of the liquor from each of five oysters was taken

and the entire amount thoroughly mixed together and lactose peptone bile fermentation tubes planted in duplicate with 1 cc., 0.1 cc. and 0.01 cc. These tubes were then treated in exactly the same manner as the water tubes.

The oysters were opened in the following manner. Each oyster was thoroughly scrubbed with a brush in tap water, then rinsed in distilled water free from *B. Coli communis*, and finally washed in sterile water. The edge of the shell was then strongly flamed with a blast lamp, and a sharp, sterile oyster knife inserted between the valves and the adductor muscle cut, the flat valve being uppermost. This was then carefully lifted off and 1 cc. of liquor withdrawn by means of a sterile pipette. The oyster knife was sterilized between the opening of each oyster by wiping all bits of shell from the blade, dipping the blade into a 4 per cent. solution of lysol, wiping off the lysol with a piece of sterile gauze, dipping the knife into strong alcohol and burning off the alcohol. Control tests show that this method of sterilizing the knife effectually destroys all *B. Coli communis*.

Of the 45 samples of water examined all showed a typical presumptive test for *B. Coli communis* in one of the two 1 cc. tubes planted (equivalent to *B. Coli communis* in 2 ccm. of water) and three samples showed *B. Coli communis* in both tubes (equivalent to *B. Coli communis* in 1 cc.). In no instance was *B. Coli communis* found in quantities of water smaller than 1 cc.

Six of the samples were taken close to or in the mouth of the Maurice River and cannot be regarded as indicating the average quality of water in the cove. Eliminating these samples it appears that *B. Coli communis* was found seven times in 2 cc. of the cove water and once in 1 cc., that is, in 18 per cent. of the 2 cc. samples and 2.5 per cent. of the 1 cc. samples.

It will be observed that *B. Coli communis* was found in each of the six samples taken at or near the mouth of the river. While further investigation is necessary before the amount of polluting matter carried to the cove by the Maurice River can be estimated, these results clearly show that the water of the river was, at the times when these samples were taken, more highly polluted than the water of the cove. The quality of the water in the cove on the days when these samples were collected, judged by its content of *B. Coli communis*, was of a higher degree of purity than the water served to the citizens of this State from a number of

public water supplies, and, if these results are confirmed by further investigations there appears to be little or no reason to believe that oysters, when taken from this water, will be dangerous to health.

Thirty-three samples of oysters and one of clams were collected from the cove and examined as above described. The results of these examinations are not easy to interpret. Large numbers of atypical fermentations were obtained in lactose bile. Out of 204 fermentation tubes planted sixty-three showed after seventy-two hours incubation less than five per cent. of gas, which quantity increased but little on further incubation. Unfortunately, it was not possible because of lack of time to test all of these samples of oysters. Fifteen of them were plated on litmus-lactose agar, and the red colonies obtained, if any, tested for *B. Coli communis*. Of these fifteen cultures showing less than 5 per cent. of gas in the first fermentation tube, five, or 33 per cent. proved to contain bacilli which after rejuvenation gave all the usual tests for *B. Coli communis*. It therefore appears that the presumptive test for *B. Coli communis*, using lactose peptone bile, fails in a certain proportion of cases with oysters from the Maurice River Cove. A number of causes may be assigned to such failure, but it is probably due to the fact that the *B. Coli communis* found in these atypical fermentation tubes are attenuated forms, having been a long time in the water or the oyster where conditions are unfavorable for their existence. Interpreting the results obtained on the oysters with regard to the foregoing statements, it appears that out of thirty-four samples, twenty showed no *B. Coli communis* in 2 cc. of the liquor, four showed it in 2 cc., five in 1 cc., one in 0.2 cc., three in 0.1 cc. and one in 0.01 cc., that is,

12%	of the samples show	<i>B. Coli communis</i>	in	2	cc. of the liquor.
18%	"	"	"	1	"
3%	"	"	"	0.2	"
9%	"	"	"	0.1	"
3%	"	"	"	0.01	"

and 59% of the samples do not show *B. Coli communis* in 2 cc. or less.

The distribution of oysters throughout the cove in which *B. Coli communis* were found does not indicate that any particular portion of the cove is receiving more polluting matter than the rest. These results, however, are too few in number to draw far reaching conclusions from. About all that can be said for them is that

there is nothing in them sufficiently indicative of dangerous pollution to warrant the State Board of Health in forbidding the sale of oysters from Maurice River Cove.

In conclusion, I desire to emphasize particularly that these results apply to oysters as they are taken from the cove and not to their condition after they have been floated in the waters of Maurice River.

Somewhat later in the year samples of water were collected at various points in the Maurice River adjacent to the floats where oysters are freshened and to the shipping houses at Maurice River and Bivalve. In all, twenty-six samples of water were collected and examined. Two of these samples, or 7.7 per cent., contained *B. Coli communis* in 0.01 cc. Fifteen, or 57.7 per cent., contained this organism in 0.1 cc. and nine, or 34.6 per cent., contained it in 1.0 cc. These samples indicate that at the time the samples were taken the Maurice River, at points near the oyster floats and shipping houses, was polluted to a greater extent than the waters of the cove. Much more extended investigations will have to be undertaken, however, before any reliable estimate of the amount of pollution and especially the character of the pollution of the river can be made. In interpreting results of the examination of samples of water for the purpose of ascertaining whether they are likely to contain the germs of infectious diseases and particularly the germs of typhoid fever, which is the purpose of the interpretation of all results obtained in these oyster investigations, and using for a basis for that interpretation the numbers of *B. Coli communis* found, the probable source of this organism must be given much weight. It should never be forgotten that *B. Coli communis* is merely an indicator which shows that the water has had added to it material of faecal origin, and that the finding of this organism throws no light on the origin of the faecal matter. For the purpose of estimating the potential danger of a water to the sanitary quality of the shellfish grown in it, the source of the *B. Coli communis* is of the greatest importance. Practically speaking, the only disease germ which we are concerned in keeping out of oysters is the typhoid bacillus, because typhoid fever is the only disease of bacterial origin which oysters are certainly known to be the cause of. Typhoid fever is a disease of man only. The bacilli are eliminated from the patient in the faeces and urine, and if the substances find their way into

waters in which oysters are grown, the oysters are in danger of infection. We have no reliable method of isolating typhoid bacilli from water or oysters, and, therefore, search for another organism which is always associated with it in the discharges from typhoid fever patients, the *B. Coli communis*. But this latter bacillus is a normal inhabitant of the healthy intestine of not only man but all the other warm blooded animals and even birds. It will therefore be readily understood that *B. Coli communis* of animal origin, such as if obtained from street washings, the drainage from cultivated fields and other sources of similar character, when found in water, while its presence indicates that the water is receiving polluting material, does not show at all that such water will be deleterious to the healthfulness of oysters and clams grown in it; for, in fact, such water cannot infect oysters with typhoid bacilli because there are none in it.

To attempt to form an estimate of the danger to health through the medium of typhoid infected oysters, of the pollution found in the Maurice River, it will therefore be necessary to get at the probable source of the *B. Coli communis* in it, and this can only be done, as has previously been pointed out, by a minute inspection of the watershed of the river and its tributaries, together with a study of the location and handling of cases of typhoid fever on this watershed. One fact is perfectly clear, and that is, if there is no typhoid fever on this watershed, or if the cases which occur are so cared for that no typhoid bacilli reach the stream, then the oysters grown in the cove and floated in the river will be safe for use as food, because they cannot become infected with typhoid bacilli. The most important method of safeguarding these shellfish, therefore, is the careful supervision of all cases of typhoid occurring on the watershed. It is not to be understood that this is all that is necessary. No matter how much care is taken to prevent contamination by recognized cases of typhoid, there are always the unrecognized cases and carriers to be reckoned with. It is, therefore, necessary to see to it that no sewage or drainage carrying human excrement be discharged into the river unless it is so treated before discharge as to assure the destruction of the typhoid bacilli. This is what is now being done by the sewage disposal plant at Millville with a fair degree of success.

In order that typhoid fever may be properly controlled, either on the watershed of the Maurice River or anywhere else, it is es-

essential that each case be promptly reported to the proper official designated to receive such reports. The importance of this measure cannot be too strongly insisted upon. Concealment of cases of contagious diseases always results in increased danger to the community at large because, in such cases, proper sanitary safeguards cannot be enforced, and the people not being apprised of the existence of the disease, are not in position to take proper measures to protect themselves. *For their own protection*, therefore, those interested in the oyster industry should see to it that all cases of typhoid fever are *promptly reported, properly cared for and kept away from the oyster grounds and from the river and its tributaries until it is certain that they are not eliminating typhoid bacilli*. If this is done the greatest source of danger to the industry will be eliminated.

Ocean County.—Thirty-eight samples of water and thirty-three of oysters were collected from the waters of this county. Of these, twenty-six samples of water and twenty-one of oysters were taken from Tuckerton or Little Egg Harbor and Manahawkin Bays, and the remainder from Great Bay. These samples and those taken from Atlantic and Cape May counties, which will be discussed later, were treated in the same manner as the Maurice River Cove samples. Of these samples of water twenty-six showed no *B. Coli communis* in 1 cc. Ten samples contained it in 1 cc., one in 0.1 cc., and one in 0.01 cc. Of the oysters eleven showed no *B. Coli communis* in 1 cc., six contained it in 1 cc., ten in 0.1 cc., and five in 0.01 cc.

The interpretation of these results is at present impossible. Many more samples must be taken at various seasons before this can be done. The most that can be said is that the oysters show some evidence of having been in contact with polluting material, and that it is possible that this material comes from the Beach Haven sewer which empties raw sewage into Tuckerton Bay.

It is at present quite impossible to account for the presence of *B. Coli communis* in 0.01 ccm. in certain samples of oysters taken from Great Bay. This body of water seems, as a result of superficial examination, to be singularly free from pollution, but no inspection of the streams entering it has yet been made.

Atlantic County.—A few samples of water and oysters have been collected from Absecon Bay and Lake's Bay, but no definite conclusion can be drawn from the results of examinations of them. Several obvious sources of direct pollution were observed on the

banks of Lake's Bay and the streams entering it. Reports on these pollutions were made to the chief of the Division of Sewerage and Water Supplies and they have been more fully investigated by that division. The preliminary inspection seems to indicate that these direct sources of pollution will need to be abated before Lake's Bay can be regarded as a safe place in which to grow oysters.

In Beach Thoroughfare and Great Thoroughfare, back of Atlantic City, clams grow abundantly. The waters of both of these thoroughfares are grossly polluted by raw sewage from Atlantic City and Ventnor. It has been recognized for years by the health authorities of Atlantic City that clams taken from these waters were unfit for use as human food, and their sale is prohibited in that city. There is reason to believe, however, that some clams are still taken from these thoroughfares and sold elsewhere, and also clams taken from other waters are stored in Beach Thoroughfare before being sold. Numerous samples of clams and water were taken from these thoroughfares and were found on examination to be badly polluted, the clams being contaminated to such an extent as to render their use unsafe. In the opinion of the writer, the sale of clams taken from that portion of Beach Thoroughfare between the point of entrance into it of the Ventnor Canal and its mouth on Absecon Inlet, Great Thoroughfare and Clam Thoroughfare should be prohibited.

Late in the summer the attention of the State Board of Health was directed to an outbreak of typhoid fever in Ocean City. This outbreak is fully described in the report of the chief of the Division of Medical and Sanitary Inspection, and an investigation of it by that division seemed to indicate that it was due to the eating of raw clams which had been taken from the thoroughfare back of the city. Samples of clams and water were examined by the Division of Food and Drugs and were found to be polluted. Unfortunately, our attention was not called to this epidemic until so late in the season that the summer residents of Ocean City had returned to their homes, and the town, which during the summer has a population of about 25,000, had only about 3,000 persons living in it at the time the samples were taken. The amount of sewage discharged into the thoroughfare was therefore correspondingly reduced. It is to be expected, when samples of water and clams are taken from this thoroughfare next summer during

the busy season that they will show much greater evidences of pollution than was discovered this year. The writer believes that clams taken from the waters adjacent to Ocean City cannot be safely used for human food, and their use should be forbidden.

Cape May County.—Eight samples of oysters and sixteen samples of water were collected and examined from Jarvis Sound, Turtle Gut Inlet, and Richardson's Sound. These results are much too few in number to draw conclusions from. They indicate, however, that further investigation is necessary in this region, particularly in Richardson's Sound.

TURPENTINE AND LINSEED OIL.

The Legislature in 1910 passed an act entitled "An act to prevent the adulteration of and deception in the manufacture and sale of spirits of turpentine and linseed or flaxseed oil" (Chapter 264 of the Laws of 1910). This act, which is in part a re-enactment of other legislation on the same subject, provides that the State Board of Health shall enforce it. No appropriation was made for its enforcement. Because the Division of Food and Drugs was already taxed to the limits of its capacity, it was not found practicable to examine any samples of turpentine or linseed oil during the year. There is no doubt that there is on the market both turpentine and linseed oil sold in violation of the provisions of this act, but it seems not only impracticable, but improper to make use of funds specifically appropriated for other purposes for the purpose of enforcing this law.

NEEDS OF THE DIVISION.

What the Division of Food and Drugs needs most of all is more room. The laboratory in the State House is now too small to enable us to conveniently pursue the various lines of investigation which the Board has entrusted us with. In particular, the office attached to the laboratory is so crowded that our records cannot be properly stored and handled. The office work is becoming so heavy that one clerk cannot perform it satisfactorily. The funds at the disposal of the division are sufficient to permit the employment of a second clerk, but there is absolutely no place where

this clerk can work, and we are therefore unable to employ one. A room is needed in which the chief of the division can carry on certain special lines of work. At present this is impossible because no space is available. It is to be hoped that the Legislature will provide the division with larger quarters at the next session.

An appropriation is needed to carry on the inspection of oyster and clam beds, as has been already stated. This work has already been undertaken in a somewhat fragmentary way, but sufficient funds should be available to enable us to do it properly. It is estimated that satisfactory progress could be made during the coming year if one inspector and one bacteriologist could be assigned to this work alone. Besides these men, certain apparatus and supplies will be needed. A boat will also be needed, sufficiently seaworthy to carry four men and to make short trips on the ocean in fair weather. During the past year we have been able to make use of boats belonging to the various oyster commissions and that of the Atlantic City Board of Health, but no regular inspection work can be done with these, as they have their own duties to perform and cannot be spared much of the time for our purposes.

An appropriation should also be made to enforce the slaughterhouse act. At least one, and preferably two inspectors, who should be qualified veterinarians, should be employed for this work alone.

LEGISLATION.

Certain legislation is needed in order that this division may carry on its work satisfactorily. The oleomargarine laws in this State have proven inadequate to prevent deception in the sale of this product. It is possible that an act similar to the one now in force in New York, requiring that oleomargarine intended to be sold at retail, should be contained in marked cartons, would be effective. Some provision should also be made for the proper marking of renovated butter.

A supplement to the Food and Drugs act requiring that all articles sold in packages should have the net weight or measure of the contents marked thereon should be enacted. Such a measure is now being considered by Congress and it is likely to pass at this session. It is believed that a law in this State conforming closely

to the provisions of that bill would be a potent factor in preventing the sale of goods under weight, a practise altogether too prevalent in this State.

More stringent legislation regulating the sale of narcotic and habit-forming drugs should be passed. The present laws are defective in that they do not cover all the habit-forming drugs, and the machinery provided for their enforcement is inadequate.

Section 12 of the present food law should be revised. It was intended to compel the cleansing of containers from which milk had been taken before they were returned to the persons supplying the milk. The section is defective in that it applies as now worded only to such as are "shipped." It is just as desirable the vessels not so transported be cleaned before they leave the possession of the persons who have used the milk which they contained.

A law is greatly needed which will bring the State Board of Health and the local boards in closer relationship. Local boards have the same power to enforce the food laws as the State Board, and it is very desirable that they should exercise those powers and exercise them in harmony and co-operation with the State Board. That this may be accomplished it will be necessary to give the State Board a certain measure of supervision over the work of the local boards, and power to compel the indolent and inefficient ones to satisfactorily perform the duties imposed upon them by law.

BULLETIN.

The above report is but a brief and incomplete statement of the work done by the Division of Food and Drugs during the past year. The space limitations of our annual report compels a degree of brevity which results in the exclusion of much material which would be of interest to the public. At the present time there is no method of making this material available. The edition of the annual report is small. It reaches but a small proportion of our citizens and is read by a much smaller proportion. Moreover, its publication is so delayed that by the time it is issued it is out of date. The most serious disadvantage under which the State Board of Health labors at the present time is its inability to take the people into its confidence, to inform them of the work it is doing and to bring to their attention many matters of vital impor-

tance to them. The best work that a State Board of Health can do is educational work, but such work requires that those to be educated and the educators have some means of communication with each other. No adequate means of communication exist in this State at the present time between the State Board of Health and the people. This need has been met by boards of health in other States by the periodical publication of bulletins containing information relating to the work of the boards. Such bulletins, written in popular language with a view to make them interesting as well as instructive to all the people of the State, have accomplished wonders in educating the people along sanitary lines and creating that mutual feeling of sympathy and confidence which is so necessary for successful co-operation. A board of health can do little without the sympathy, approval and co-operation of the people, and it is therefore very important that this relation should be established in this State. It does not exist to any marked extent at the present time. The time is ripe for the publication of a bulletin by the Board of Health of the State of New Jersey. Ample material which the public needs is now available, and it is earnestly hoped that the Board will be able to undertake the regular production of such a publication before the end of the coming year.

Report of the Division of Sewerage and Water Supplies.

H. M. HERBERT, M. AM. SOC. C. E., Chief.

The Board of Health of the State of New Jersey:

GENTLEMEN—I have the honor to submit the following report of the work of the Division of Sewerage and Water Supplies for the year ending October 31st, 1910.

Water may well be considered one of the great necessities of life. Without it man could scarcely live, and since much depends on its purity it is naturally a great problem to be considered in matters relating to public health.

Water may be divided into three kinds: surface streams, lakes or ponds; shallow wells, and deep or artesian wells. It is in the first two classes that the greatest amount of care regarding pollutions needs to be exercised, since these two sources are more often open to contamination. In the deep waters it is not often that analysis reveals impurities, unless by nature some communication has been established through underground channels with a surface stream or lake which is in itself contaminated.

In this State, the problems relating to pure water are placed under the control of the State Board of Health. Through the Division of Sewerage and Water Supplies, the Board endeavors to keep watch over the quality of public supplies, such waters as are used on dairy premises, and also that which is used in the operation of creameries throughout the State. A laboratory is maintained for the purpose of analyzing samples of these various supplies and it is safe to say that the equipment in it is as good as can be found in any State laboratory.

The tests used in the examination of water samples are those recognized by the committee on standard methods, organized by the American Public Health Association. Standard tests are

used in order that different analysts may be able to interpret results of others with the same degree of assurance that they interpret the figures obtained by their own work. Results are expressed in a common way, namely, parts per million, since this is recognized as being the clearest and most accurate way in which to quote the figures obtained.

Physical, chemical and bacterial analyses are made on each sample in order that nothing in the line of impurity may escape the analyst. Oftentimes a water which is good chemically is unfit for use because of bacterial contamination, while the reverse may be true also. With such a thorough examination as each sample is given, it is safe to say that the results obtained may be relied upon and the interpretation of such results is given only after careful thought and study of each separate set of figures.

Public supplies of water are first in consideration and this one feature of the work holds a very prominent place. Public water supply contracts often contain the words "pure and wholesome." To quote from the "Value of Pure Water," by George C. Whipple: "To define the meaning of the expression 'pure and wholesome water,' which is so often found in water supply contracts, would seem to be an easy matter, after all the study that has been given to the subject in recent years; but, although every one knows in a general way what is implied by this expression, yet when it comes to framing a definition in positive scientific terms, the problem is not as easy as it seems. This is not because the chemist and the biologist do not know what pure water is, but because water has so many attributes which have to be taken into consideration, and because these attributes vary in importance in every instance. 'Pure and wholesome water' is not a substance of absolute quality. Strictly speaking, pure water does not exist in nature; all natural waters contain substances in solution or in suspension; and in proportion as these substances are present, and in so far as they are objectionable in character, the water is impure. Definitions of pure and wholesome water, therefore, generally state what foreign substances shall not be present, or in what amounts they are permissible, instead of defining the positive qualities which the water shall possess.

"Unquestionably the term 'pure and wholesome' water, as ordinarily used, relates to water intended to be used for drinking. Such a water must be free from all poisonous substances, as the

salts of lead; it must be free from bacteria or other organism liable to cause disease, such as bacilli of typhoid fever or dysentery; it must also be free from bacteria of fecal origin, such as *B. coli*. In other words, the water must be free from poisonous substances, from infection, and even from contamination. (By this term is meant pollution with fecal matter. Contamination must be considered as potential infection.) Besides this, it must be practically clear, colorless, odorless, and reasonably free from objectionable chemical salts in solution and from microscopic organisms in suspension. Moreover, it must be well aerated. Color, turbidity, odor, dissolved salts, etc., may be permissible to a small degree without throwing the water outside of the definition of pure and wholesome waters. In these minor matters local standards govern up to a certain point, and it is in regard to them that differences in the judgment and experience of analysts lead to diverse classifications."

Analysis is a necessity in the determination of pure and wholesome water. With this in view periodical analyses are made of various public water supplies throughout the State, special attention being paid to those supplies which are derived from surface streams, or from combined sources. Arrangements were made last year with the various companies for the collection of samples, and copies of the analytical results were returned to them. This feature of the work is of value for several reasons. First, it assures the company as to the kind of water they are furnishing their consumers. Second, it allows them to have material on hand with which to convince the consumer as to the kind of water he is getting, and third, it gives a set of figures to the State Board of Health which is of inestimable value in case of disease epidemics which may be thought traceable to the water supply. In order to avoid any question as to the source and manner of collection of the sample, it has been decided to have representatives of this department collect all samples for analyses in the future and the water companies will be furnished with a copy of the analyses as heretofore. During the past year 860 samples of public water supplies were examined.

Private wells in polluted ground are a source of much danger to the consumers of such water. In respect to private wells the State Board of Health is always willing to take up the examination of such sources when requested by local boards or in case

of epidemics. Oftentimes cases of severe intestinal trouble are traceable to polluted well water, while the typhoid cases coming from highly polluted wells are numerous. The condition of such wells can readily be determined by analysis and the fact that over four hundred samples from private premises were examined last year shows that the work of the State Board in this respect is appreciated.

It is entirely proper that nothing but clean, safe water should be used on creamery and dairy premises for the washing of the utensils which enter into the work. The fact that so many wells on these premises are open to grave danger from contamination is to be deplored, and since during the year over three hundred samples of water from such premises were examined, the fact that a strict watch is being kept over such supplies is self evident. It is to be hoped that the coöperation of all dairymen can be obtained in this line so that soon it may be said that every dairy and creamery water supply is safe for use. The value of this work can readily be realized when one thinks of the possibility of disease transmission by reason of infected water coming in contact with milk, one of the best bacterial foods known, and carelessness in washing utensils with impure water may result in widespread disease. It is in the endeavor to prevent such causes that special attention is paid to the water supplies of creameries and dairies.

Not only is the analytical feature of water work to be emphasized, but also the inspection of streams from which water supplies are obtained. This feature of health work is as important as any other. It is necessary that suitable regulations be enforced as to the advisability of allowing drainage of various kinds to enter a stream, and it is only by careful and continued inspection of all such watersheds that a stream may be kept safe for potable purposes. The Board of Health of the State of New Jersey has three inspectors whose sole duty it is to patrol the various streams of the State and report all cases of pollution discovered. It is to be deplored that so many people look upon a stream as a natural drain or a cheap method of waste disposal, and acting upon this idea, allow all sorts of materials to be cast into the water to the detriment of the stream and the disgust of persons using the water below.

Over one thousand cases of private pollutions were discovered during the year just completed, and to the credit of the work of the State Board of Health it may be said that a large proportion of these have been abated. In the majority of cases the persons notified to cease pollution are willing to coöperate with the Board of Health and eliminate the objectionable features. Others who are apparently not willing to see the value and necessity of such procedure must be dealt with by law. Coercion is disagreeable in the extreme to both sides, but if a man will not, of his own free will, see the error of his ways he must be forced to do that which will result in the greatest good for the many.

The matter of drainage into rivers leads to another important feature of the work of this division of the State Board of Health, that of the supervision of municipal sewers and sewage disposal plants with special relation to their proper operation, and the purity of the effluent which they produce. The law provides that each municipality must submit plans for the approval of the State Board of Health before constructing sewers or disposal plants, and no work is allowed to be commenced until such approval is obtained. The law as it was enacted gave to the Board power over sewerage systems in existence prior to the passage of the act, with authority to cause purification plants for such systems to be constructed whenever it was deemed necessary. From time to time these municipalities are being placed under orders to purify their sewage, a reasonable limit being given within which time the work shall be completed.

After construction of a purification plant, its operation is carefully watched. Composite samples of the effluent are obtained and analyzed periodically and if purification is not satisfactory those in charge are notified, and if necessary, changes are ordered. Such supervision of disposal plants is of great value. It proves whether efficient work is being accomplished by the particular method used, and often leads to changes being made for the better when such would not be the case if strict watch were not kept. The sole idea is to obtain the best possible results from the plant,—surely an important aim.

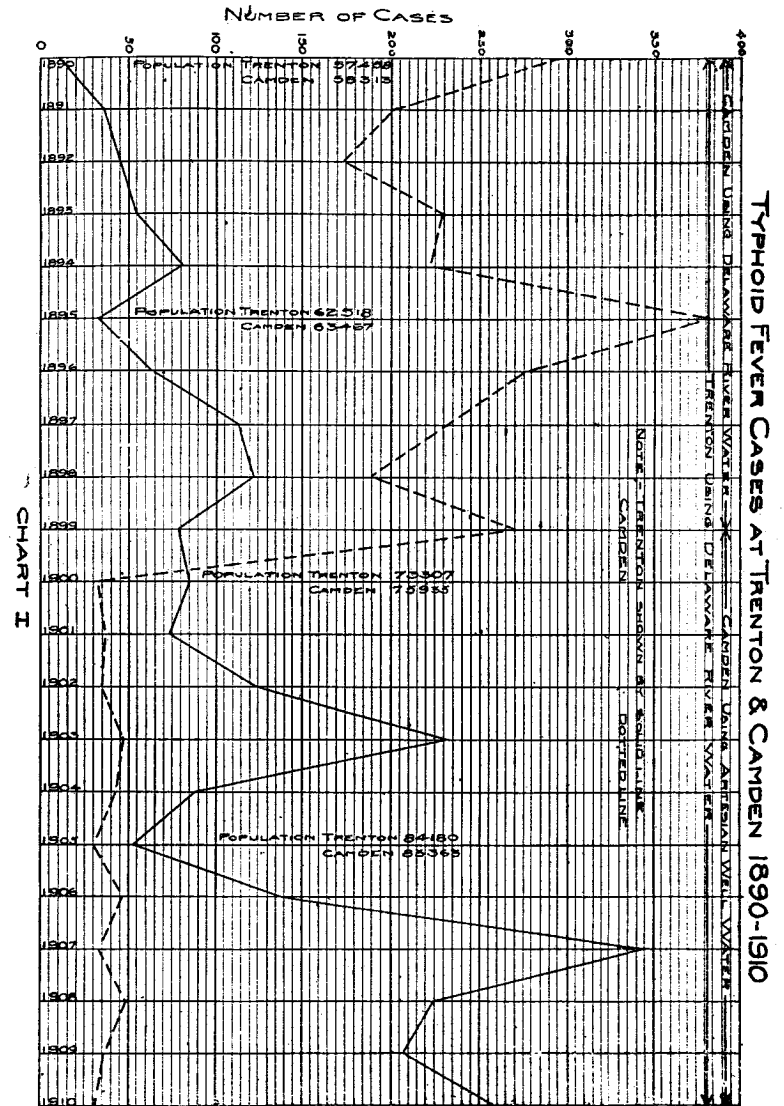
There are many methods of sewage disposal. A system which will work well for one town will not be satisfactory in another. Difference in the composition of the sewage in two towns makes absolutely necessary a difference in the method of purification.

and hence before any municipality builds a disposal plant a careful study of the city's waste should be made. In this way and in no other is it possible to obtain satisfactory results. Nearly all the best-known methods of purification are in use in the State, and it is safe to say that within a few years a specimen of all the satisfactory methods of sewage disposal will be found within the boundaries of the State of New Jersey.

Of course the ultimate aim of this division of health work is to be able to give to the people safe public water supplies in all cases, and methods of sewage disposal which are satisfactory and which produce no nuisance. Necessarily a large amount of opposition is encountered in certain features of this work, but it is pleasing to note that public opinion is rapidly demanding the results which such work produces. A careful thinker cannot help but see the value to be derived from such measures,—safe water supplies, better sanitary conditions, longer and better living.

The people have thoroughly awakened to the necessity of pure water supplies and each year shows improvements in existing plants and more care being exercised in the installation of new plants. A result of this is shown in the death rate from typhoid fever throughout the State. Since 1890, when there were 782 deaths reported, there has been an almost constant diminution in the number of deaths from this cause up to last year, 1909, when the total number was 301. About 15 per cent. of this latter number occurred in one city which has a notoriously poor water supply. During this same period, the population of the State has increased about 1,000,000. Some of the most notable examples of the effect of pure water upon typhoid fever will be found by comparing the number of cases reported before and after the installation of pure supplies at Paterson, Jersey City, Newark and Camden. Chart No. 1 will show at a glance the conditions at Camden and Trenton from 1890 to 1910. Previous to 1899 Camden used the raw Delaware river water which was polluted by not only all the sewage from above, but also much of its own and that of the city of Philadelphia. During the year last mentioned the artesian supply was placed in service and the typhoid rate immediately dropped and it may be safely said that at present not a single case of this dread disease is caused by the water. On the other hand, due to the fact that the river above the Trenton intake has, owing to the increase of population and consequent amount of

sewage discharged from the municipalities on both the New Jersey and Pennsylvania side, become more and more grossly



polluted, the typhoid rate in that city has steadily risen until it now nearly equals that which Camden had a few years ago.

The city of Burlington, which uses Delaware river water, has recently installed a modern filter plant, and it will be interesting to watch the effect on the typhoid rate there, which heretofore has been high, but already shows a marked improvement.

It seems strange that any community, with these facts before them and with the increased knowledge of preventive methods, coupled with the fact that the purification treatments are proportionately inexpensive when compared to the saving of human lives, should hesitate. Such apathy seems almost criminal.

Recently, several civil suits have been brought against parties responsible for the transmission of typhoid fever through both water supplies and shellfish. A suit of this character in New Jersey would probably hasten the improvement of some of the water supplies here. We do not entirely agree with Professor Sedgwick in the statement that "For every case of typhoid fever some person should be hanged." That is putting it rather strongly, but there is no doubt that some person is responsible for every case.

WORK OF THE DIVISION.

The following is a short summary of the work done by the division during the year:

Water supplies inspected.....	102
Sewerage systems inspected.....	179
Special inspections	131
Miles of water front inspected.....	5,260
State institutions inspected.....	8
Sewerage plans approved.....	65
Sewerage plans disapproved.....	5
Water supply plans approved.....	11
Spring waters approved.....	5
Spring waters disapproved.....	10
Pollutions reported	1,032
Persons summoned before the Board.....	768
Cases referred to Attorney-General.....	115
Persons and municipalities given advice on sewage disposal.....	212
Samples analyzed as follows:	
Public water supplies.....	860
Private wells	414
Dairy wells	210
Creamery wells	25
State institution water supplies.....	28
Sewage samples	120
Spring waters	15
Miscellaneous	44
	1,716

Each of these samples received both a chemical and bacteriological analysis, therefore the total number of analyses made was 3,432. A low contract price for this class of work is \$10 per analysis, not including cost of collection of sample; thus, the value of this work alone is \$34,320.00.

SEWERS AND SEWAGE DISPOSAL.

Owing to the rapid growth of the population of this State, it has been found absolutely necessary to protect the purity of our streams, or they will soon be as foul as the Passaic river. The board has wisely adopted a policy compelling all sewerage systems which are now being installed to provide some acceptable method of sewage purification, the degree of purification being governed by the nature of the waters into which the effluent is to be discharged. Exception to this rule has only been made in cases where the sewage is discharged into the North river or Staten Island sound. The existing systems have also received attention and where it was found necessary, the municipalities or private companies (as the case might be) were ordered to cease to pollute the adjacent waters within a reasonable time, which time, according to the law, cannot exceed five years from date of notice. At the present time, there are in operation eighty-two sewage disposal plants with twelve more nearing completion, making a total of ninety-four plants in the State. Of this number, sixty-six serve municipalities and twenty-eight factories or institutions. Of existing systems which are discharging raw sewage into the streams, forty-nine are under orders to install disposal plants, seven of which are private and serve only small communities. The longest time granted to any of these is to January 1st, 1914. This leaves only a small number of systems outside of the Passaic Valley Sewerage District (for which this board is not responsible) which are not already provided with disposal plants or are under orders to install same. These are located with but few exceptions near to and discharge their sewage into either the North river or the Staten Island sound. Owing to the geographical location of our State, we find it necessary to discharge the effluent from the sewage disposal plants into all kinds of water, from small streams constituting domestic water supplies to the Atlantic ocean. Where

the effluent is discharged into a public or domestic water-supply such as the head waters or tributaries of the Passaic, Hackensack, Raritan and Delaware rivers, a high standard of purity is required. Also, where the sewer outlets are near shellfish beds, the board has wisely demanded a high bacterial purification. This latter, being salt water, and usually a large body of the same, a high chemical purification is not deemed necessary, the effluent being so diluted that putrefaction does not take place. Where sewage is discharged directly into deep water on the ocean front, the board considers that it is only necessary to break up the solids and give an effluent reasonably clear. To accomplish this, septic or sedimentation tanks have been used. This admits of a wide range of purification plants, and as nearly as we can ascertain New Jersey has to-day in operation the most varied purification systems of any State in the Union. We have the plain septic or sedimentation tank; septic tank and contact filter; screens, septic tank, primary and secondary contact filters; septic tank primary and secondary contact and sand filtration; septic tank and ground seepage; septic tank, sprinkling filters and sand filtration; septic tank and sub-soil irrigation; septic tank and intermittent sand filtration; screens or septic tank and broad irrigation; septic tank, aëration well, primary contact and disinfection; broad irrigation; septic tank and disinfection; also dilution. These combinations probably cover all known methods of sewage purification except chemical precipitation.

The majority of these disposal plants are doing good work and accomplish what they were designed to do. At a few, however, owing to lack of attention or through ignorance on the part of the attendant, the results obtained are extremely poor and unsatisfactory. In some instances, this may be due to the power "higher up." At least as much precaution should be taken in the choice of the man placed in charge of a sewage disposal plant as that of a health officer or health inspector. The difference being that the former may be responsible for several communities located on the stream below, while the latter has only his own municipality to protect. An expensive plant has, in more than one instance, been allowed to deteriorate until it was almost useless. With ordinary intelligence and care an ordinary disposal plant can be kept up to a good state of efficiency. At the Westfield sewer plant the attendant uses the methylene blue test on the effluent from each bed, while it

is in operation, and if it is found to be putrescible, the cause is at once sought for and remedied. The same is true of the Plainfield plant. On some of the other plants the test is used occasionally, but after a few days, if the samples give the proper reaction, the work is discontinued and it is assumed that because the bed is doing good work at the time it will continue to. This is an erroneous idea, for a filter bed will sometimes "go wrong" from some unseen cause, which may not be discovered until serious damage has been done.

A good illustration of how some plants are mismanaged recently came to our notice. An up-to-date sewage plant consisting of septic tank, aëration, primary contact and disinfection had been installed and placed in operation about a year ago. This is located on an important stream which needed the utmost protection against pollution by pathogenic germs. The plant had been giving good results, but, unfortunately, could not supply itself with the disinfectant. An inspector from this office paid an unannounced visit to the plant and found that the supply of copper sulphate had become exhausted several days before, and a fresh lot had not yet been ordered. The board took summary action in this matter and it probably will not occur again very soon. It was found that the attendant, in this case, was not responsible for this condition of affairs, as he had reported it to the proper authorities in ample time to secure a new supply.

During the past season, the wisdom of treating the sewage before it is discharged into the ocean was apparent. All sewers along the beach with ocean outlets from Deal to Point Pleasant inclusive, except Belmar, where legal complications prevented the completion of the works until after the season closed, were provided with septic or sedimentation tanks, which discharged a fairly clear effluent into deep water. As a result, the bathing beaches were free from the objectionable fecal matter which, at times heretofore interfered with the pleasure and comfort of the bathers. There were, however, two exceptions. The first was a complaint from Spring Lake that fecal matter was being washed up on the beach at that place. An inspection proved that it came from the Belmar outlet, where the temporary screens had become displaced. These were at once put in proper condition and no further trouble was experienced during the season. The second instance was a complaint from Loch Arbour to the effect that

sewage from Allenhurst made the water unfit for bathing. A thorough inspection was at once made and it was found that the trouble was not with the Allenhurst plant, which was doing good work, but that Asbury Park had discontinued using the septic tank and was by-passing the raw sewage into the ocean through the outfall pipe. This, under certain conditions of the tides and winds, was being driven back and deposited on the adjoining beaches. This action was taken by the city of Asbury Park without obtaining permission from this board or notifying it of the proposed change. The attention of the board had previously been called to the fact that disagreeable odors were liberated at times from the plant and these were attributed to the septic tank. Several careful examinations were made of the tank and the intercepting sewer on Ocean avenue by representatives of this division at different times, and the following report on the conditions found was submitted to the board:

TRENTON, N. J., June 7th, 1910.

To the Honorable the Board of Health of the State of New Jersey, Trenton, New Jersey:

GENTLEMEN—Some weeks ago complaints were made to this Board by the city authorities of Asbury Park, N. J., regarding the odors arising from the septic tank plant at Eighth and Ocean avenues.

I made a careful inspection there on two occasions, namely, on May 19th and June 6th. I found the septic tank in good working order and discharging an almost colorless effluent. Only a very slight odor could be detected in the septic tank by removing the manhole covers and placing the head well within the tanks. No appreciable odor came from any of the vent pipes. There was, however, a strong odor of putrid sewage liberated from the screening chamber of the pump house, thus showing that the sewage is delivered at the pumps from the collecting system in a highly putrescible condition. I opened all the manholes along Ocean avenue, ten in number, all of which had been sealed tight, and found that each manhole gave out considerable odor, and in a number of them there was a thick, tough scum covering the entire bottom of the manhole.

From inquiry I learned that the system had been built at various times and without any general plan. Some of the grades, I am informed, are only one-half inch to the one hundred feet, thus causing the sewage to flow very sluggishly with a tendency for the solid matter to lodge and form a dam until the sewage behind it rises to such a height that it will force it forward. Under these conditions there is no doubt that it requires many hours for part of the sewage to pass from the house connection to the outlet. I also understand that there are no manholes in the system east of the railroad with the exception of the ones on Ocean avenue, and, therefore, there is no ventilation whatsoever to the pipes and no method of examining the condition of the same. In my opinion the septic tank does not cause the odor complained of. This is solely due to the defective collecting system. The pipes should be thoroughly cleansed and proper methods should be adopted for flushing the same at least every day or oftener, if necessary. Also manholes with well-ventilated covers should be installed at all street intersections or oftener, if necessary. The distance between same not to exceed four hundred feet. As the installation of these manholes will require considerable time, temporary relief could be had

by thoroughly cleansing the pipes and installing some method of drawing the foul air out of the pipes at two or three points where the same could be discharged at some considerable height from the ground. This is a question to be worked out by the local authorities.

Respectfully submitted,

H. M. HERBERT.

It is understood that a part of the above suggestions are now being carried out. The other plants along the coast are apparently working satisfactorily as no complaints against them have been received at this office.

Our State was the first to conduct practical experiments on the disinfection of sewage by the use of hypochlorite of lime, commonly known as "bleaching powder." During the summer of 1907 the State Sewerage Commission, through the co-operation and courtesy of Professor Earle B. Phelps, of Boston, Massachusetts, installed the necessary apparatus for treating the entire sewage of Red Bank for a period of about two months, at a cost of only a few hundred dollars. The results obtained were extremely satisfactory and proved that an effluent free from dangerous germs could be obtained at a nominal cost (see report of the New Jersey State Sewerage Commission for the year 1907, pages 115 to 127 inclusive).

It is believed that this method of treating sewage, combined with thorough screening or sedimentation can, where the effluent is discharged into a large body of moving water, especially salt, be advantageously installed, as the first cost is small compared with cost of contact beds or sprinkling filters and the cost of maintenance is not great. Thus many thousands of dollars will be saved by some of our municipalities. The first permanent plant of this description was installed at Stone Harbor over a year ago. Since then one has been placed in operation at the Dover avenue outlet of the Atlantic City sewers, and one recently completed at the Rahway Reformatory. There are now under construction one at Keyport, two at Ventnor, two at Margate City and two at Bridgeton. Plans for two other sewerage systems provided with sterilization plants have been approved, but actual work upon them has not yet been commenced. While the chlorine treatment is efficient, yet there is an element of danger connected with it which must be closely watched. The dosing tank must not be allowed to get empty. If it does unpurified sewage will be discharged and probably irreparable damage done to the shellfish beds and adjoining

water. To avoid this it will be necessary to make frequent but irregular inspections, and if it is found that the proper attention is not being given, the Board can order a secondary treatment by contact beds or some other method. Failure to provide the disinfecting agents should be made a criminal act. The policy pursued by the board to eliminate all by-passes from disposal plants has produced good results, as formerly it was oftentimes found convenient to by-pass the sewage when a tank or filter bed became slightly troublesome.

In some cases throughout the State it has been found necessary to enlarge the existing disposal plants and in others to provide further treatment. At Collingswood a sedimentation tank had to be added and the contact beds enlarged. This borough is growing so rapidly that further additions will have to be made in the near future.

The sand filter beds at the Haddonfield plant were found to be overloaded. Their engineer advised that a sprinkling filter and settling tank be placed between the septic tank and filter beds, which work is now being done and should give excellent results. At Red Bank, where only a septic tank is used the Board ordered that the sewage be further purified before it is discharged into the Navesink river. Plans for this addition have not yet been submitted, and the case will probably have to be referred to the Attorney-General for legal action. At the Ridgewood plant the automatic air-lock control system was practically rebuilt and some other changes made during the year which have greatly improved the efficiency of the contact beds. As a rule, more care and attention is being given to the sewage disposal systems throughout the State, and consequently better results are obtained. There is, however, room for further improvement, especially at some of the State and county institutions, where lax methods prevail at times.

The following is a list of the municipalities which are under orders to cease to pollute the waters of this State prior to the dates given:

Anglesea	June 1st, 1911
Atlantic City (main outlet).....	February 1st, 1912
Atlantic Highlands	June 1st, 1911
Avalon	June 1st, 1911
Beach Haven	July 1st, 1912
Belvidere (private sewer).....	October 1st, 1907
Blairtown (private sewer).....	October 1st, 1907
Referred to Attorney-General.	
Bogota	January 1st, 1914
Bound Brook.....	July 1st, 1911
Camden	September 1st, 1913
Cranford	November 1st, 1911
Delford	January 1st, 1914
Englewood	May 10th, 1911
Garwood—plans approved....	Certioraried by the city of Rahway
Gloucester	September 1st, 1913
Hackensack	January 1st, 1914
Highland Park.....	July 1st, 1911
Holly Beach.....	June 1st, 1911
Jersey City (part of).....	May 1st, 1908
Referred to Attorney-General.	
Long Branch.....	May 1st, 1908
Longport	June 1st, 1912
Medford (private sewer).....	June 1st, 1911
Mount Holly.....	January 1st, 1911
Mullica Hill (private sewer).....	January 1st, 1911
New Brunswick.....	July 1st, 1911
North Wildwood.....	June 1st, 1911
Oaklyn (private sewer).....	September 1st, 1909
Preliminary injunction granted.	
Ocean City.....	June 1st, 1911
Phillipsburg	October 1st, 1907
Case being tried.	
Peermont	June 1st, 1911
Rahway	October 1st, 1911
Ridgefield	January 1st, 1914
Ridgefield Park.....	January 1st, 1914
Raritan	July 1st, 1911
River Edge.....	January 1st, 1914
Riverton	September 1st, 1913
Rumson (private sewer).....	June 1st, 1911
Salem	September 1st, 1913
Seabright	June 1st, 1911
Seaside Park.....	June 1st, 1911
Sea Isle City (private sewers).....	May 1st, 1911
Somerville	July 1st, 1911
South Amboy.....	January 1st, 1913
Sussex (private sewers).....	October 1st, 1912
Trenton	January 1st, 1911
West Hoboken.....	May 1st, 1908
Referred to Attorney-General.	
Wildwood	June 1st, 1911
Wildwood Crest.....	June 1st, 1911
Woodlynne	January 7th, 1907
Under injunction.	

TRADE WASTES—TOMATO CANNING.

One of the many important industries in the State of New Jersey is the canning of tomatoes, and there are located in many places factories of considerable size which handle from 1,000 to 3,000 tons of raw stock during each season of about six weeks. As about 50 per cent. of this raw stock is waste, considerable nuisance and pollution of streams has occurred in the neighborhood of these factories.

It was therefore deemed advisable to make a study of these wastes so that some advice as to remedies might be given along with a notice to cease to pollute the waters of the State.

A thorough study of material and conditions (considering the shortness of the season and lack of proper laboratory space) was made and a full report of the investigations for the present season follows herewith:

REPORT ON TREATMENT OF TOMATO CANNING WASTES.

In accordance with the instructions of the State Board of Health, I took up the problem of the treatment and purification of the wastes from tomato canneries during the present season. Several factories were visited and arrangements were made to conduct a series of practical experiments at Quinton and Woodstown. Mr. Lucius Hires, of the Fogg & Hires Company, at Quinton, and Mr. Wallace Roberts, of the Curtice Brothers Company, at Woodstown, were very kind in giving myself and my assistant, Mr. Dixon, every possible assistance and information.

Before starting on the practical work, I made every effort to learn just what had been done in this particular line, and to that end visited the Massachusetts Experiment Station at Lawrence, Massachusetts Institute of Technology, Boston, and Worcester Polytechnic Institute. I consulted the technical literature at these places, and also at several other libraries, both public and private, and was fortunate to have personal interviews with several chemical experts in Massachusetts, New York and Penn-

sylvania. I have also had letters from persons who have had similar problems in California.

Having satisfied myself that nothing had been done to any extent on this problem, and having received some valuable suggestions from some of the chemical experts, Mr. Dixon and I set to work on the thirteenth day of September, 1910, at the factory of the Fogg & Hires Company, Quinton, N. J.

The wastes from tomato canneries consist of a large quantity of tomato juice, pulp, seeds and skins washed out with large volumes of water. This material, when discharged into small streams, causes more or less nuisance, principally on account of the large amount of coarse particles of tomato. If there be a slight tide the particles float back and forth until decomposed, and if the stream be sluggish much fermentation occurs, resulting in unpleasant odors and the using up of the oxygen of the stream.

The ideal method of purification is, therefore, to remove the solids from liquids and then to convert the liquids into stable or non-putrescible fluids. Our first aim was to accomplish this result, if possible, by some method which would be economical.

The tomatoes are first rinsed in cold water, then scalded, skins and cores removed, packed into cans by hand or by machine, sealed up and cooked. During this process there is a considerable waste at every step and some idea of the extent can be derived from the table given below. I have figured this on a basis of a day's run of 100 tons, and I shall refrain from giving many details which have aided me in drawing my conclusions, but which might be regarded as divulging special business methods.

The factories vary in size, and during the season of from four to six weeks may use from 500 to 3,000 tons of raw stock.

In the table below the percentage of water used per ton would probably vary more than the actual shrinkage which represents true waste.

In some factories the skins and cuttings are run through an apparatus, called a cyclone, which forces the pulp through a screen and separates it from the skins and cores. The pulp is sometimes saved and sometimes it is discharged into the sewer, while the skins and cores are either carted off to the fields or washed into the sewer with the liberated juice.

TABLE I.

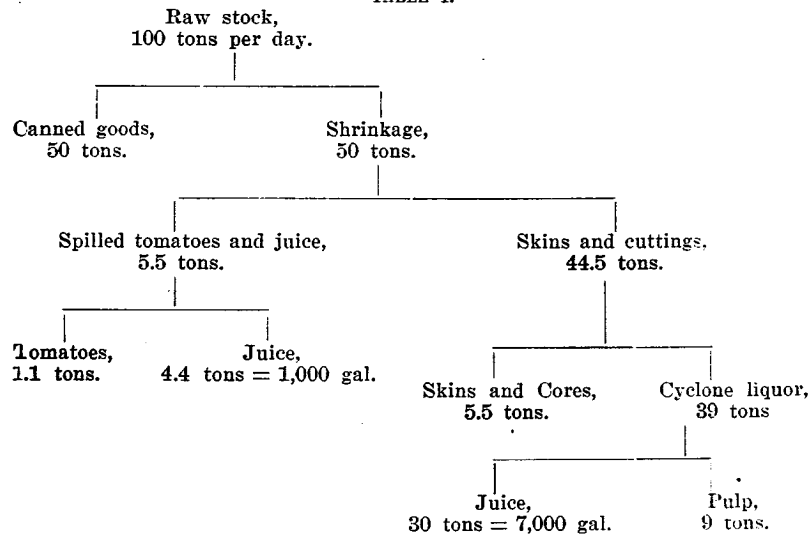


TABLE II.

Cold rinse water.....	1,800 gallons	} 10.4%
Scalding water	200 "	
Wash water	1,500 "	} 41.6%
At sinks, buckets, &c.....	300 "	
Into cyclone	6,500 "	
Wash water at pulp box.....	900 "	
Juice from pulp box.....	7,000 "	} 48%
Juice from floor waste.....	1,000 "	
	19,200 gallons of liquid waste per ten-hour day.	

At first, it was thought desirable to separate the liquids into three grades and treat each grade separately, but as the rinse water formed such a small percentage and contained a considerable amount of crushed tomatoes, it was decided to treat all alike. Furthermore, separate treatments in some instances would necessitate separate lifting apparatus.

Samples were therefore taken which would represent the combined output and experiments made thereon.

Screening both through fine wire screens and through cheese cloth was found to have practically no effect on the putrescibility.

Chemical precipitation was next resorted to. Only those reagents which would be considered economical were tried, viz., lime, iron sulphate, calcium phosphate, clay, alum and combinations of these substances. None of these substances gave a clarified liquor which was stable more than a few hours.

Experiments were then made to determine how good a separation of solids from liquids could be accomplished by simple sedimentation. We found that standing over night gave a liquor which was almost entirely free from turbidity, but needed considerable dilution with water to prevent putrescibility.

Two small sand filters were constructed, but, owing to limited size or lack of time for maturing, the operation was not very satisfactory.

Summing up, I have come to the conclusion that for preliminary treatment a sedimentation process will, perhaps, be the best. A tank holding about a day's flow provided with suitable baffles should give the required separation of solids from liquids. The solids can then be removed as often as necessary, and as there is some demand for this material in certain localities, it may be removed free of cost.

Wherever the stream is of sufficient size the clarified liquid can be emptied therein without fear of nuisance or menace to health. Where no stream is available, as at inland factories, I recommend that a small piece of ground be set aside for the purpose and thoroughly plowed and worked up to receive the dose of clear liquor. It will be better to alternate the application upon different parts of the ground. Upon this ground can be cultivated in the spring a quick-growing crop, which must be removed and the ground plowed and put in order before the canning season.

Should it be necessary to pump the waste to a higher level for treatment, a sewage ejector could be installed to be worked by a small steam air-compressor such as is used on locomotives, or by means of the steam pressure direct.

In regard to further secondary treatment, I may be able to give additional information at some later date.

Respectfully submitted,

F. E. DANIELS,
Chemist and Bacteriologist.

STREAM POLLUTION.

During the year the inspectors have examined 5,260 miles of riparian frontage and reported 1,032 cases of individual or minor pollution. The inspections were made on the following waters: Absecon Bay, Absecon Inlet, Assanpink Creek, Atlantic Ocean, Barnegat Bay, Cedar Brook, Cohansey Creek, Culver's Lake, Deal Lake, Delaware Bay, Delaware River, Elizabeth River, Great Egg Harbor Bay, Hackensack River, Hop Brook, Inside Thoroughfare, Lake Hopatcong, Lawrence Brook, Maurice River, Middle Brook, Millstone River, Mullica River, Overpeck Creek, Passaic River, Peckman River, Peter's Brook, Rahway River, Rancocas Creek, Raritan River, Rockaway River, Rock Creek, Shrewsbury River, Toms River, Verona Lake, Wallkill River, Whale Pond Brook and Whippany River.

The pollutions have been entirely abated in some of these streams, others are now awaiting reinspection and in some few instances where there was a reasonable prospect of a sewerage system being installed, the time for abatement was extended. It has been found that when a notice is served under what is known as the "Ten Day Act," it usually received prompt attention and reinspection of 398 cases proved that only ten had failed to abate the pollution and suits have been commenced against them. This law is probably one of the most stringent acts regarding stream pollution passed in this country. It is as follows:

CHAPTER 215, LAWS 1910.

AN ACT prohibiting the discharge of sewage, excremental matter, domestic refuse and other polluting matter into fresh water.

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

1. No person shall hereafter discharge or permit to be discharged into any fresh water any sewage, excremental matter, domestic refuse or other polluting matter. The term "fresh water" as used in this act shall be taken to mean and include all water commonly known as fresh and which may be used for human consumption, irrespective of whether such water shall be found in a stream where the tide ebbs and flows or not; *provided*, that nothing in this act contained shall be construed to apply to the effluent, or other matter, discharged from any sewage disposal plant, or plant for the treatment of sewage, heretofore approved by the State Sewerage Commission when said commission existed, or heretofore or hereafter approved by the Board of Health of the State of New Jersey, which said effluent or other matter so discharged is hereby expressly declared to be not sewage, excremental matter, domestic refuse, or other polluting matter.

2. Any person who shall violate any of the provisions of this act shall be liable to a penalty of fifty dollars for each offence, to be recovered in an action of debt by the Board of Health of the State of New Jersey; said penalty when recovered by said Board of Health of the State of New Jersey to be paid into the treasury of this State.

3. It shall be the duty of the Board of Health of the State of New Jersey to give notice, in writing, to any person violating the provisions of this act, to discontinue such violation, and if said violation be not discontinued within ten days from the date of service of said notice, then it shall be lawful for the said Board of Health to institute a suit to recover the penalty provided for in the second section of this act. The said notice shall describe in general terms the location of the premises from which said violation occurs.

4. Whenever any person shall violate any of the provisions of this act, it shall be lawful for the State Board of Health, either before or after the institution of proceedings for the collection of the penalty imposed by this act for such violation, to file a bill in the Court of Chancery in the name of the State, at the relation of such Board, for an injunction to restrain such violation and for such other or further relief in the premises as the Court of Chancery shall deem proper, but the filing of such bill, or any of the proceedings thereon, shall not relieve any party to such proceedings from the penalty or penalties prescribed by this act for such violation.

5. The word "person," as used in this act, shall be construed to imply both the plural and the singular, as the case may demand, and shall include corporations, companies, associations and societies, as well as individuals, and the word "corporations" shall include municipal corporations.

6. Nothing in this act contained shall be construed to operate as a repeal of any act of the Legislature designed to secure the purity of the public supplies of potable water, or to prevent the pollution of streams, whether such streams be tidewater streams or not, but this act shall be deemed only to be additional legislation.

7. This act shall take effect immediately.

Approved April 9th, 1910.

It is found necessary to patrol the streams constantly to seek new violations and also to see that some of the past transgressors have not returned to their evil ways.

Considerable time and some money must soon be devoted to the further study of trade wastes as the pollution from this source is fast becoming a serious menace to our streams.

LEGAL CASES.

It is to be regretted that all the testimony in the suit against the Town of Phillipsburg to restrain them from discharging raw sewage into the river, has not yet been taken. The State has submitted its evidence showing that the river was polluted by this sewage and that it required only twenty hours for water to come from the mouth of the Phillipsburg sewers to the water tap in the State House at Trenton. George W. Fuller, George C. Whipple and Earle B. Phelps, who qualified as experts, testified that ty-

phoid fever and other water-borne diseases could be transmitted through this source. A careful study of chart No. 2 will prove interesting in this connection. A further hearing in this case, at which the defendant will submit evidence, is set down for April 5th and 6th, 1911.

A decision has not yet been rendered in the application for injunction restraining the Town of Phillipsburg from dumping garbage on the banks of the Delaware river. Evidence in this case was submitted on June 24th, 1909.

Notice was served on the city of Salem to cease to pollute the waters of Salem creek prior to September 1st, 1913, from which order the city appealed to the Court of Chancery. The court decided that the notice served was defective. It will therefore be necessary to serve a new notice upon Salem and some of the other municipalities which are now under orders to cease to pollute the streams.

An injunction has been granted restraining Woodlyne from discharging sewage into Newton creek. This system of sewers was built without first obtaining the approval of the State Sewerage Commission.

A preliminary injunction has also been granted against the Bettewood Land Company at Oaklyn.

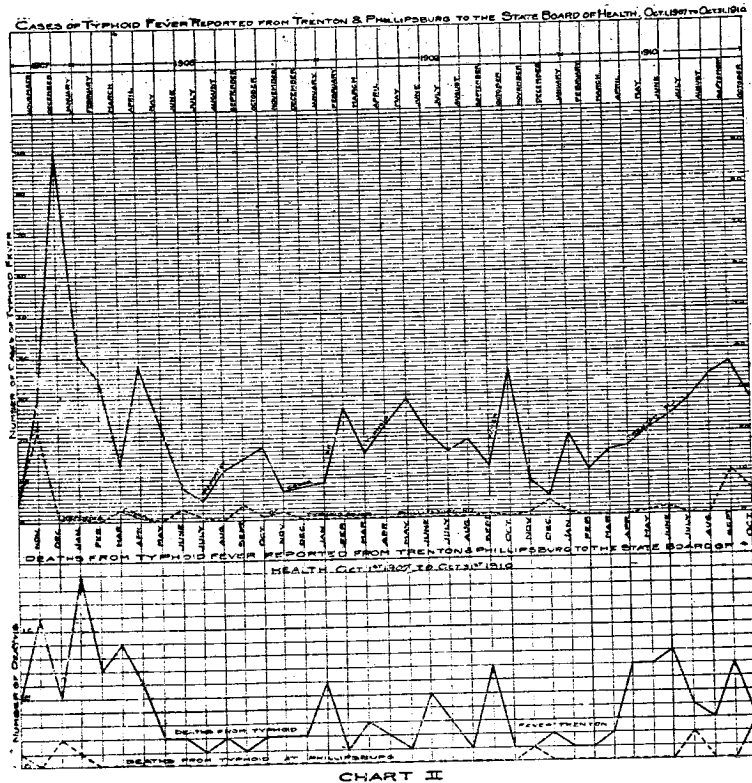
It was found in November, 1909, that the city of Rahway was laying sewers, the plans of which had not been submitted to or approved by this Board. Application was at once made to the Court of Chancery for an order to restrain them from proceeding with the work. A rule to show cause was granted and the mayor and other city officials appeared before the Board, presented plans and specifications and asked that the suit be dismissed and that they be allowed to continue with the work. At a later meeting, the Board approved the plans and specifications, with some minor changes, and ordered the suit discontinued.

No further action has been taken in the suits against Jersey City and West Hoboken pending the result of the Phillipsburg case.

A number of minor cases have been referred to the Attorney-General's office and suits will be commenced at the earliest possible date.

On December 21st, 1909, notice was served on the Water Commissioners of the city of Trenton to show cause at a meeting to be held on December 28th, why an injunction should not be sought in the Court of Chancery to prevent them from serving polluted water to the inhabitants of the city. After several hearings the Board issued notice that prior to June 15th, 1910, the city water must be purified or court action would be taken, and on June 16th the Attorney-General was requested to bring suit in this case, and the city was cited to make appearance on or before June 29th.

This case is now waiting a date for trial.



PUBLIC WATER SUPPLIES OF NEW JERSEY.

At the present time there are in operation in this State 170 water plants, supplying the inhabitants of 314 towns and cities. The source and treatment of the water produced is varied, there being eighty-six underground supplies which are untreated, with ten which are filtered. Thirty-nine plants obtain water from

surface sources and deliver the same to the consumer untreated, while from eighteen plants a filtered surface water is produced. Fifteen companies provide a combination of surface and underground water of which number four operate filters. In addition to this number one company treats its surface supply with hypochlorites alone and another similarly treats its supply drawn from artesian wells.

The range of the surface supplies is extremely great from our largest rivers to the smallest brooks, thus giving physical variations ranging from the cedar colored waters of South Jersey to the clear spring waters furnished in the northern part of the State by some of the smaller companies.

The protection of the rivers used as sources of water supply has been one of the hardest problems to solve. Some municipalities unwilling to drink the filth of their up-stream neighbors have calmly continued to discharge their own sewage into the same stream and then wonder why any protest should be made, but a reference to the report on sewage disposal plants will show that many of the others have recognized the rights of their neighbors and have made proper provisions for the disposal of their wastes. Many have been given orders relative to sewage purification by the State Board of Health and will undoubtedly comply within the required time. Individual violators of the anti-pollution laws still exist, but under the double guard of careful inspection and legal action their number is steadily lessening. We are glad to be able to point to several rivers which, above any water works intake, are practically free from individual pollution. Among these are the Rahway, Elizabeth, Maurice, Rockaway, Swimming, Hackensack and Raritan Rivers, Chimney Rock Brook, Mantua Creek, Haines Creek and Rancocas Creek—South Branch. Several of the smaller brooks and lakes in use are absolutely free from pollution. New Jersey is remarkably fortunate in having at present a wealth of surface water to draw from, but before it is too late a conservation movement should be started to preserve to future generations the valuable bodies of water now within the State's boundaries which will of necessity be used in future time as sources of potable water.

The underground waters of this State are interesting in the extreme. Many are very soft and have all the qualities of a surface water, while others are extremely hard, contain excessive

quantities of iron and in several cases contain large quantities of magnesium in the form of sulphates which renders the water unsuitable for potable use. In several instances it has been necessary to treat the well waters for the elimination of iron, a feat successfully accomplished as is shown by the results obtained at Merchantville, Allenhurst, Atlantic Highlands and Millville. As regards quantity, it has always been said that artesian wells are more or less of a lottery, and the recent drought showed that in many instances the quantity obtainable from a well was decidedly unreliable, in some cases the supply ceasing almost entirely.

The purification of the surface supplies has been brought about by the use of various types of sand filters. The larger filtration plants are at New Milford, operated by the Hackensack Water Company; Little Falls, operated by the East Jersey Water Company both using mechanical filters with coagulation and sterilization. The Middlesex Water Company at Rahway uses horizontal pressure filters as does the municipality of Rahway itself. The Tintern Manor Water Company, supplying Long Branch, uses both the mechanical and pressure types. In a few towns slow sand filters are used, but in each case the amount of water required to be purified is small.

In most cases the filtration plants are working successfully under good supervision. In a few instances improper management has been responsible for a poorly filtered water. In such cases blame cannot be placed upon the filters, but upon the person in charge of their operation.

A survey of the table of towns supplied with public water will show the various kinds and treatment as applied to each. In certain cases the people could readily be supplied with a treated water at a small additional cost, and authorities are agreed that the installation of a water purification plant immediately produces a lessening of the death rate in the municipality supplied. This has been proved too often to be disbelieved, and the safe water-supply thus becomes at once a most valuable asset to the city.

By the provisions of Chapter 253 of the Laws of 1909, the State Board of Health becomes the supervisor of all public water supplies. All new supplies must be approved by this board and the operation of all plants installed carefully watched in regard to the purity of the product delivered. The Board may, when occa-

sion arises, order changes in treatment for waters which are suspicious or improperly purified. This has been done in one instance, the city of Trenton being ordered to purify its water-supply now obtained from the Delaware river and delivered in its raw state to the consumers. The operation of this act cannot help but produce better and more healthful conditions as regards the public water supplies in the State, and it is pleasing to note that the majority of the water companies in this State have aided greatly in the carrying out of the provision of the act.

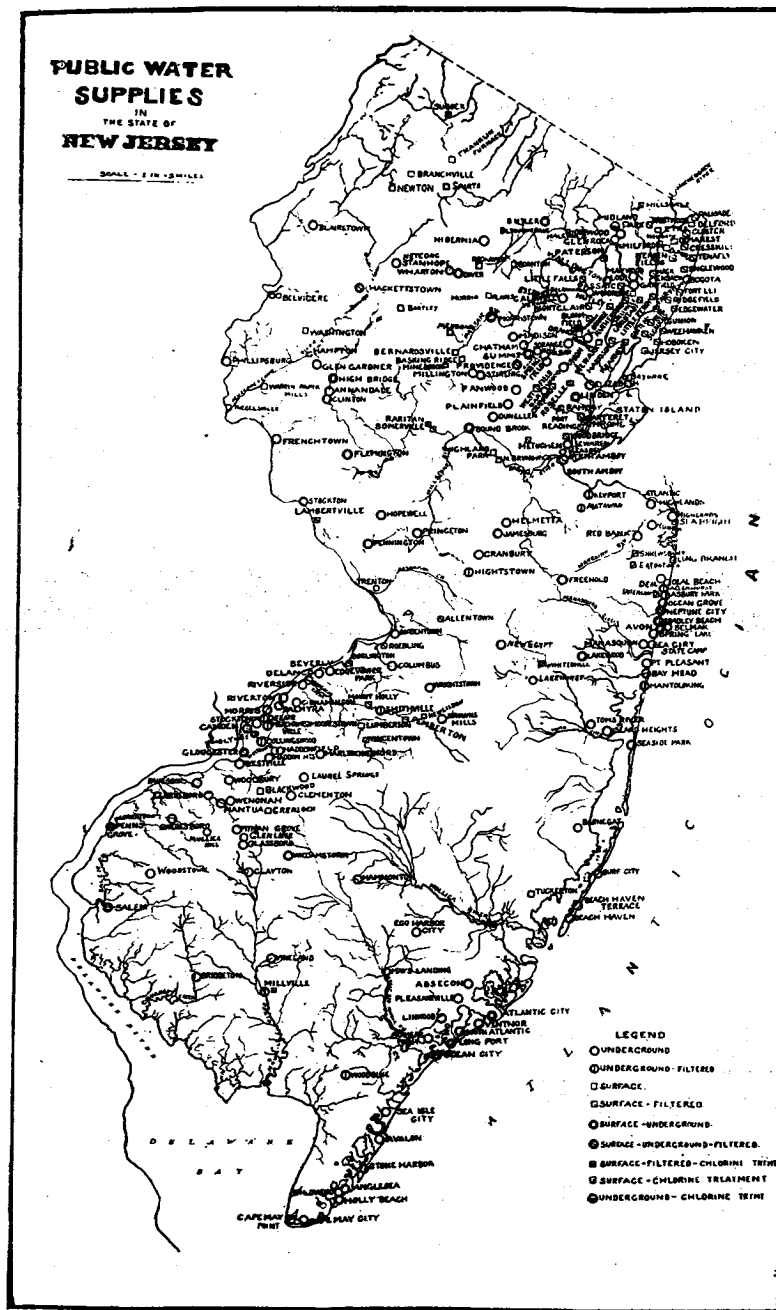
A change is to be made this year in the collection of the quarterly samples from public water supplies. Inspectors of this Board will collect the necessary samples and provision has been made for the sending of the analyses of these samples to the various companies when they so request.

A feature to be urged upon municipalities operating their own water filtration plants is the value of employing a competent analyst to supervise the operation of the filters and keep a constant check on their efficiency. The expenditure of the amount of money necessary to carry out this scheme and to equip the small laboratory necessary will prove a good investment in many ways, not only in the production of a safe water at all times but in a more efficient operation of the plant in general.

In regard to public water supplies in general, the State Board of Health is always willing to aid in the solution of problems confronting those in charge of the operation of the plants, to such an extent as the facilities of the working force available will permit. Certain cases arise when it is impossible to do all the work necessary at once, but these instances are few and far between and arrangements can usually be made to continue investigations when conditions permit.

It is safe to say that at the present time the conditions pertaining to the various water supplies in the State are good, and with the increased force available during the coming year it will be possible to maintain a stricter supervision than ever before in this branch of sanitary work.

The following map has been prepared to enable the reader to perceive at a glance the towns supplied with public water and the kind of water furnished at each place. The predominance of artesian well supplies is easily noted and a glance at the analytical tables will show that these waters are as good as can be found in any community.



SPRING WATERS.

Several applications were made for examination and analyses of spring waters which the owners proposed to bottle and place on the market. Some of the so-called "springs" were found to be wells and consequently under the law the water could not be sold as "spring water."

Of fifteen springs examined, analyses showed that ten were polluted or unfit for use. Five were found to be located in good surroundings and the water apparently safe. These were the Buchanan Spring, the W. E. Reeve's Spring, the Indian Lady Hill Spring, the Cold Indian Spring and the Kanouse Mountain Water Company's Spring. As the latter two have been fully developed and the water is being extensively used, the public will be interested in a description of the springs and the methods used in the bottling of the waters. The following are the reports on these two springs:

TRENTON, N. J., July 1st, 1910.

In response to a communication entered in this office relative to spring water being sold at Asbury Park, N. J., I visited Asbury Park on Thursday, June 30th, and obtained the following information:

There are two springs in existence in Asbury Park the waters of which are being bottled and being sold for drinking water. The first is called Indian Lady Hill Spring and the second is called Cold Indian Spring.

INDIAN LADY HILL SPRING.

This spring is situated about two miles outside of Asbury Park at the foot of a large hill which bears the same name as the spring. The property is owned by Mr. Adam Schuppan. The spring in question is formed by eight tiled feeders which draw water from the middle of a large mound, and is collected in a basin having a sand bottom with concrete sides, divided into two compartments, 18x6x3. These compartments are covered with a wooden roof and an outlet is provided so that the water is always wasting away.

COLD INDIAN SPRING.

This spring has been in existence a number of years, and its water has been bottled intermittently. It is situated in Cold Indian Spring Park, which consists of about ninety-two acres of wooded land and is about two miles outside of Asbury Park, N. J.

Recently a new company was formed, which started to bottle water on a large scale, and about the first of June a new bottling house was built and several changes made in the spring, so that it is in an extremely good condition at the present time. The spring itself is at the base of a hill thoroughly protected from surface drainage and any human pollution. It has been walled in with cement and a basin formed having two compartments, each 8x4x6. The bottom of the spring is clear white sand, the water bubbling up through it. The spring is covered with a cement house. Water from the spring is pumped by a gasoline engine into a porcelain-lined steel tank of about 1,000 gallons capacity in the bottling house. From this it is led by a brass tin-lined pipe

to various parts of the filling house, where it is used solely for all washing purposes and feeding the automatic filler. The bottles used are five-gallon demijohns, having cork stoppers, and two-quart, patent-stoppered bottles. For cleaning the bottles a large wooden vat is provided, filled with a strong solution of washing powder, heated by live steam. The bottles are allowed to soak in this for a considerable period of time and then placed upon automatic washing machines, equipped with rubber brushes, which thoroughly clean the bottles and at the same time jets of water are forced on the outside and inside. This same method of cleansing applies to the large bottles. After being washed the bottles are rinsed on an automatic machine which forces a stream of water on both the inside and outside of the bottles. After this the bottles are placed beneath an automatic filler, filled, capped and crated.

The capacity of the plant at the present time is about 1,500 gallons per day, but this can be readily increased.

The company has offices in Asbury Park and intends to ship water to points outside of the city, although at the present time their principal distribution points are along the present Jersey coast resorts.

Analyses of samples of water collected from both of these springs were made and the results show that in both cases the water is suitable for domestic purposes.

Respectfully submitted,

(Signed) ARTHUR G. FOWLER,

Assistant Chief.

TRENTON, New Jersey, December 28th, 1909.

Upon a request made to this office by the Kanouse Mountain Water Company that their plant be examined, an inspection was made on December 15th, 1909, and the following information obtained:

The above-mentioned company conduct a spring water business in this State, disposing of their product in New York City, Jersey City and Hoboken, through the medium of their own carriers and several grocery stores.

The spring from which the water is obtained is located in Oakland, N. J. It is situated on a hillside distant from any habitation and surrounded by uncleared woodland. The basin of the spring, about eight feet square, is covered by a small spring house, which is kept closed and locked. The bottom of the spring is of white sand, which is about twelve by fourteen feet in depth, and through which the water bubbles up rapidly. I was informed that a gauging of the flow of the spring showed 36,000 gallons in twenty-one minutes.

The house where the bottles are filled is about two miles from the spring, by road, and 7,000 feet of three-inch pipe is employed to deliver the water. The spring end of this pipe is connected to a large funnel which is covered with a very fine screen. At the filling house the three-inch pipe is reduced to a two-inch and then carried through the building to various taps. The difference in level between the spring and filling house is ninety feet, so that the pressure is very great. No storage tank is maintained, every drop of water used in the building coming directly from the spring.

The filling house itself is a model of cleanliness. The work is carried on in a large room provided with a sky-light and windows on three sides, tight cement floor, walls tiled half way to the ceiling, then white painted, and the whole room well ventilated. Shower baths of hot and cold water are provided for the workmen, a bath before work being one of the rules. Each man is provided with a steel locker, and in this he keeps his clothes, a white duck suit being put on before beginning work.

The method of handling the bottles is worthy of a detailed description. The cases of empty bottles are shipped in a car from Jersey City direct to a siding at the filling house. Here the cases are unloaded, and one by one placed on a roller carrier which conveys them into the general workroom. As each case appears the bottles are inspected, and any one which smells or appears as if it had been used as a receptacle for anything but water is placed in a bucket on an endless chain and carried into a tank of ten per cent. sulphuric

acid, where it is allowed to remain for thirty minutes. The other bottles are placed upon an endless conveyor, which first carries them into a strong alkaline solution where they remain for twenty minutes at a temperature of 100 degrees, then automatically into a tank of clear spring water at about the same temperature. In this they remain for twenty minutes, and then are conveyed into a tank of clear water at a slightly lower temperature. After being held in this last tank for ten minutes, the bottles are automatically delivered into a wooden tank containing clear water. The process as described above is accomplished by means of a single machine called the "Twentieth Century Soaking Machine."

The bottles are next placed on an automatic scrubber, a machine having a bristle brush for the inside and expanding rubber brushes for the outside of the bottles. While this machine is in motion a supply of spring water is kept pouring on both the inside and outside of the bottles, and the action of the brushes is such that when the bottles are removed they are extremely clean. Next the containers are placed on a revolving metal table, supplied with hollow upright tubes, one for each bottle, and as the table revolves a stream of water is again thrown on the inside and outside of the bottles, thus giving each a thorough rinsing.

The containers are now placed in metal cages, six to a cage, and deposited upon a roller conveyor which enters the sterilizer. This sterilizer is a long rectangular box built of sheet iron in which are about 800 feet of steam pipe. The bottles are conveyed through this in about thirty minutes, starting at a temperature of 230 degrees, and being delivered at the end almost cold.

As the bottles come from the sterilizer they are placed in the wooden cases, six to a case, and carried under the filling machine, which operates automatically and fills the six bottles at the same time upon the release of a small handle. As soon as the case is filled, the glass stoppers, which have been soaked in a solution of sulphuric acid, washed, then placed in a basket near the filling machine and under a continuous stream of spring water, are taken by the tops, the hands of the operator being covered with rubber gloves, and inserted in the bottles. The filled case is now carried along to an operator who caps and seals each bottle, then on the same roller conveyor carried to a second freight car waiting on the siding, packed in the car and reshipped to the city.

In addition to the eighteen-pint bottles, the regular size, five-gallon carboys are used. These are washed on a special machine with expanding rubber brushes for the inside, meanwhile being supplied with a stream of spring water, then sterilized in the same manner as the smaller bottles. Clean corks are used as stoppers.

The company also manufacture a small amount of carbonated water and have under consideration the bottling of a brand of ginger ale.

The present output of the company is about 800 cases of water per day. This can easily be increased by the employment of more men.

This company was organized in January, 1905, but have been in their present quarters only since September, 1909.

A sample of water was collected from the filling machine and analyzed. The analysis card accompanies this report. It is interesting to note the low bacterial count, which with the good chemical analysis shows that this water is a very fine spring water.

In conclusion, I desire to state that I believe that this water is bottled under the most sanitary conditions of any in this State, and that the source of the water is apparently free from any pollution at present and well protected from any possible future contamination.

The manager of the company expressed the desire for information or criticism leading to the better handling of the water, and said that it was the aim of the company to deliver to the consumers of the product a spring water which the customers might feel absolutely safe in using from every standpoint.

Respectfully submitted,

(Signed) ARTHUR G. FOWLER.
Assistant Chief.

ICE-SUPPLIES.

Special work was done in regard to ice-supplies during the year. Certain inspections were made and special reports prepared which are here given. Not only was each pond in question examined from an analytical standpoint, but also a complete inspection was made of all the feeders of each pond. For the ice shipped into New Jersey from Pennsylvania it was necessary to spend several days in the Pocono section, and the report of these special inspections gives a good idea of the product furnished from our neighbor State. These reports were prepared by A. G. Fowler, assistant chief in this division.

WATCHUNG LAKE.

On Monday, December 13th, in company with one of the officials of the Plainfield Ice and Cold Storage Company I visited the Watchung Lake, from which this company obtains ice for the consumption of the inhabitants of the city of Plainfield. This lake is fed by a small stream about two miles in length, which in its turn is fed by mountain springs. The lake itself is well situated, being free from drainage of all kinds, and although near a road, it is so enclosed that no road washings may get into the water.

We have examined in the laboratory previous to this time a sample of the water from this pond and also a sample of melted ice, and both have given good results. I can see no reason why the ice obtained from this pond will not be of good quality and perfectly safe for consumption.

DENNIS POND.

In regard to a letter relative to a permit for the selling of ice in Asbury Park harvested from Dennis Pond, West Long Branch, an inspection of the source of this ice-supply has been made and analysis of a sample of water collected from the pond made.

The inspection shows that there is no visible source of pollution on this watershed, and the analysis shows that the water is an ordinary quality of pond water. I believe that ice from this source harvested in a sanitary manner and stored under proper conditions should be perfectly safe for domestic use.

MANOLPIN LAKE.

In regard to the supply taken from Jamesburg, N. J., this supply is obtained from Manolpin Lake. This lake is fed by streams which have their rise in springs in wooded territory, but so far as an inspection could reveal, no source of contamination was found. A sample of the water was collected and analyzed, and the results show that with proper handling of the product the ice should be safe for domestic use. I believe that this company takes the greatest care in preparing, storing and shipping their product, and feel certain that this ice is in every way suitable for domestic purposes.

DENVILLE AND HOPATCONG.

The two plants operated at Denville and Hopatcong, N. J., are owned by the Mountain Ice Company. There appears to be no source of pollution at either of these lakes, and the same care in preparing, storing and shipping their product obtains at these plants as is in evidence at the plants operated by the same company in the Pocono Mountains. The ice is planed to a standard thickness, the cars in which shipment is made are well cleaned, and there seems to be no reason to believe that this ice would be anything but safe for domestic consumption.

DRUMMOND'S POND.

The plant operated at Drummond's Pond is operated by the Jamesburg Ice Company. It is understood that the ice harvested on this pond is used only for commercial purposes. However that may be, the analysis of the pond water shows that it is the ordinary

quality of pond water and the ice harvested from it, if cared for properly, should be safe for domestic purposes, although it is to all appearance a lower grade of ice and perhaps not so clear in appearance as some of the other products.

KRUGER HYGIENE ICE COMPANY.

The artificial ice made by the Kruger Hygiene Ice Company at Newark, N. J., is made from the public water-supply of Newark, N. J. The plant is in first-class sanitary condition. Great care is taken in the manufacture and storage of ice, and I believe that the product is perfectly safe for domestic use.

TWIN CITY ICE COMPANY.

Artificial ice made by the Twin City Ice Company in Neptune township is made from water taken from an artesian well 420 feet deep. The analysis of this water shows that it is a good quality of artesian water, and since the plant seems to be operated under good sanitary conditions and the product carefully handled, I believe there can be no question as regards the safety and use of this ice for domestic purposes.

ICE SUPPLIES IN PENNSYLVANIA.

The following information regarding sources of ice-supply in the Pocono Mountains, Pennsylvania, was derived by means of a joint inspection made on June 7th, 8th and 9th, 1910, by representatives of the Health Department of the State of Pennsylvania and the Board of Health of the State of New Jersey.

GOULDSBORO.

The Gouldsboro Ice Company owns and operates two ice houses on a small lake in Gouldsboro, which is one of the head waters of the Lehigh river. This lake covers about 110 acres and is of

an average depth of twelve feet. The feeders of this lake run entirely through uninhabited woodland territory and are not contaminated in any way by the habitation of man. The lake itself is a fine body of water entirely free from vegetation and unpolluted by waste of any kind.

In the spring and summer, the water of this lake has a high color, but no turbidity, while in the winter, the color entirely disappears and the water is clear and white.

The ice harvested here during the winter of 1909 and 1910 averaged thirty-two inches in thickness. As this was cut and prepared for storage it was planed down to an average thickness of fourteen inches. The storage of the cut ice is under the most sanitary condition, and the product is first class in every respect.

In shipping this ice from the houses, great care is taken that the cars be extremely clean and that the product shall be shipped without being contaminated in any respect. The cars are thoroughly aired, washed and swept before any ice is put in them, and after being filled the top layer is covered with thick paper and the doors of the cars thoroughly papered so that only a small amount of shrinkage takes place. The pond in question from which this ice-supply is harvested is located in Wayne county.

The capacity of the two houses in operation here is about sixty thousand tons. In regard to the pond, it may be well to state that the water in it is never stagnant, a stream of twelve inches in diameter flowing away from the lake continuously.

KLONDYKE.

At this point, which is on the dividing line between Lackawanna county and Wayne county, the Lackawanna Ice Company obtains a supply of ice. The source consists of two ponds, with a combined area of 75 acres, with an average depth from 14 to 16 feet. This pond is also one of the head waters of the Lehigh river, is entirely unpolluted by human habitation and the waste therefrom, and is free from vegetable growth. The ice harvested here is of the same quality as that harvested at Gouldsboro and the same precautions as regards sanitary conditions in storage and shipping obtain.

The capacity of the two houses in which ice is stored is 52,000 tons.

In regard to the pond, this water never stagnates, an outlet of 110 feet wide and 2 feet deep being provided through which the water flows continuously.

WEST END.

The Lackawanna Mountain Ice Company harvests ice from a pond at West End, Gouldsboro. This is also one of the head waters of the Lehigh river, and the same conditions as regards vegetation and no pollution are in existence here. During the winter of 1909 and 1910 no ice was harvested from this pond on account of certain changes being made below, which necessitated drawing off of water from this pond. It is evident, however, that when ice is harvested from this pond it is procured under the same conditions that exist at the places above mentioned, and that the ice is of the same quality as that already described.

MOUNTAIN ICE COMPANY.

The Mountain Ice Company harvests ice in Gouldsboro and Tobyhanna.

The plant at Gouldsboro consists of two houses with a capacity of seventy-five thousand tons. The pond from which it is harvested is one of the head waters of the Lehigh river and the feeders of it are uncontaminated, flowing entirely through woodland. The pond itself is free from vegetation, and although high in color during the summer, when winter comes, this color disappears and the water is clear and bright. The lake is never allowed to stagnate, a large spillway being provided over which the water flows constantly. When the ice is harvested it is planed down to a thickness of about fourteen inches, which last winter was about half the thickness of the ice cut. The resulting product is clear and bright with no suspicion of snow or slush ice. The ice is stored under sanitary conditions, and in shipping, the cars are washed thoroughly and aired.

It may also be noted that the men employed in the house during the shipping period are required to cleanse their boots from any

dirt or filth which may adhere to them by reason of walking on the ground before entering the ice house.

This company also operates two houses at Tobyhanna, and the character of the lake in use is the same as that at Gouldsboro. The water is the same and conditions under which ice is stored and harvested are identical with those which obtain at Gouldsboro.

REEDERS.

At Reeders, Pennsylvania, the Trout Lake Ice Company owns and operates two houses with a capacity of 60,000 tons. This lake is one of the head waters of Broadhead creek, and its feeders pass through uninhabited woodland territory. The lake in question is entirely free from vegetation and well protected from any surface pollution. The water is high in color in the spring and summer, and in the winter is clear and the product obtained from it is white clear ice. The ice is harvested under sanitary conditions, is planed down to a thickness of about 11 inches, which necessitates a removal from 7 to 9 inches of the surface at the time of cutting, thus eliminating any filth which may exist on the surface of the ice during the cutting period. The cars in which the product is shipped are well cleaned and great care is taken to prevent any contamination of the ice during the handling.

MOUNTAIN SPRINGS.

The Mountain Springs Ice Company operates a plant at Reeders, Pennsylvania, obtaining its supply from a lake which is one of the head waters of Broadhead creek. The same conditions exist here as at the Trout Lake Ice Company and the product is identical.

The houses at this point store about 80,000 tons, and the same care is used in shipping as that already noted.

In regard to all ice coming from the Pocono Mountain section, it may be said in general that those owning and operating the ice plants are as anxious to have their product harvested under the best sanitary conditions as any health officials. During the trip of inspection it was noted that those in authority expressed them-

selves as being heartily in sympathy with all sanitary measures relating to safe ice supplies and ready and willing to do anything which might aid in producing the best possible ice.

The streams which feed the lakes and ponds used as sources of supply all flow through uninhabited territory and the danger of pollution from human habitation is almost entirely eliminated. The ponds are kept in good condition, vegetation is absent, the shores are without exception free from any growth or slime which oftentimes exist on small bodies of water, and there is no stagnation in any of the lakes.

With these conditions in existence it seems reasonable to believe that ice harvested in the Pocono Mountain region may be considered a good product and entirely safe for domestic use.

LABORATORY WORK.

The amount of work done in the laboratory of this division has increased greatly during the year. The total number of samples of sewage and water examined as routine work is 1,716. Each of these samples was given a complete physical, chemical and bacteriological examination and the financial value of this work is easily brought to the sum of \$35,000.

In addition to the routine work, many special investigations have been made on trades wastes of various kinds, such as tanneries, paper mills, canneries, creameries, etc. It has been impossible to carry on as extensive a line of experiments as would have been entirely satisfactory, for working conditions did not permit. The laboratory is extremely small for the amount of work necessary. More room should be available for investigation of a special character. This would remove the interference with the routine work which often suffers greatly under the present conditions. Apparatus which should be instantly available must, under present conditions, be set up before work can be commenced, and at the close of the experiment must be taken down and packed away. Such conditions as these result in a loss of time which could be used for extra work and as a result a decrease in the amount of actual results obtained.

The laboratory is equipped with all of the most modern and efficient apparatus, but it is decidedly unsatisfactory to be sur-

rounded with good apparatus which cannot be used to best advantage on account of the lack of space. It is to be hoped that these conditions may be remedied.

The working force in the laboratory consists of four analysts. Three of these men give partial time to strict laboratory work and the remainder to necessary inspection of a special nature such as the visiting of sewage disposal plants and systems, water purification plants, investigation of the discharge of factory wastes, etc. This work is outside of the province of the regular field inspectors, three of whom are employed, whose duty it is to cover the individual pollution of streams.

The necessity for the employment of two additional chemists is keenly felt and it is to be hoped that during the coming year this need will be supplied.

The Use of Hypochlorites in Potable Water.

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ARTHUR G. FOWLER, Assistant Chief.

The development of methods for water purification during the last twenty years is one of the remarkable features in the progress of sanitation. At the present time over 8,000,000 people in this country are supplied with filtered water, while many more are relying upon good sedimentation, or have adopted some other method to provide for themselves a safe water supply.

Outside of the modifications of the types of sand filters which are in common use in many cities and whose operation is generally understood, probably the most interesting and at the same time useful method for the purifying of public water supplies is that of sterilization by hypochlorites.

The use of hypochlorites as a sterilizing agent in water has long since passed the experimental stage and its usefulness and efficiency has been proven too many times to look upon its addition to a potable water with suspicion. The history of its development, from the first plant in the Chicago Stock Yards in 1908, up to the present time, is well known to every sanitarian, but it is probable that not all of us are acquainted with the number of cities which have adopted its use either as a temporary expedient, a sole means of purification, or in connection with filtration as a further safeguard.

It is to be understood that sterilization is not at once a panacea for "all the ills that water is heir to," or that it can be used in place of filtration. It has its advantages and its limitations, both of which are admirably summed up by Mr. George A. Johnson in a paper read before the American Public Health Association at Milwaukee in September of this year. The advantages of the process are as follows, according to Mr. Johnson:

1. Substantially complete destruction of objectionable bacteria, particularly those of intestinal origin.
2. Reliability and ease of application of the chemical, together with the small variation in the required dose.
3. Total absence of poisonous features, either in the chemical product as applied to the water or in any of its resulting decomposition products.
4. Merely nominal cost of the chemical and its application.
5. Speed of reaction, making unnecessary any substantial arrangements as to basins other than storage facilities.
6. Substantial saving in the cost of coagulation of waters that are of sufficiently unsatisfactory appearance to require clarification or filtration.
7. Permitting rates of filtration materially in excess of those possible where high bacterial efficiency is required of the filtration process in the absence of sterilization.
8. Reduced clogging of the filter beds with a consequent lengthening of the runs between cleanings, due to the destruction of various forms of algae.

Mr. Johnson sums up the limitations of the use of hypochlorites in the following:

1. Inability to remove or destroy all of the spore-forming bacteria, but which kinds of bacteria are not considered to be pathogenic to man; at least those common to water.
2. Inability to remove bacteria which are embedded in particles of suspended matter.
3. Inability to remove turbidity.
4. Inability to remove appreciable amounts of color or dissolved vegetable stain.
5. Inability to remove organic matter appreciably.
6. Inability to remove swampy tastes or odors.
7. Inability to remove creosote tastes or odors coming from the cleaning of stills used in the destructive distillation of wood.
8. Inability to soften water; as a matter of fact, the addition of hypochlorite of lime usually results in a slight increase in the hardness of the water, although this is not ordinarily measurable, notwithstanding the fact that the commercial product usually contains a little free quicklime which reduces slightly the carbonic acid in the water.
9. Difficulties encountered in applying this process except with the greatest care to waters which contain substantial quantities of reducing agents or compounds capable of oxidation, such as nitrites and unoxidized iron.

It is to be understood thoroughly that the application of hypochlorites to a water is a practice to be carried out with great care. The addition of the "bleach" should be supervised by a competent analyst to prevent underdosing, thus giving imperfect sterilization, or overdosing, resulting in an objectionable taste and odor in the water which the persons using the water will surely notice.

Although the first use of hypochlorite as a recognized means of purifying drinking water was in 1908, the credit for the first use of hypochlorites as a sterilizing agent on a large scale dates from 1907, when Professor Earle B. Phelps first started work on the sewage of Red Bank, New Jersey. These experiments proved

conclusively that the sterilization of sewage effluents by hypochlorites was practical and efficient and since that time this method of treating sewage had been used in many places with great success.

The use of hypochlorites as a sterilizing agent for public water supplies has now become wide spread and at the present time there are about two hundred cities and towns in the United States which have adopted sterilization. Among these are Boonton, N. J.; Harrisburg, Pa.; Brooklyn, N. Y.; Philadelphia, Pa.; Hartford, Conn.; Montreal, P. Q. These cities have adopted this method of purification after thoroughly investigating the possibilities of the chemical, and those in charge of each plant are thoroughly convinced of the value of the treatment.

One of the features of this method of treatment which primarily appeals to those interested is its inexpensiveness and the small amount of space necessary to be used for the mixing and feeding tanks. This makes possible a portable form of chlorine sterilizer a piece of apparatus which can be taken to any point of a distribution system and used successfully. Such a form should be available in every city so that under the jurisdiction of a Health Board, temporary suspicion as regards the safety of a water-supply could be at once quieted. Some towns are at present supplied with such a sterilizer and it has been found to be decidedly efficient upon trial.

Detailed Report of Work.

The following is a summary of the work done by this division regarding the various towns in the State in reference to the pollution of streams, construction and operation of sewage disposal plants and systems, and the work done in reference to water supplies and water purification plants.

ABSECON CREEK.

On December 28th, 1909, the Board served notice on three persons to cease to pollute the waters of Absecon creek prior to May 1st, 1910, in accordance with the provisions of Chapter 72 of the Laws of 1900.

ABSECON INLET.

On December 7th, 1909, the Board served notice on the West Jersey and Seashore Railroad Company to cease polluting the waters of Absecon inlet prior to June 1st, 1910, and on January 4th, 1910, a representative from the West Jersey and Seashore Railroad Company appeared before the Board and signified the willingness of the railroad company to abate the nuisance complained of.

ALLENHURST.

On August 3d, 1910, plans for a water filtration system for the borough of Allenhurst were presented and approved subject to such conditions of construction, operation and purification as this Board might from time to time require. This filtration plant consists of two pressure filters provided with means for the application of lime which is used for the reduction of iron. The filters themselves were placed in operation for the reduction of the iron

content of the water. In response to a complaint entered with the Board that the sewage disposal plant at Allenhurst was causing a nuisance at Loch Arbor, a special inspection was made and it was found that no material from Allenhurst was finding its way upon the bathing beaches, but rather that the water from Deal lake, filled with anabena, was being thrown back upon the beach, thus giving rise to obnoxious odors, and also that the sewage from Asbury Park was being pumped out into the ocean raw, and that the ocean currents at that time were throwing the sewage back upon the Loch Arbor beach.

ASBURY PARK.

On May 24th and June 7th, 1910, reports were received in regard to the sewerage system and disposal tank in the city of Asbury Park showing that the tank itself was doing good work and that the odors complained of were coming from the sewerage system.

ASYLA.

On July 5th, 1910, a report of an inspection of the sewage disposal plant for the county institutions at Asyla was received, showing that the plant was not in operation, and the secretary was requested to notify the county authorities to have said plant put in proper condition. On October 25th, it being found that raw sewage from the county institutions at Asyla was being by-passed into the stream, it was moved that the case be placed in the hands of the Attorney-General for prosecution.

ATLANTIC CITY.

On November 9th, 1909, fourteen persons were notified to cease to pollute the waters of the Inside thoroughfare prior to March 1st, 1910, or show cause at a meeting of the Board to be held on November 23d, 1909, why they should not do so. On December 7th, 1909, forty-four persons were notified to cease to pollute the waters of the Inside thoroughfare prior to June 1st, 1910, or show cause at a meeting of the Board to be held January 25th,

1910, why they should not do so. On December 14th, 1909, eleven persons were notified to cease to pollute the waters of the Inside thoroughfare prior to June 1st, 1910. On April 26th, 1910, a petition was received from eighteen persons in Atlantic City requesting an extension of time for cessation of the pollution of the waters of Clam creek. It was moved that these parties be granted an extension of time of one year.

AUDUBON.

On May 17th, 1910, plans for a sewerage system and disposal plant for the borough of Audubon were presented and approved, subject to the elimination of a by-pass shown on the plans, and subject to the regular conditions imposed by the Board.

BALDWIN'S RUN.

On August 13th, 1910, a motion was made that the Atlas Cereal Company be notified to cease to pollute the waters of Baldwin's run within ten days from the date of service of notice regarding such pollution.

BARNEGAT BAY.

On June 4th, 1910, motion was made that a notice be given to A. C. Hoag, mayor of Seaside Park, to show cause on January 25th, 1910, why the borough should not be notified to cease polluting Barnegat bay and its tributaries; also notice was given three persons to cease to pollute the waters of Barnegat bay immediately. Notice given to two persons to cease to pollute the waters of Barnegat bay prior to May 1st, 1910. On February 8th, 1910, motion was made that the borough of Seaside Park be notified to cease to pollute the waters of Barnegat bay prior to first day of June, 1910.

BEACH HAVEN.

On January 4th, 1910, notice was issued to two persons in Beach Haven to cease to pollute the waters of Liberty thoroughfare, and also notice was served upon W. Mercer Baird, mayor of Beach Haven borough, that he must show cause at the meeting of the Board to be held January 25th, 1910, why the borough should not be notified to cease polluting Liberty thoroughfare. On January 25th, 1910, representatives from the borough of Beach Haven appeared before the Board in regard to the disposal of sewage from said borough. The matter was referred back to this division for a report, and on February 8th, 1910, notice was issued to the borough of Beach Haven that prior to June 1st, 1912, it must cease to pollute the waters of Liberty thoroughfare.

BELMAR.

On December 7th, 1909, a letter was received regarding the letting of a contract for the building of a sewage disposal plant for the borough. A resolution was adopted showing that since the borough of Belmar had failed to comply with the notice served upon them to cease to pollute the waters of the Atlantic ocean, therefore the case should be referred to the Attorney-General, with a request that he immediately bring action against the borough under Chapter 72 of the Laws of 1900. On March 8th, 1910, a committee from Belmar appeared before the Board, stating that although plans had already been approved by the Board for a disposal plant, they now desired to change the plans and to install a tank similar to that in use at Ocean Grove. The Board agreed to approve of the changed plans when submitted for their approval, provided they were satisfactory, and on April 19th, 1910, such plans were presented and approved, subject to such conditions of construction, operation and purification as this Board might from time to time require. On July 19th a report was presented showing that the screens in the sewer at Belmar were rusted out, and it was moved that the borough of Belmar be notified to install new screens. On August 3d, 1910, a letter was received from the bor-

ough clerk of Belmar stating that the screens would be placed in the outlet sewer of said borough, and an inspection on August 16th showed that these screens had been placed in position.

BERNARDSVILLE.

On December 14th, 1909, a communication from the Bernards Water Company requesting permission from the State Board of Health to furnish consumers with water from Osborn's pond during the coming winter with the understanding that as soon as the weather conditions permit, a proper filtration system will be installed, together with report of inspection of said pond, showing that it would seem to be safe to allow the company to use water from this pond during the coming winter, was presented. Motion was made and carried that said company be granted a temporary permit to supply consumers with water from Osborn's pond during the coming winter, and on July 19th, 1910, a communication from the Bernards Water Company, requesting permission to supply water from Osborn's pond for potable purposes, was presented. Motion was made and carried that the secretary notify said company to submit plans for a plant for the purification of the water of the pond in accordance with their letter to this Board under date of December 11th, 1909.

BEVERLY.

On September 14th, 1910, a communication was received from a representative of certain residents of Beverly requesting a further extension of time in which to take action for the discontinuance of the discharge of sewage from their premises into the waters of the Delaware river. Motion was made that the Board request further advice as to how long a time said residents desired to have granted to them in which to make arrangements to discontinue said pollution, and on October 11th an extension of time until December 1st, 1910, was granted to the petitioning parties. On October 11th, a report of an inspection of the discharge of wastes from the factory of the Beverly Underwear Company was presented and a motion was made that the owners of the factory be requested to furnish a plan of the proposed pipe line from their

factory to the river. On October 25th a letter was received from a representative of the citizens of Beverly who had been granted an extension of time until December 1st, 1910, and a motion was made that the secretary reply stating that no reinspection of the premises would be made until after the election on the sewage question scheduled for the early part of 1911, and if it is then decided that a sewerage system would be installed, the parties in question would be granted ample time in which to make connections with the sewer.

BIRMINGHAM.

On February 8th, 1910, a report of an inspection of the Birmingham Inn, on the Rancocas creek, proposed to be used as a tuberculosis sanatorium was received, and motion was made that a copy of the report be sent to the medical director of the sanatorium, and that he be notified to submit plans in accordance with the suggestions made in the report for approval. On February 23d, such plans were presented. These were approved subject to such conditions of construction, operation and purification as this Board might from time to time require. On August 16th, a letter from the Mount Holly Water Company, in reference to pollution of the Rancocas creek near Birmingham, was presented, and a motion was made that a report of an inspection of the premises referred to made on July 19th be sent to the water company.

BRIDGETON.

On December 14th, 1909, plans for a sewage disposal plant for the city of Bridgeton were disapproved, as proper purification was not provided. On January 25th, revised plans for a sewage disposal plant for the city of Bridgeton were submitted showing a system of septic action and chlorine treatment. Motion was made that these plans be approved, subject to such conditions of construction, operation and purification as the Board might from time to time require. On March 8th, plans for an addition to the water-supply plant of the city of Bridgeton were presented and approved, subject to such conditions of construction, operation and purification as the Board might from time to time require.

BROOK VALLEY.

On August 3d, 1910, a report was presented showing that boarders at the house of Louis Arndt, at Brook Valley, made a practice of bathing in the waters feeding the Boonton reservoir. Motion was made that this case be referred to the Attorney-General for prosecution.

BURLINGTON.

On February 4th, 1910, a report was rendered showing that the high water of January caused a settling in the septic tank of the purification plant for the Devlin Manufacturing Company, thus putting the plant out of commission, and on July 9th a report was received showing that the plant had again been placed in operation.

BUTLER.

On November 9th, 1909, two persons were notified to cease to pollute the waters of the Pequannock River at Butler, prior to February 15th, 1910.

On July 5th, 1910, a communication from Morris R. Sherrerd, Chief Engineer for the city of Newark, was received requesting that the Board order the Erie Railroad to close the toilets on their trains on the New York, Susquehanna and Western Division of their road between the stations of Butler and Beaver Falls, and a motion was made that the order be issued as requested.

CAMDEN.

On November 9th, 1909, plans for a sewage disposal system at the Camden City Hospital for Contagious Diseases were presented and referred to the Division of Sewerage and Water Supplies for further consideration. On July 18th, 1910, a report was made relative to the discharge of wastes from the Atlas Cereal Company into Baldwin's run, a tributary of the Delaware river. On August 29th, 1910, a report was rendered as to the best

method for disposal of the sewage from the Camden City Hospital for Contagious Diseases. On November 23d, 1910, a report was made by the representatives of the Florence Iron Works relative to the discharge of sewage from their premises, stating that plans for sewers were being prepared and as soon as the sewers were installed the works would be connected with them.

CAPE MAY.

On January 25th, 1910, the city solicitor and president of the council of Cape May appeared before the Board in reference to the discharge of sewage from Cape May into Cape Island creek. It was moved that the city of Cape May furnish to the Board, prior to July 1st, 1910, a general plan for the removal of sewage from Cape Island creek, with the understanding that a sewage disposal plant should be installed prior to June 1st, 1911. On July 18th, 1910, a letter was received from the city solicitor of Cape May showing that plans for a sewage disposal system were in the process of preparation.

CARLSTADT.

On August 3d, 1910, a report of the inspection of the sewage disposal plant at Carlstadt was presented showing that the plant was completed and was in good working order.

CHATHAM.

On November 4th, 1909, a report was rendered in regard to a by-pass from the Summit sewage disposal system showing that such by-pass had been removed and that no evidence of waste materials flowing into the stream from this plant could be found. On March 1st, 1910, reports and estimates were received from Alexander Potter, C. E.; Clyde Potts, C. E., and George W. Fuller, C. E., in reference to the building of a joint sewage disposal plant for the boroughs of Madison and Chatham. On

July 19th, 1910, a communication from Herring and Fuller was received with specifications and plans for a joint sewage disposal plant for the boroughs of Chatham and Madison. Action in regard to these plans was deferred, since a communication had been received objecting to the site of the proposed plant. On August 3d, 1910, a hearing was held in regard to the application of the residents of Chatham and Madison for permission to locate a joint sewage disposal plant for the boroughs of Madison and Chatham in Chatham. On August 16th plans for this disposal plant were approved, subject to such conditions of construction, operation and purification as the Board may from time to time require.

CLEMENTON.

On February 23d, 1910, a report of the water-supply at Clementon was made, showing that the water was safe for potable use.

CLIFFSIDE PARK.

On June 7th, 1910, a preliminary plan for a sewerage system for the borough of Cliffside Park was presented and action on this plan was deferred until a copy of the permission given by the borough of Edgewater to the borough of Cliffside Park for right of way to the Hudson river be produced together with specifications showing the site for a proposed disposal plant. On July 5th, 1910, preliminary plans for a sewerage system for the borough of Cliffside Park, together with the necessary written permission from the borough of Edgewater for right of way to the Hudson river, were presented. It was moved that the authorities of the borough of Cliffside Park be notified that this Board would approve only of sanitary sewers for said borough and further, that if sewage from said borough is to be discharged into the Hudson river at the point shown on the plans presented, the Board would demand that the sewage shall first be purified.

COHANSEY CREEK.

On January 25th, 1910, a letter was received from Mr. Walter H. Bacon in relation to pollutions of Cohansey creek from premises located in Commercial, Maurice River, Lawrence, Fairfield and Greenwich townships, Cumberland county, and it was moved that the secretary write to the local boards of health of said townships calling their attention to the conditions. This motion was carried. On July 5th, 1910, forty-seven persons were notified to cease to pollute the waters of Cohansey creek and its tributaries within ten days after service of the required notice. On August 3d, 1910, two persons were notified to cease to pollute the waters of Cohansey creek within ten days from date of service of the required notice.

COLLINGSWOOD.

On June 21st, 1910, a letter from the secretary of the board of health of Collingswood, together with resolutions adopted by said board in regard to nuisance caused by stagnant water on low lands near said borough, was read by the secretary. Motion was made and carried that the communication be received and the secretary reply to the same stating that before action is taken by the board of health of Collingswood for the abatement of the nuisance as outlined in said resolution, that an engineer should first be employed to thoroughly investigate the matter and advise as to the best method to be adopted. On July 5th, 1910, a copy of resolutions adopted by the boards of health of Collingswood, Woodlyne and Haddon township, requesting the State Board of Health to prohibit the Merchantville Water Company from connecting their mains with the Pensauken creek in order to furnish water from said creek to citizens of said municipalities, was read. Motion was made and carried that the secretary be requested to notify Mr. C. E. Powell, secretary of said joint meeting of boards of health, that it does not appear that permission has yet been granted to said water company by the State Water Supply Commission to supply water from Pensauken creek, and further, that no application has been made by said company to this Board, in

accordance with the law, for permission to use the water of said creek for potable purposes, and, therefore, it does not appear proper that action should be taken by this Board in the matter at the present time.

On July 19th, 1910, a report of an inspection of the Collingswood sewage disposal plant showed that the same was not properly conducted and, on motion, referred to Mr. Johnson as a committee of one to investigate.

COLUMBUS.

On March 1st, 1910, a report of an inspection of the water-supply plant at Columbus was presented showing that the artesian well water served in this community is safe for potable use.

COMMERCIAL TOWNSHIP.

On August 16th, 1910, plans and specifications for a sanitary drainage ditch in Commercial township were received, and motion was made that said plans be approved subject to such conditions of construction, operation and purification as this Board might from time to time require.

CRANFORD.

On June 21st, 1910, a report was rendered in regard to the water-supply of Cranford, showing that recently the source of supply had been changed from artesian wells to filtered surface water and that the people were complaining of this change. A report showed that a careful inspection of the entire watershed had been made and that no pollution existed; also that the filters were operating satisfactorily and that the chief objection made by the people in regard to the new water was made on account of turbidity, which had existed only for a short time and was due to scale in the distribution system being dislodged and finding its way into the consumers' taps. The report also contained the result of an inspection of Echo lake, which the residents of Cranford were considering as a source of municipal supply.

CRESSKILL.

On June 13th, 1910, a report relative to the septic tank at Cresskill was received showing that the same is in good working order and produces no nuisance or contamination.

CULVER'S LAKE.

On October 11th, 1910, a report of an inspection of Culver's lake, and the investigation of a case of typhoid fever in that locality was presented. The report showed that the typhoid fever had not occurred by reason of the use of lake water, but rather from outside infection. The report contained recommendations regarding general sanitary conditions in the Culver's lake summer colony.

DEAL LAKE.

On July 5th, 1910, three persons were notified to cease to pollute the waters of Deal lake within ten days after service of the required notice.

DELAWARE BAY.

On May 10th, 1910, four persons were notified to cease to pollute the waters of Delaware bay prior to June 15th, 1910.

DELAWARE RIVER.

The total number of notices served on the Delaware river was seventy-seven. These notices specified that the persons notified should cease to pollute the waters of the Delaware river within ten days from the date of service of the required notice.

DELAWARE AND RARITAN CANAL.

A total of forty-nine notices was issued to persons to cease to pollute the waters of the Delaware and Raritan canal prior to September 1st, 1910.

EAST RUTHERFORD.

On August 3d, 1910, a report of an inspection of the sewage disposal plant at East Rutherford was presented showing that the two septic tanks were completed and in operation.

EDGEWATER.

On June 7th, 1910, supplemental plans for a sewerage system for the borough of Edgewater were presented and approved, subject to such conditions of construction, operation and purification as this Board may from time to time require.

ELIZABETH RIVER.

On December 28th, 1909, seven persons were notified to cease to pollute the waters of the Elizabeth river immediately, or show cause at a meeting of the Board of Health to be held January 18th, 1910, why they should not do so.

ENGLEWOOD.

On March 30th, 1910, the Englewood Sewerage Company was notified to show cause at a meeting of the Board on May 3d, 1910, why they should not be ordered to cease to pollute the waters of Overpeck creek by the discharge of sewage from their system. On May 10th, 1910, they were notified to cease to pollute the waters of Overpeck creek prior to May 10th, 1911.

ESSEX FELLS.

On July 5th, 1910, plans for an extension to the sewage disposal plant of the borough of Essex Fells were presented and approved subject to such conditions of construction, operation and purification as this Board may from time to time require.

EWING TOWNSHIP.

On March 1st, 1910, a report in reference to the inspection of the premises of A. H. Ashton, in Ewing township, near Trenton, and the analysis of a sample of water collected from an artesian well on said premises, was presented, said analysis showing the water to be of good quality. Motion was made and carried that the Board approve of the water of this well for bottling purposes and that so long as the said source shall prove to be uncontaminated, A. H. Ashton be allowed to market this water, subject to such conditions of bottling and distribution as this Board may from time to time require, and subject to further investigation by the Board of the water plant which may be built by Mr. Ashton.

FLEMINGTON.

On February 8th, 1910, report of analysis of a sample of water collected from a spring on the premises of William S. Buchanan, near Flemington, was presented and motion was made and carried that the Board approve of the water from this spring for bottling purposes, and that so long as the said source shall prove to be uncontaminated, William S. Buchanan be allowed to market this water, subject to such conditions of bottling and distribution as this Board may from time to time require.

FORKED RIVER.

On December 28th, 1909, two persons were notified to cease to pollute the waters of Forked river prior to May 1st, 1910.

FREEHOLD.

On April 26th, 1910, plans for an extension to the sewer system of the town of Freehold were presented. Motion was made and carried that said plans be approved subject to such conditions of construction, operation and purification as this Board may from time to time require. On October 11th, 1910, a communication from Waring, Chapman & Farquhar, requesting that the Board approve of the installation at this time of a single engine and pump in each station at the Freehold sewage disposal works, in place of the duplicate pumping apparatus provided for in the plans approved by the Board, with the understanding that said duplicate apparatus will be installed when necessary, was presented. Motion was made and carried that said request be granted until such time as the Board sees fit to order the duplicate apparatus installed.

GARFIELD.

On August 16th, 1910, Mr. Wise, borough engineer for Garfield, appeared before the Board and presented plans for a collecting system of sewers for said borough. Motion was made that said plans for a collecting system of sewers be approved subject to such conditions of construction, operation and purification as this Board may from time to time require, and subject to the submission to this Board of plans for a sewage disposal plant before sewage is discharged from said collecting system.

GLOUCESTER.

On March 1st, 1910, a report of an investigation in reference to the public water supply of Gloucester City was presented and a motion was made that a copy of said report be forwarded to the water commissioners of that city. This report showed how the supply of water of that city could be bettered, thereby lessening the number of complaints which had been entered in regard to the quality of the water served by the city to the residents up to that time.

HACKENSACK RIVER.

On April 26th, 1910, seven persons were notified to cease to pollute the waters of the Hackensack river within ten days after the date of service of the required notice, and on June 7th, 1910, two other notices of the same type were issued.

On June 21st, 1910, the municipalities of Ridgefield Park, Bogota, Hackensack, Delford and the Riverside Improvement Company of River Edge, were notified to show cause at a meeting of the Board to be held on July 5th, 1910, why they should not be notified to cease to pollute the waters of the Hackensack river and its tributaries. On July 5th, 1910, representatives from the borough of Delford, the Riverside Improvement Company of River Edge, the Hackensack Improvement Commission, and the village of Ridgefield Park appeared before the Board in reference to the notices above referred to, and a general hearing was given on the proposition of the pollution of the Hackensack river. On October 25th, 1910, notice was issued to the Columbia Investment and Real Estate Company to cease to discharge polluting matter into the waters of the Hackensack river within ten days from the date of service of the required notice, and also notice was ordered served upon the village of Ridgefield Park, the borough of Bogota, the city of Hackensack, the borough of Delford, the borough of Ridgefield and the Riverside Improvement Company of River Edge, that they must cease to pollute the waters of the Hackensack river prior to January 1st, 1914.

HADDONFIELD.

On March 29th, 1910, it being reported that three by-passes were in existence at the Haddonfield disposal plant, motion was made that the authorities be notified to at once remove these pipes, and on April 12th, 1910, in response to a letter from the mayor of Haddonfield in reference to by-pass pipes from the sewage plant, the secretary was instructed to reply stating that the orders of the Board in regard to these pipes must be complied with. On August 3d, 1910, plans for a sewage disposal plant for the borough of Haddonfield were presented and approved

subject to such conditions of construction, operation and purification as the Board may from time to time require.

On October 11th, 1910, plans for a water-supply system for the borough of Haddonfield were presented and approved subject to such conditions of construction, operation and purification as the Board may from time to time require.

HADDON HEIGHTS.

On June 7th, 1910, plans for a sewerage system and disposal works for the borough of Haddon Heights were presented and approved subject to such conditions of construction, operation and purification as the Board may from time to time require.

HALEDON.

On November 16th, 1909, plans for a water-filtration plant for the borough of Haledon were presented and approved, subject to such conditions of construction, operation and purification as the Board may from time to time require.

HIGH BRIDGE.

On June 7th, 1910, plans for a water-supply system for the borough of High Bridge were presented together with a report in regard to an inspection of said system, and on July 19th, 1910, these plans were approved subject to such conditions of construction, operation and purification as this Board may from time to time require.

HIGHLAND PARK.

On January 4th, 1910, a report was made relative to the pollution of the Raritan river by sewage from Highland Park. On January 25th, 1910, the secretary was instructed to notify the authorities of Highland Park to install a method of purification prior to July 1st, 1911, which would be satisfactory to the Board.

ISLAND HEIGHTS.

On August 2d, 1910, a report of an inspection of the sewerage disposal plant and system at Island Heights was rendered and certain recommendations were made which would result in a betterment of the system; also certain problems relating to general sanitary conditions in that municipality were reported.

JAMESBURG.

On December 7th, 1909, a report of an inspection of a new reservoir for storage of water at the State Home for Boys at Jamesburg was received and it was moved that a copy of the report be sent to the superintendent of the home. On October 25th, 1910, a report of an inspection of the sewage disposal plant at the State Home for Boys, Jamesburg, N. J., was presented showing that said plant was not in good working order. Motion was made that the secretary notify the superintendent of the institution that this plant must be put in good condition.

KEYPORT.

On January 11th, 1910, plans for a sewerage system and disposal plant for the town of Keyport were presented by Clyde Potts, C. E., who made explanations in regard to the same. Motion was made that said plans be referred to the Division of Sewerage and Water Supplies for consideration.

On January 25th, 1910, the plans for a sewage disposal plant for the town of Keyport were approved subject to such conditions of construction, operation and purification as this Board may from time to time require.

LAKE HOPATCONG.

On December 7th, 1909, a report of an inspection of the Du Pont Powder Mill was received, showing that there was no pol-

lution apparent coming from that mill. On motion, it was ordered that a copy of this report be sent to the parties interested.

On August 3d, 1910, a report of an inspection of the water supplies of the various hotels and boarding-houses was received, showing the condition of the supplies in each place. One notice was issued in regard to a pollution, ordering that such pollution be discontinued within ten days from the date of service of the required notice.

LAKE'S BAY.

On September 27th, 1910, a notice to cease pollution prior to January 1st, 1911, was issued to the board of freeholders of Atlantic county relative to the disposal of wastes from the county institutions at Smith's Landing.

LAKEWOOD.

On March 8th, 1910, the matter in regard to the failure of the Lakewood Water, Light and Power Company to install a sewage disposal plant at said place was discussed, and it was moved that this case be placed in the hands of the Attorney-General for prosecution.

LAWRENCE BROOK.

On September 27th, 1910, one notice was issued for the cessation of pollution of Lawrence brook within ten days from the date of service of the required notice.

LITTLE EGG HARBOR BAY.

On January 4th, 1910, four persons were notified to cease to pollute the waters of Little Egg Harbor bay prior to May 1st, 1910.

LIVINGSTON MANOR.

On May 17th, 1910, a report of an inspection at Livingston Manor was received, showing that a sixteen-inch pipe carried the sewage from this locality into the Raritan river. The owners of this tract appeared before the Board and said they would connect with the Highland Park sewer prior to the time that they installed a purification plant.

LONGPORT.

On November 9th, 1909, motion was made that the authorities of the borough of Longport be notified to show cause at a meeting to be held on November 23d why they should not cease to pollute the waters of Risley's channel, and on December 7th, 1909, notice was served on the borough that prior to the 1st day of June, 1912, they must cease to pollute the waters of Risley's channel and the Atlantic ocean, and make such other disposition of their sewage and other polluting matter as should be approved by said Board of Health.

MAHWAH.

On February 8th, 1910, plans for a sewage purification plant for the factory of the American Shoe Brake and Foundry Company, of Mahwah, were presented. Action was deferred in order that plans for additional treatment of the sewage might be received, and on February 23d, 1910, amended plans for this sewage disposal plant having been received, these plans were approved subject to the usual conditions of construction, operation and purification.

MANAHAWKIN.

On January 4th, 1910, two notices were issued for the cessation of the pollution of Manahawkin bay and its tributaries immediately, or show cause at a meeting of the Board to be held February 1st, 1910, why these notices should not be obeyed.

MANASQUAN.

On August 3d, 1910, a report of an inspection of the sewage disposal tank at Manasquan was presented, and it was moved that the secretary be requested to notify the authorities of said borough to have the septic tank put in proper condition.

MANASQUAN RIVER.

On January 25th, 1910, one notice was issued for the cessation of pollution of the Manasquan river prior to May 1st, 1910.

MARGATE CITY.

On December 7th, 1909, a request was entered for a conference with a representative of Margate City relative to sewage disposal for that municipality, and on December 14th, a committee from said city appeared before the Board in regard to a sewage disposal system for that place.

On February 1st, 1910, plans of a sewer system for Margate City were presented by Earle B. Phelps. Motion was made and carried that plans for a sterilization plant for that portion of Margate City known as Margate Park be approved subject to usual conditions of construction, operation and purification. Motion was also made and carried that preliminary plans for the collecting system of sewers for Margate Park be approved subject to the submission to the Board of detailed plans at a later date, and on February 23d, 1910, such detail plans were presented and approved subject to the usual conditions of construction, operation and purification.

MAURICE RIVER.

On November 23d, 1910, five notices were issued for the cessation of pollution of the waters of Maurice river prior to March 1st, 1910, and on May 19th, three notices were issued to cease pollution within ten days from the date of service of the required notice.

MAYWOOD.

On January 11th, 1910, plans for a sewage plant for the borough of Maywood were presented, and on January 25th, after thorough examination of these plans, they were approved subject to the usual conditions.

MERCHANTVILLE.

On March 8th, 1910, a report of an inspection of the sewage disposal plant was presented, showing that the plant was in operation, but that the beds needed more systematic supervision.

On May 17th, plans for the installation of pressure filters for the Merchantville Water Company were presented and approved subject to the usual conditions.

MIDLAND PARK.

On November 9th, 1909, a representative of the Bergen Water Company appeared in reference to the water-supply at Midland Park, stating that the single well which it was thought had polluted the water of others had been closed.

On November 16th, the Board ratified the suggestions of this division that the Bergen Water Company use hypochlorites for the sterilization of water coming from their wells.

On December 7th, a representative of the Granite Linen Company, of Midland Park, appeared in reference to the disposition of sewage from the said company. It was agreed that suggestions should be furnished Mr. Woodhead for the construction of a suitable plant to take care of the sewage from his factory.

MILLVILLE.

On February 8th, 1910, plans for a water filter for the People's Water Company, at Millville, were presented and approved subject to the usual conditions.

On July 19th, a report of an inspection of the sewage disposal plant showing that the plant was not kept in proper condition, was

presented. Motion was made that the secretary notify the authorities that the plant must be put in proper condition and kept in satisfactory order, or it would be necessary to request the Attorney-General to secure an injunction against the city.

On August 16th, a report was received of a reinspection, showing that no action had been taken by the authorities to put the plant in proper condition, and, after discussion, it was moved that the matter be placed in the hands of the Attorney-General that an injunction might be secured against the city.

MORRISTOWN.

On November 23d, 1909, thirty-two persons were notified to show cause at a meeting held December 7th, 1909, why they should not be notified to cease polluting the Whippany river.

On December 7th, forty-four persons received notice to appear January 25th, 1910.

On December 14th, 1909, fifteen persons were notified to show cause on January 25th, 1910.

On December 28th, 1909, thirty-eight persons were notified to appear on January 25th, 1910.

On January 4th, 1910, seven persons were notified to show cause on January 25th, 1910.

On January 11th, eleven persons received notice to appear February 1st, 1910.

On February 8th, 1910, fifteen persons were notified to show cause on March 1st, 1910.

On February 15th, 1910, ten persons were notified to appear on March 1st, 1910.

On March 22d one hundred and seventy-nine persons were notified to cease to pollute the Whippany river prior to August 1st, 1910.

On May 10th, two additional notices were given which expired at the same time.

On July 19th it was recommended that since the disposal plant for Morristown would probably not be completed by August 1st, 1910, that all persons in Morristown and vicinity who had been notified to cease polluting the Whippany river be granted an extension of time until November 1st, 1910.

MOUNT HOLLY.

On September 14th, 1910, plans for an extension to the water filtration plant of the Mount Holly Water Company were presented and approved subject to the regular conditions.

MULLICA RIVER.

On January 25th, 1910, five persons were notified to cease to pollute the waters of Mullica river prior to May 1st, 1910.

NEPTUNE TOWNSHIP.

On December 14th, 1909, plans for a sewer system for Neptune township were presented and approved, subject to the regular conditions.

NEW LISBON.

On November 23d, 1909, motion was made that the matter of discharge of sewage from the Burlington County Hospital, at New Lisbon, be referred to the Attorney-General for action.

On March 22d, 1910, counsel for the board of freeholders of Burlington county appeared before the Board in regard to the disposal of sewage from the county hospital at New Lisbon. Counsel stated that the reason no action was taken last year toward building the plant according to plans already approved was on account of the financial condition of the county.

On April 12th, counsel for the board of freeholders of Burlington county, together with the county engineer, requested permission to submit amended plans showing smaller sand filter beds for the treatment of sewage from the county asylum at New Lisbon, and on July 19th, such amended plans were presented and approved subject to the regular conditions.

NEWTON.

On July 19th, 1910, a communication from the Valentine & Bentley Silk Company, of Newton, in reference to the discharge of waste liquids from their factory, was received and presented.

On August 16th, it was moved that this Board suggest to the authorities of Newton that they allow the Valentine & Bentley Silk Company to connect their works with the sewers of the town.

NORTH PLAINFIELD.

On January 25th, 1910, a representative of the board of trade of Bound Brook appeared before the Board in reference to the establishment of a sewage disposal plant by the borough of North Plainfield in the township of North Plainfield.

A request was made that the board of trade be given a hearing before any action was taken by the State Board in regard to the matter. The request was granted.

OAKLYN.

On November 9th, 1909, plans for a sewage disposal plant for the Bettelwood Land Company, at Oaklyn, were presented and approved subject to the regular conditions.

OCEAN CITY.

On December 14th, notice was issued to the Ocean City Sewer Company to show cause at a meeting held January 25th, 1910, why they should not be notified to cease polluting Great Egg Harbor bay and its tributaries. On January 25th, appearance was made by the Ocean City Sewer Company, who promised to engage an engineer to prepare plans for a disposal plant, and on March 15th, 1910, notice was issued to the Ocean City Sewer Company that prior to June 1st, 1911, they must cease to pollute the waters of the Great Egg Harbor bay and its tributaries.

OCEANIC.

On March 29th, plans for a sewage disposal plant for the premises of the E. Parmley estate were presented and approved subject to the regular conditions.

OVERPECK CREEK.

On June 22d, 1910, preliminary notice to show cause was served on the North Side Sewer Company of Leonia, the Leonia Sewer Company and the Central Sewer Company of Leonia, to show cause on July 5th, 1910, and on October 25th, 1910, notice was served upon these same companies that they must cease prior to January 1st, 1914.

OYSTERS.

On account of the special ruling of the Department of Agriculture relative to the floating of oysters, investigation of the oyster industry in New Jersey was taken up by this division, analytical results obtained and representatives from this division attended the conference at Washington held in regard to this industry. After this conference, the supervision over the work of inspecting oyster lands and examination of water and oysters was placed in the hands of the Chief of the Division of Food and Drugs.

PASSAIC RIVER.

On June 7th, 1910, three persons were notified to cease polluting the Passaic river within ten days from the date of service of said notice.

PECKMAN RIVER.

On June 7th, 1910, six persons were notified to cease to pollute the Peckman river within ten days from date of service of notice.

POMPTON RIVER.

On August 16th, 1910, ten persons were notified to cease to pollute the Pompton river within ten days from the date of service of said notice.

PRINCETON.

On May 10th, 1910, plans for an extension to the sewers were presented and approved subject to the regular conditions.

On July 5th, 1910, a report of an inspection of the sewage disposal plant, showing that the waters of Carnegie lake are being polluted by sewage from the two disposal fields, was presented, and it was moved that the secretary be requested to notify the authorities of the borough of Princeton to put the disposal fields in proper condition.

QUARRYVILLE.

On May 17th, 1910, a letter from the Horton & Lewis Creamery Company, together with plans for a sewage disposal plant for that creamery, was received, and the plans were approved subject to further purification by the installation of some form of contact beds and subject to the regular conditions imposed by the Board.

RAHWAY.

On November 9th, 1909, a report was rendered regarding an investigation of the building of sewers, showing that since plans for the building of these sewers had not been approved by the Board, the Attorney-General had been asked to secure an injunction against the city. Representatives from Rahway were present in reference to the suit for injunction, and asked that the injunction be removed and that they be allowed to proceed with the construction of the sewers above mentioned, since it was through a misunderstanding that plans for the construction of these had not been submitted to the Board. Their request was granted.

On January 11th, 1910, preliminary plans for a sewage disposal plant for the State Reformatory were presented, and on February 1st, 1910, detail plans for this disposal plant were approved subject to the regular conditions.

On August 3d, 1910, plans for an extension to the sewers were presented and approved, subject to the notice heretofore given to the city by the State Sewerage Commission relative to the cessation of the pollution of the Rahway river prior to October 1st, 1911.

On October 24th, 1910, the following report was rendered:

TRENTON, New Jersey, October 24th, 1910.

Mr. H. M. Herbert, Chief, Division of Sewerage and Water Supplies, Board of Health of the State of New Jersey, Trenton, New Jersey:

DEAR SIR—Upon inspection to-day, I found that no disinfectants have yet been used at the sewage disposal plant at the Rahway Reformatory.

I found further that in the manhole outside the building, the sewage was flowing over the deflection barrier. No sewage was passing through the screens, but was flowing partly into the sewage tank and partly into the big twenty-inch storm sewer.

The grit chamber was practically full of solids and extremely foul.

Very truly yours,

F. E. DANIELS.

Chemist and Bacteriologist.

On May 29th, 1910, three notices for the cessation of polluting the Rahway river immediately were issued.

On April 5th, 12th, July 19th, August 3d and 30th, a total of eleven notices was issued for the cessation of the pollution of the Rahway river within ten days from the date of service of said notice.

RARITAN RIVER.

On December 7th, 1909, seven persons were notified to cease prior to June 1st, 1910.

January 4th, 1910, two persons prior to May 1st, 1910.

On March 15th, 1910, six persons notified to cease immediately. Also twenty-one persons to cease prior to July 1st, 1910.

On March 22d, 1910, six persons to cease prior to July 1st, 1910.

On April 12th, twenty-three persons to cease within ten days from date of service of notice.

On April 19th, fifteen persons were given the same notice.

April 26th, fourteen persons were notified to cease within ten days from date of service of notice.

May 17th, twenty-nine persons were notified to cease within ten days from date of service of notice.

June 7th, thirteen persons were given the same notice.

July 5th, five given ten-day notices.

July 19th, three ten-day notices were issued.

August 3d, two ten-day notices were issued.

September 14th, five ten-day notices were issued.

October 25th, 1910, nine ten-day notices were issued.

RIDGEWOOD.

On November 9th, 1909, plans for sewers and sewage disposal plant were presented and referred to this division for further consideration, and on November 16th, plans for alterations in the disposal plant were presented and approved subject to the regular conditions.

On April 26th, the unsatisfactory condition of the sewage disposal plant was discussed, and it was moved that the secretary be requested to notify the authorities of Ridgewood that unless work was at once commenced on said plant, the matter would be placed in the hands of the Attorney-General for prosecution.

RIVERSIDE.

On September 14th, 1909, in response to a request from the general agent of the Philadelphia Watch Case Company relative to the discharge of waste liquids from said works into the Delaware river, motion was made that an extension of time to October 3d, 1910, as they requested, be granted.

ROOSEVELT.

On February 8th, 1909, plans for the Colwell street sewer system of the borough of Roosevelt were presented and approved, subject to the regular conditions; also with the understanding

that sewage may be discharged into Noe's creek at the present time but that prior to October 1st, 1912, the outlet pipe must be extended so that the sewage will be discharged directly into Staten Island sound.

ROSELLE.

On May 24th, 1910, a report of an inspection of the water-supply system was presented, and it was moved that a copy of the same be sent to the authorities of said borough. Details of this report will be found under the heading of "Cranford" in the first part of this report.

SEABRIGHT.

On February 8th, 1910, and March 22d, 1910, plans were approved for private disposal plants from residences in the borough of Seabright. These plans were approved, subject to the regular conditions.

SEA GIRT.

On April 19th, 1910, plans for a sewage disposal plant for the Sea Girt Sewer Company at Sea Girt were presented and approved, subject to the regular conditions.

On August 3d, 1910, a report of the inspection of the sewage disposal plant of the State camp at Sea Girt was presented, showing that the plant had been finished and in operation.

SEASIDE PARK.

On January 25th, 1910, a letter was received from the chairman of the Finance Committee of Seaside Park in reference to the establishment of a sewage disposal plant for that borough.

On August 16th, 1910, a communication from a representative of Seaside Park, showing that the outlet sewer pipe in said borough had burst, was received. Motion was made that the authorities be given one week in which to remedy conditions referred to.

SECAUCUS.

On October 11th, 1910, a resolution adopted by the common council of Secaucus, in regard to the construction of a sewer in North Bergen township to discharge sewage into Penn Horn creek, was presented, and, on motion, the matter was referred to the Attorney-General, with a request that such action be taken in the matter as the law provides.

SECOND RIVER.

On May 10th, 1910, seventeen notices were issued for the cessation of pollution of Second river and its tributaries within ten days from date of service of the required notice.

SHREWSBURY RIVER.

On September 14th, 1910, a report was received in reference to an inspection of the disposal plant of the Seaboard Utilization Company. This report showed that action was being taken to discontinue the pollution of the Shrewsbury river by waste from said plant.

SOUTH AMBOY.

On February 8th, 1910, plans for a sewerage system for the city of South Amboy were presented and referred to this division in order that the authorities of said city might submit additional plans for the purification of the sewage. On February 23d, 1910, revised plans for a sewerage system for the city of South Amboy were presented and approved, subject to such conditions of construction, operation and purification as the Board may from time to time require, and with the understanding that plans for a purification plant will be submitted to this Board prior to January 1st, 1912, and that the plant will be installed prior to January 1st, 1913.

SOUTH RIVER.

On March 8th, 1910, plans for a sewage disposal system for the borough of South River were presented and approved, subject to such conditions of construction, operation and purification as this Board may from time to time require.

STANHOPE.

On October 25th, 1910, a request for the approval of water from a test well in Stanhope to be used as a source of public supply was received, together with a report of an analysis of this water showing the same to be of good quality. Motion was made and carried that the Board approve of the water from this well as requested.

SUSSEX.

On July 19th, 1910, a report of an inspection of the stream from which it is proposed to supply water for washing purposes to the Sussex county almshouse, was submitted. Motion was made and carried that said supply be approved, subject to such conditions of purification of the water as the Board may from time to time require.

On September 27th, 1910, the secretary presented communications from residents of Sussex, N. J., requesting an extension of time of two years in which to take action to discontinue polluting the waters of the Wallkill river and its tributaries. Motion was made and carried that an extension of time until October 1st, 1912, be granted in accordance with said request.

SWIMMING RIVER.

On April 12th, 1910, four persons were notified to cease to pollute the waters of Swimming river within ten days from the date of service of the required notice, and on October 25th, 1910, eight additional persons were notified in the same manner to cease polluting.

THREE BRIDGES.

On August 3d, 1910, plans for a sewage disposal system for the treatment of sewage from the creamery of the Lehigh Valley Railroad Company, at Three Bridges, were presented. Motion was made and carried that said plans be returned in order to show further purification of the sewage.

TOMS RIVER.

On December 29th, 1909, twenty-one persons were notified to cease to pollute the waters of Toms river prior to June 1st, 1910. On January 25th, 1910, plans for a sewage disposal system for the railway station of the Central Railroad of New Jersey, at Toms River, were presented and approved, subject to such conditions of construction, operation and purification as the Board may from time to time require.

TRENTON.

On November 9th, 1909, plans for extension No. 452 to the sewers of the city of Trenton were presented and approved subject to the notice heretofore given by the State Sewerage Commission to the city of Trenton to cease to pollute the Delaware river prior to January 1st, 1911. A report of an inspection in reference to the pollution of the Delaware river from premises on Chase street and Chase Court was received and it was moved that this case be placed in the hands of the Attorney-General for prosecution.

On November 16th, 1909, plans for extension No. 470 to the sewers of the city of Trenton were presented and approved subject to the notice heretofore given the city in regard to the pollution of the Delaware river. On December 7th, 1909, the solicitor for the city of Trenton appeared before the Board in response to a notice from this Board to the mayor and common council of the city of Trenton to show cause why uncontaminated water should not be furnished to the inhabitants of the city of Trenton. A summary of the action in this case appears under the heading "Legal Cases" at the beginning of this report. On February 8th, 1910,

eight notices to persons were issued relative to the cessation of pollution of the waters of the Delaware river prior to June 1st, 1910. On February 23d, 1910, plans for extension No. 449 to the sewers of the city of Trenton were presented and approved subject to the notice already given the city relative to the pollution of the Delaware river. On April 12th, 1910, plans for extensions Nos. 458, 232, 444 and 432 to the sewers of the city of Trenton were presented. Motion was made and carried that said plans be approved subject to the notice heretofore given by the State Sewerage Commission to the city of Trenton to cease polluting the Delaware river prior to January 1st, 1911. On April 26th, 1910, plans for extensions Nos. 329 and 155 to the sewers of the city of Trenton were presented. Motion was made and carried that said plans be approved subject to the notice heretofore given by the State Sewerage Commission to the city of Trenton to cease polluting the Delaware river prior to January 1st, 1911. On May 17th, 1910, plans for extensions Nos. 476, 478, 479 and 468 to the sewers of the city of Trenton were presented. Motion was made and carried that said plans be approved subject to the notice heretofore given by the State Sewerage Commission to the city of Trenton to cease polluting the Delaware river prior to January 1st, 1911. On July 5th, 1910, plans for extension No. 471 to the sewers of the city of Trenton were presented. Motion was made and carried that said plans be approved subject to the notice heretofore given by the State Sewerage Commission to the city of Trenton to cease polluting the Delaware river prior to January 1st, 1911. On July 19th, 1910, plans for extensions Nos. 469, 481, 484 and 489 to the sewers of the city of Trenton were presented. Motion was made and carried that said plans be approved subject to the notice heretofore given by the State Sewerage Commission to the city of Trenton to cease polluting the Delaware river prior to January 1st, 1911. On August 3d, 1910, plans for extension No. 487 to the sewers of the city of Trenton were presented. Motion was made and carried that said plans be approved subject to the notice heretofore given by the State Sewerage Commission to the city of Trenton to cease polluting the Delaware river prior to January 1st, 1911. On October 11th, 1910, plans for extensions Nos. 480, 493, 497 and 503 to the sewers of the city of Trenton were presented. Motion was made and carried that said plans

be approved subject to the notice heretofore given by the State Sewerage Commission to the city of Trenton to cease polluting the Delaware river prior to January 1st, 1911.

TUCKERTON.

On July 5th, 1910, a report relative to the location of an artesian well at Surf City and Tuckerton, together with analyses of water from the same, was received. Motion was made that permission be given for the use of this water for a public supply for potable purposes.

VENTNOR.

On November 9th, 1909, motion was made that the authorities of the city of Ventnor be notified to show cause at a meeting to be held on November 23d, 1909, why they should not cease to pollute the water of the Inside thoroughfare, and on November 23d, 1909, notice was issued to the authorities of the city of Ventnor that prior to October 1st, 1910, they must cease to pollute the waters of the Inside thoroughfare. On October 25th, 1910, motion was made and carried that an extension of time be granted until May 1st, 1911, in which to complete the construction of sewage disposal plants on Little Rock and Cambridge avenues, in the city of Ventnor.

VERONA.

On July 5th, 1910, plans for a sewage receiving vault for the Newark City Home at Verona were presented. Motion was made and carried that the plans for said vault be approved subject to such conditions of construction, operation and purification as this Board may from time to time require, but that the superintendent of said home be notified to have the filtration ditches for the secondary method of treatment of the sewage put in satisfactory condition.

VINELAND.

On November 15th, 1910, it was moved that the authorities of the borough of Vineland be notified to treat the effluent from the filter beds of their sewage disposal plant by some method of sterilization satisfactory to this Board.

WALLINGTON.

On February 23d, 1910, plans showing contemplated changes and extensions in the water-supply plant of Wallington were presented. Motion was made and carried that said plans be approved subject to such conditions of construction, operation and purification as this Board may from time to time require.

WALKILL RIVER.

On August 16th, 1910, fifty-five notices were issued for the cessation of pollution on the Walkill river within ten days from the date of service of the required notice.

WASHINGTON.

On September 14th, 1910, a communication from the mayor of the borough of Washington requesting an extension of time until December 1st, 1910, in which to discontinue the discharge of raw sewage from said borough into the waters of Shabbecong creek was presented, and the extension of time granted as requested.

WEST ALLENHURST.

On May 24th, 1910, plans for a sewage disposal plant for the treatment of sewage from the residence of W. C. Adams, of West Allenhurst, N. J., were presented. Motion was made and carried

that said plans be approved, provided the outlet pipe is not carried to Deal lake, and subject to such conditions of construction, operation and purification as this Board may from time to time require.

WESTFIELD.

On April 12th, 1910, a report of an inspection of the premises of W. Edgar Reeve, at Westfield, N. J., together with report of analysis of a sample of water collected from a spring on said premises, was presented. The report of the analysis shows the water to be of good quality, and the report of the inspection of the premises shows that the spring is not liable to pollution. Motion was made and carried that the Board approve of the water of this spring for bottling purposes, and that so long as the said source shall prove to be uncontaminated, W. Edgar Reeve be allowed to market this water, subject to such conditions of bottling and distribution as this Board may from time to time require, and subject to the approval by the Board of plans for a building to be used in bottling the water for market.

WHARTON.

On August 30th, 1910, plans for a water-supply system for the borough of Wharton were presented and approved, subject to the regular conditions imposed by the Board.

WILLIAMSTOWN.

On February 8th, 1910, a report of inspection showing that drainage from the plant of the Williamstown Glass Company, at Williamstown, N. J., is creating a nuisance, was rendered, and motion was made and carried that the attention of the local board of health and the township committee of the district be called to the matter, and that they be requested to at once take action for abatement of the nuisance.

WOODLYNNE.

On March 8th, 1910, the secretary presented a communication from the attorney of the borough of Woodlynne, asking that said borough be granted an extension of time in which to install a sewage disposal plant. Motion was made and carried that the secretary reply to the commission, stating that no extension of time will be granted by the Board and that the proceedings which have been commenced against the borough will be continued.

WORTENDYKE.

On May 10th, 1910, plans for a sewage disposal plant for the treatment of sewage from the factory of the Granite Linen Company, at Wortendyke, N. J., were presented. Motion was made and carried that said plans be approved, subject to the regular conditions.

The following table shows at a glance the kind of public water supplied to the various towns in the State. The total number of municipalities served with public water at the present time is 314.

PUBLIC WATER SUPPLIES, NEW JERSEY, OCTOBER 31, 1910.

TOWN.	COMPANY.	OWNERSHIP.	ESTABLISHED.	SOURCE.	DAILY CONSUMPTION.	TREATMENT.	REMARKS.
Absecon	Borough of Absecon	Municipal	1890	Five artesian wells, 500 feet to 600 feet deep	90,000 winter, 400,000 summer	Filtration, two horizontal pressure filters; lime solution added	Supplied from Pleasantville.
Allentown	Allentown Water Co.	Municipal	1906	Pond	25,000	One gravity filter, 150,000 capacity.	Filtered on account of iron.
Angelsea							Supplied from Woodland.
Arden							Supplied from Clinton.
Arlington	Department of Water and Sewers	Municipal	1885	Seven wells, 700 feet to 1,050 feet in depth.	638,000	Four Continental pressure filters, capacity 2,000,000 gallons.	Supplied from Little Falls.
Ashbury Park	East Jersey Coast Water Co.	Private	1898	Well, 430 feet; jumping brook.	450,000	Two mechanical filters, coagulation each 750,000.	Filtered on account of iron.
Atlantic City	Water Department of Atlantic City	Municipal	1882	Absecon creek; twenty-one wells, 100 to 200 feet deep.	5,500,000 to 9,000,000	No treatment.	
Atlantic Highlands	Borough of Atlantic Highlands	Municipal	1892	Eight wells: four 110 feet, two 450 feet, one 465 feet, one 150 feet	100,000	Two Roberts' filters, 8 feet x 12 feet.	Filtered for iron.
Audubon							Supplied from Haddonfield.
Avon	Borough of Avon	Municipal	1892	One well, 925 feet in depth		No treatment.	Supplied from Laurel Springs.
Averbrook	East Jersey Coast Water Co.						
Barnegat	Barnegat Water Co.	Private	1909	One well, 162 feet deep	15,000	Three courses of strainers.	Supplied from Bernardsville.
Bartley	Wm. Bartley & Son	Private		Spring		No treatment.	Supplied from Little Falls.
Basking Ridge							
Bayonne							
Bay Head	Bay Head Artesian Water Co.	Private	1888	Three wells: one 700 feet, two 800 feet	16,000 winter, 150,000 summer	No treatment.	
Beach Haven	Beach Haven Water Works	Municipal	1883	Two wells, 575 feet.	75,000	Aeration.	No treatment.
Beach Haven Terrace	Beach Haven Terrace Land Co.	Private	1909	One well, 550 feet.		No treatment.	
Belmar	Borough of Belmar	Municipal	1897	Five wells, 600 feet.	150,000 to 1,000,000	No treatment.	Supplied from Newark.
Belleville							
Belvidere	Belvidere Water Co.	Private	1877	Delaware river	100,000	No treatment.	
Belvidere	Buckhorn Spring Water Co.	Private	1908	Springs and brook	85,000	Sedimentation, two gravity filters.	Supplied from New Milford.
Bergenfield							
Bernardsville	Bernards Water Co.	Private	1903	Springs, one 150-foot well, pond	12,000	No treatment.	
Beverly	The Delaware River Water Co.	Private	1886	Nine wells, 80 feet, four 10-inch, five 8-inch.	500,000	No treatment.	Water not used for drinking or cooking.
Blairsville	Blackwood Water Co.	Private	1906	Lake	40,000	No treatment.	Supplied from Little Falls.
Blairstown	Blairstown Water Co.	Private	1890	One well, 300 feet	50,000	No treatment.	Supplied from Butler.
Bloomfield							
Bloomfield							
Bogota	Bogota Water and Light Co.	Private	1891	One well, 180 feet	30,000	No treatment.	
Boonton	United Water Supply Co.	Private	1892	Broad Valley brook	750,000	No treatment.	
Bordentown	City of Bordentown	Municipal	1905	Springs	300,000	No treatment.	
Bound Brook	Bound Brook Water Co.	Private	1887	Mountain streams and eighteen drilled wells.	275,000	Sedimentation in reservoir.	
Bradley Beach	East Jersey Coast Water Co.						
Bradley Park	East Jersey Coast Water Co.						
Branchville	Branchville Water Works	Municipal	1909	Springs at base of mountain.		No treatment.	
Bridgeton	Bridgeton Water Works	Municipal	1877	Springs and wells, 20 feet to 50 feet, collecting gallery.	1,200,000	No treatment.	
Brown's Mills	Brown's Mills in the Pines Co.	Private	1904	One well, 300 feet.	25,000	No treatment.	
Burlington	Burlington Water Department	Municipal	1804-1877	Delaware river	900,000	Four concrete gravity filters, each 750,000 gallons capacity.	
Butler	Butler Water Co.	Private	1905	Springs and brook	100,000	Aeration.	Supplied from Essex Falls.
Caldwell							
Camden	Camden Water Department	Municipal	1896	108 wells, 70 feet to 120 feet.	10,000,000	No treatment.	
Camden	Stockton Water Co. Eleventh and Twelfth wards.	Private	1892	Twenty wells, 150 feet.	1,500,000	No treatment.	
Cape May City	Cape May City Water Works.	Municipal	1874	Two open wells, 30 x 30 feet; driven wells, 130 feet to 575 feet	750,000 to 2,000,000	No treatment.	
Cape May Point	Cape May Improvement Co.	Private		Artesian well	20,000	No treatment.	Supplied from New Milford.
Carlstadt							
Chatham	Borough of Chatham	Municipal	1898	Six wells, 108 feet to 114 feet.	125,000	No treatment.	
Clarkaboro	Charles Stewart	Private	1868	One well, 240 feet.	5,000	No treatment.	
Clayton	Clayton-Glassboro Water Co.	Private	1868	Six wells, 100 feet.	100,000	No treatment.	
Clementon	Clementon Spring Water Co.	Private	1909	One well, 176 feet	40,000	No treatment.	Supplied from New Milford.
Cliffside Park							
Clinton	Clinton Water and Water Supply Co.	Private	1898	Well, 20 feet deep; mountain springs and well		No treatment.	Supplied from New Milford.
Clinton							Supplied from Merchantville.
Collingswood							
Columbia	Columbia Water Co.	Private	1908	Two wells, 225 feet		No treatment.	
Cranbury	Cranbury Water Co.	Private	1907	One well, 200 feet.	25,000	No treatment.	Supplied from Plainfield.
Cranford							Supplied from New Milford.
Cresskill							
Deal	New Jersey Water and Light Co.	Private	1905	One well, 380 feet; five wells, 585 feet	200,000	No treatment.	
Deal Beach	New Jersey Water and Light Co.	Private	1905	One well, 380 feet; 5 wells, 585 feet.	200,000	No treatment.	Supplied from Long Branch.
Deal Borough							Supplied from Merchantville.
Delair							

PUBLIC WATER SUPPLIES, NEW JERSEY, OCTOBER 31, 1910.

TOWN.	COMPANY.	OWNERSHIP.	ESTABLISHED.	SOURCE.	DAILY CONSUMPTION.	TREATMENT.	REMARKS.
Delanco							
Delawanna	Xantawax Water Co.	Private	1900	One well, 175 feet.			
Delford							
Dover	Dover Water Commission	Municipal	1902	Five wells, 200 feet; brook.	11,000	No treatment.	Supplied from Beverly.
Dumont							
Dunellen	Watchung Water Co.	Private		Driven wells and two dug wells; six wells, 95 feet.	450,000	No treatment.	Supplied from New Milford.
Eatontown Township							
East Newark							
East Orange	East Orange Water Department	Municipal	1903	Forty wells: twenty 120 feet, twenty 200 feet.	50,000	No treatment.	Supplied from New Milford.
East Rutherford							
Edgewater							
Edgewater Park							
Egg Harbor City	General Water Supply Co.	Private		Artesian wells.	5,250,000	No treatment.	Supplied from Long Branch.
Egg Harbor Township							Supplied from Little Falls.
Elizabeth	Elizabethtown Water Co.	Private					Supplied from New Milford.
Emerson							Supplied from New Milford.
Englewood							Supplied from Beverly.
Englewood Cliffs							Supplied from Pleasantville.
Essex Fells	Essex Fells Electric Light and Water Co.	Private	1853	105 wells, 50 to 700 feet deep.			Partially supplied by Middlesex Water Co.
Fairview							Supplied from New Milford.
Fanwood							Supplied from New Milford.
Flemington	Flemington Water Co.	Private	1855	Eight wells, 50 feet.	150,000	No treatment.	Supplied from New Milford.
Fort Lee							
Franklin Furnace	New Jersey Zinc Co.	Private	1855	So. Branch Raritan river, two springs; seven wells, 405 feet.	200,000	No treatment.	Supplied from Plainfield.
Freehold	Freehold Water Works	Municipal	1890	Walkill river	280,000	No treatment.	Supplied from New Milford.
Frenchtown	Frenchtown Water Co.	Private	1907	Big Nishisakawick creek.	400,000	No treatment.	No taps in private houses.
Garfield							
Garwood	Garfield Borough Water Works	Municipal	1906	Three wells, 300 feet.	300,000	No treatment.	Four mechanical filters.
Gibbstown	John Lucas Co.	Private		One driven well, 87 feet deep.			Supplied from Plainfield.
Gibbstown	E. I. Du Pont Powder Co.	Private		One dug well, 10 feet x 10 feet.			
Glassboro							
Glen Gardner	Glen Gardner Water Co.	Municipal	1893	Spring			
Glen Lake	Glen Lake Water Co.	Private	1909	One well, 240 feet deep.			Supplied from Clayton.
Glen Ridge							
Glen Rock							
Glovershire							
Greenloch	Glovershire City Water Works	Municipal	1883	Artesian wells, twenty-two 85 feet, 510 feet; Newton creek.	1,500,000	Four mechanical filters.	Supplied from Little Falls.
Guttenberg	Bateman Manufacturing Co.	Private	1908	Driven well, 100 feet deep.	60,000	No treatment.	Supplied from Ridgewood.
Hackensack	Hackensack Water Co.	Private					
Hackettstown	Board of Water Commissioners	Municipal	1808	Springs, brooks	200,000	Two small filters.	Supplied from New Milford.
Haddonfield	Borough of Haddonfield	Municipal	1910	Four wells, 214 feet.	300,000	No treatment.	See New Milford.
Haddon Heights	Haddonfield Water Co.	Private	1886	Springs	400,000	No treatment.	
Haledon							
Hamamonton	Borough of Haledon	Municipal	1907	Springs	200,000	No treatment.	Supplied from Haddonfield.
Hampton	Hamamonton Water Co.	Municipal	1902	Five wells, 300 feet; one well, 180 feet.	180,000	Two gravity filters, 25 feet x 50 feet.	
Hampton Township	Junction Water Co.	Private	1898	Springs	100,000	Aeration.	
Harrison							
Harrison Heights							
Haworth	Haworth Water Co.	Private	1894	One well, 185 feet.			Supplied from Morristown.
Helmett	American Sulph Co.	Private	1888		15 families, 8,000	No treatment.	Supplied from Little Falls.
High Bridge	High Bridge Water Commission	Municipal	1908	Two wells, 25 feet deep.			Supplied from New Milford.
Highlands	Highlands Water Commission	Municipal	1907	Springs and small brook.	15,000	No treatment.	Supplied from New Milford.
Highland Park Borough							
Hightstown	Hightstown Water Co.	Municipal	1907	Two wells, 215 feet, 287 feet.	30,000	No treatment.	
Highwood							
Hillsdale							
Hillsdale							
Holly Beach							
Hopewell							
Hopewell	Hopewell Water Works	Municipal	1896	Four wells, 200 feet.	150,000	One gravity filter.	Supplied from New Brunswick.
Interlaken							
Irvington	East Jersey Coast Water Co.	Municipal	1896	Two wells, 305 feet, 500 feet.	15,000	No treatment.	Supplied from New Milford.
Island Heights	Island Heights Power, Gas and Sewer Co.	Private	1901	Two wells, 150 feet.			Supplied from New Milford.
					240,000	Aeration, Sedimentation.	Supplied from Summit.

PUBLIC WATER SUPPLIES, NEW JERSEY, OCTOBER 31, 1910.

TOWN.	COMPANY.	OWNERSHIP.	ESTABLISHED.	SOURCE.	DAILY CONSUMPTION.	TREATMENT.	REMARKS.
Jamesburg	Jamesburg Water Co.	Private	1909	Two wells, 75 feet.	75,000	No treatment.	
Jersey City	Jersey City Water Supply Co.	Private	1869	Rockaway river	41,000,000	Sedimentation.	
Junction	Junction Water Co.	Private	1898	Springs	100,000	No treatment.	
Kearny							
Kearny							
Keyport	Keyport Water Works.	Municipal	1892	Six wells, 240 feet.	140,000	Two gravity filters and sedimentation.	Supplied from Little Falls. Supplied from Perth Amboy.
Lakewood	Lakewood Sewer Co.	Private	1905	One well, 125 feet.	10,000	No treatment.	
Lakewood	Lakewood Water Co.	Private	1886	Three wells, 650 feet; three open wells, 20 feet deep.	750,000	No treatment.	
Lambertville	Lambertville Water Co.	Private	1877	Springs	150,000	Two sand filters, 200 feet x 150 feet x 4 feet.	
Laurel Springs	Laurel Springs Water Supply Co.	Private	1907	Artesian wells, 100-105 feet.	100,000	No treatment.	
Leonia							
Linden							
Lindwood							
Little Falls	East Jersey Water Co.	Private	1889	Passaic river	24,000,000	Thirty-two mechanical filters, total capacity 40,000,000.	Supplied from New Milford. Supplied from Elizabeth. Supplied from Pleasantville.
Little Ferry							
Lodi							
Lodi							
Loch Arbour	East Jersey Coast Water Co.			Spring water conducted through main street by 4-inch pipe.			Supplied from New Milford. No individual or company ownership. Partially supplied from Garfield.
Logansville							Supplied from New Milford.
Long Branch	Tintern Manor Water Co.	Private	1882	Swimming river, Whale Pond brook.	4,689,000	Swimming river plant; twelve 1,000,000 gravity filters, eight No. 250,000 pressure filters, two 500,000 pressure filters.	Supplied from Bernardsville. Whale Pond brook.
Longport	Borough of Longport.	Municipal	1908	Two wells, 322 feet.	125,000	No treatment.	
Lumberton	Lumberton Light, Water and Sewerage Co.	Private	1905	Rancocas creek	10,000	No treatment.	
Lynchburg							
Lyons Farms							
Madison	Borough of Madison.	Municipal	1889	One dug well, 3 feet; five drilled wells, 86-148 feet x 8 inches	225,000	No treatment.	Supplied by Harkensack Water Co.
Manasquan	Manasquan Water Department.	Municipal	1903	Two wells, 150 feet.	30,000	No treatment.	Supplied from Elizabeth.
Manasquan	Louis D. F. Downer	Private	1885	One well, 800 feet; three wells, 1,600 feet.	19,000	No treatment.	
Manus	Job Scott	Private	1895	Three wells, 210 feet.	12,000	No treatment.	
Maplewood							
Margate	Margate City Water Co.	Municipal	1903	One well, 310 feet.	4,500	No treatment.	
Martinton	Martinton Water Co.	Private	1903	One artesian well	2,500	No treatment.	Supplied from Summit.
Matawan	Matawan Water Works.	Municipal	1907	Three wells; two 200 feet, one 325 feet.	70,000	Aeration. Two sand filters, 35 feet x 22½ feet x 8 feet.	
Mays Landing	Mays Landing Water Works.	Municipal	1907	Two wells, 250 feet.	59,000	No treatment.	
Maywood							
Medford	Medford Water Co.	Private	1895	Haines' creek	50,000	Sedimentation.	Supplied from New Milford.
Mendham	Borough of Mendham.	Municipal	1908	Springs	15,000	Sedimentation.	
Merchantville	Merchantville Water Co.	Private	1896	Seven wells, 120 feet to 145 feet.	800,000	Aeration. Three pressure filters, 20 feet x 8 feet.	Filtered for iron.
Metuchen	Middlesex Water Co.	Private	1896	Twelve wells, 200 feet deep; Robinson's Branch, Rahway river, South Plainfield pond.	6,000,000	Twelve pressure filters, 500,000 gallons each.	
Midland							
Midland Park	Bergen Water Co.	Private	1909	Four wells, 200 feet to 260 feet.	500,000 to 750,000	Chlorine	Supplied from New Milford. At times this water is furnished Ridgewood.
Millington	Millington Water Co.	Private	1905	One well, 25 feet deep.	12,000	No treatment.	Supplied from Summit.
Millville	Millville Water Co.	Private	1873	Manrice river and Union lake.	950,000	Four filters, mechanical, 15 feet x 8 feet.	
Millville	Peoples Water Co.	Private	1903	Six wells, 108 feet.	230,000	One pressure filter, 500,000 gallons.	
Monmouth Beach							
Montclair							
Moorestown	Moorestown Water Co.	Private	1887	Haines' creek and lake.	500,000	Sedimentation tanks. Two Roberts' mechanical filters, 15 feet x 7 feet.	Supplied from Long Branch. Supplied from Little Falls.
Morris Plains							
Morristown	Morris Aqueduct Co.	Private	1799	Mountain Springs; eight wells, 45 feet to 90 feet.	600,000	Sedimentation and aeration.	Supplied from Morristown.
Morris Township							
Mount Holly	Mount Holly Water Co.	Private	1845	Rancocas creek	400,000	Sedimentation; two tanks, 20 x 24; three gravity filters, 15 feet x 15 feet.	Supplied from Morristown.
Mullica Hill	Harrison Heights Improvement Co.	Private	1902	One well, 258 feet; two wells, 261 feet.	20,000	No treatment.	
Neptune City	East Jersey Coast Water Co.						
Neptune Township	East Jersey Coast Water Co.						
Netcong	Netcong Water Department.	Municipal	1904	Springs	30,000,000	Small sand filter.	
Newark	City of Newark.	Municipal	1889-1891	Pequanock river	30,000,000	No treatment.	
Newark							
New Brunswick	New Brunswick Water Commissioners.	Municipal	1873	Lawrence brook	3,018,000	No treatment.	Supplied from Westville.
New Egypt	New Egypt Water Co.	Private	1903	One well, 230 feet.	4,900	Aeration.	
New Lisbon	Burlington Co.	Municipal	1903	Rancocas creek	45,000	No treatment.	Supplies almshouse, asylum and six residences.

PUBLIC WATER SUPPLIES, NEW JERSEY, OCTOBER 31, 1910.

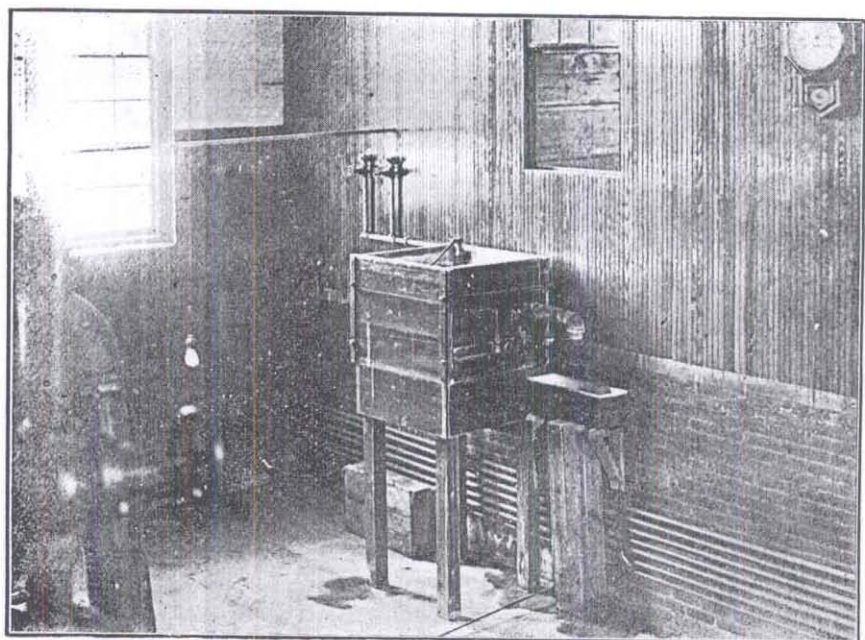
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TOWN.	COMPANY.	OWNERSHIP.	ESTABLISHED.	SOURCE.	DAILY CONSUMPTION	TREATMENT.	REMARKS.
New Milford.	Hackensack Water Co.	Private	1882	Hackensack river	25,000,000	Gravity filters; coagulation.	Chlorine sometimes used. Supplied from Summit.
New Providence Borough.							Supplied from Summit.
New Providence Township.							Supplied from New Milford.
Newton.	Newton Water Commission	Municipal	1895	Morris lake	600,000	No treatment.	Supplied from Plainfield.
North Bergen.							Supplied from Plainfield.
Northfield.							Supplied from Wildwood.
North Plainfield.							Supplied from Little Falls.
North Wildwood.							Supplied from Little Falls.
Nutley.							Supplied from Haddonfield.
Oklyn.	Ocean City Water Co.	Private	1888	Five wells, 800 feet.	370,000	Aeration.	
Ocean City.	Ocean Grove Camp Meeting Association.	Municipal	1883	Twenty-seven wells, 400 feet to 1,100 feet.	250,000	Sedimentation.	Supplied from Long Branch. Supplied from New Milford.
Ocean Township.							
Overpeck.							
Palisades Park.							Supplied from New Milford.
Palisades Township.							Supplied from New Milford.
Palmyra.							Supplied from Hiverton.
Passaic.							Supplied from Little Falls.
Passaic Township.							Supplied from Morristown.
Paterson.							Supplied from Little Falls.
Paulsboro.	Paulsboro Water Co.	Private	1802	Three wells, 65 feet.	80,000	Aeration.	Supplied from Pennsgrove.
Pedricktown.							
Pemberton.	Pemberton Township Water, Sewerage and Light Co.	Private	1894	Ranococas creek, North Branch.	38,000	No treatment.	
Pennington.	Pennington Spring Water Co.	Private		Mountains springs	30,000	No treatment.	
Pennsgrove.	Pennsgrove Water Supply Co.	Private	1905	Four wells, 135 feet.	60,000	Sedimentation.	Aeration. Filtration, gravity, 13 feet x 8 feet
Pennsauken.							Filtered for iron. Supplied from Merchantville. Twenty houses supplied by J. N. Wilkies.
Perth Amboy.	Perth Amboy City Water Works.	Municipal	1878	Two wells, one 120 feet, one 71 feet.	4,900	No treatment.	
Phillipsburg.	Lopatcong Water Co.	Municipal	1902	Fifty-seven wells, 45 feet to 70 feet.	5,500,000	No treatment.	
Phillipsburg.	Popoies Water Co.	Private	1885	Lopatcong creek.	465,000	No treatment.	
Pitman.	Pitman Water Co.	Private	1901	Filter gallery from Delaware river.	1,300,000	No treatment.	
Plainfield.	Plainfield-Union Water Co.	Private	1890	One well, 235 feet.	561,000	No treatment.	
Plainfield.	Plainfield Water Co.	Private	1902	Thirty-two wells, 70 feet to 400 feet.	4,500,000	No treatment.	
Point Pleasant.	Point Pleasant Water Works Co.	Private	1888	Lake	221,461	No treatment.	
Port Reading.							Supplied by Middlesex Water Co.
Princeton.	Princeton Water Co.	Private	1881	Fifteen wells, 25 feet.	105,000	No treatment.	
Princeton.							Supplied by Middlesex Water Co.
Rahway.	Rahway City Water Works.	Municipal	1872	Springs and underground collecting system; two wells, 500 feet.	300,000	No treatment.	
Raritan.							
Red Bank.	Red Bank Water Co.	Municipal			2,600,000	Sedimentation; eight filters, pressure, 8 feet x 25 feet.	Chlorine. See Somerville.
Ridgefield Park.					1,000,000	Aeration.	Supplied from New Milford. Supplied from New Milford.
Ridgefield.							
Ridgeville.	Bergen Aqueduct Co.	Private	1900	Five driven wells, 200 feet to 600 feet.	500,000 to 750,000	No treatment.	
Riverside, Bergen County.	John L. Riegel and Sons.	Private	1880	Five driven wells, 200 feet to 260 feet.		No treatment.	
Riverside Township, Burlington County.				Springs in Pennsylvania.		No treatment.	Supplied from New Milford.
Riverton.	Riverton-Palmyra Water Co.	Private	1889				Supplied from Beverly.
Rockaway.	Borough of Rockaway.	Municipal	1896	One well 13 feet x 20 feet; infiltration gallery from Delaware river.	500,000	No treatment.	
Roebling.	John A. Roebling's Sons Co.	Private	1905	Brook, White macadow.	100,000	No treatment.	
Roseville, Essex County.				Delaware river	149,000	Three mechanical filters, 66 square feet each.	Supplied from Essex Falls.
Roselle Borough.							Supplied by Middlesex Water Co.
Roselle Park.							Supplied from Plainfield.
Rossett Borough.							Supplied by Middlesex Water Co.
Rumson.	Rumson Improvement Co.	Private	1894	Five wells, 300 feet.	75,000	Aeration; two sand filters, 770 square feet area.	Filtration for iron. Supplied from Long Branch. Supplied from New Milford.
Rutherford.							
Salem.	Salem City Water Co.	Municipal	1881	Twenty wells, 175 feet to 500 feet.	700,000	Sedimentation; two slow sand filters, 80 feet square.	Supplied from Long Branch.
Sea Bright.							
Sea Girt.	Sea Girt Land Improvement Co.	Private		One driven well, 300 feet.	25,000	No treatment.	
Sea Isle City.	Sea Isle City Water Co.	Private	1896	One well, 862 feet.	50,000, 300,000	No treatment.	
Sea Side Park.	Borough of Sea Side Park.	Municipal		Two driven wells, 200 feet, 400 feet.	100,000	No treatment.	Supplied from New Milford.
Secaucus.							Supplied from Plainfield.
Scott Plains.							Supplied by Middlesex Water Co.
Sewaren.							
Short Hills.	Short Hills Water Co.	Private	1890	Thirteen wells, 60 feet to 80 feet.	182,000	No treatment.	

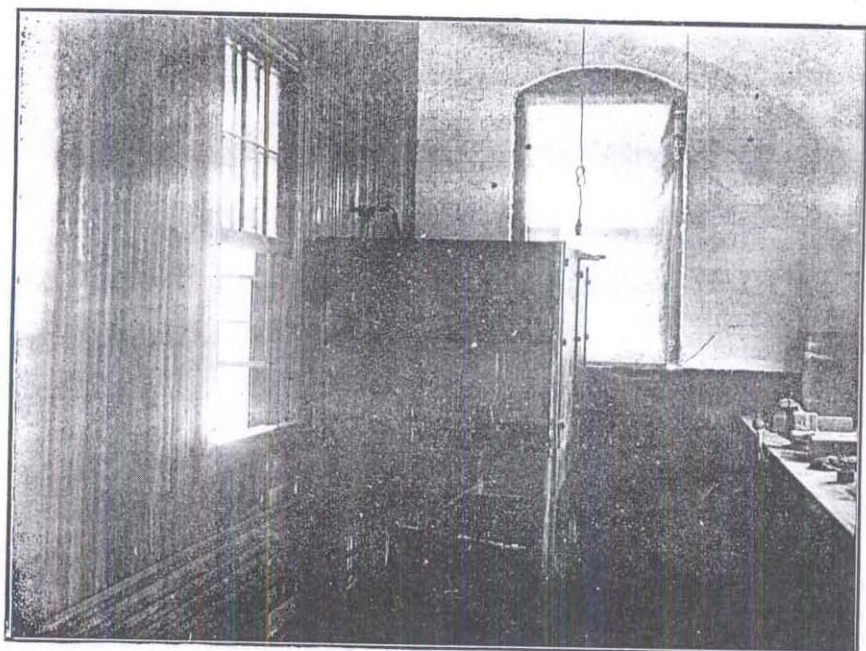
PUBLIC WATER SUPPLIES, NEW JERSEY, OCTOBER 31, 1910.

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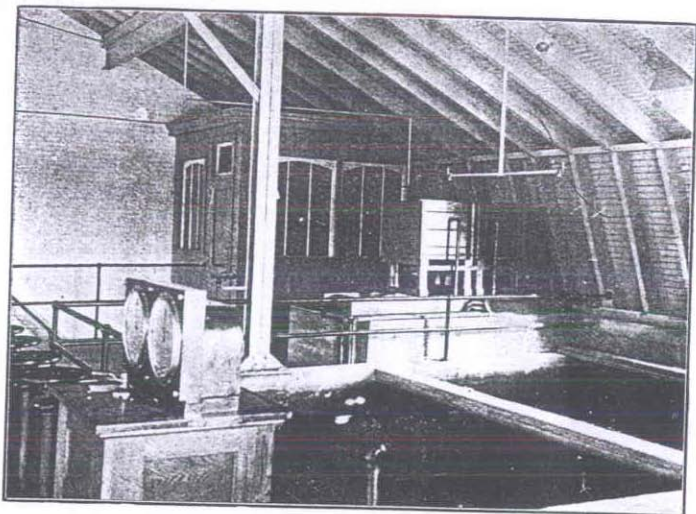
TOWN.	COMPANY.	OWNERSHIP.	ESTABLISHED.	SOURCE.	DAILY CONSUMPTION.	TREATMENT.	REMARKS.
Shrewsbury Township.	H. B. Smith Machine Co.	Private	1865	Two wells, 110 feet.	20,000	One Greer filter; aeration.	Supplied from Long Branch.
Smithville	H. B. Smith Machine Co.	Private	1865	Two wells, 110 feet.	20,000	One Greer filter; aeration.	Supplied from Long Branch.
Somers Point	Somerville Water Co.	Private	1881	Raritan river	1,928,000	Seven filters: three horizontal, 8 x 20; four upright, 6 feet x 10 feet.	Supplied from Pleasantville.
Somerville	Somerville Water Co.	Private	1881	Raritan river	1,928,000	Seven filters: three horizontal, 8 x 20; four upright, 6 feet x 10 feet.	Supplied from Pleasantville.
South Amboy							Supplied from Perth Amboy.
South Cape May							Supplied from Cape May City.
South Orange Township.							Supplied from Summit.
South Orange Village.							Supplied from Summit.
South Plainfield							Supplied by Middlesex Water Co.
South River							Plans for proposed public supply submitted.
Sparta							Three private lines supplying twelve houses each.
Springfield							Supplied from Short Hills.
Spring Lake	Borough of Spring Lake	Municipal	1906	Seven wells, 800 feet.	180,000, 1,300,000	No treatment.	Supplied from Netcong, but has started on municipal plant.
Stanhope	Borough of Spring Lake	Municipal	1906	Seven wells, 800 feet.	180,000, 1,300,000	No treatment.	Supplied from Netcong, but has started on municipal plant.
Stirling	Stirling Water Supply Co.	Private	1905	Five wells, 85 feet to 248 feet.	60,000	No treatment.	
Stockton	Stockton Water Co.	Municipal	1907	Two wells, 100 feet.	25,000	No treatment.	
Stone Harbor	Stone Harbor Water Co.	Private	1909	One well, 859 feet.	40,000	No treatment.	
Stratford	Commonwealth Water and Light Co.	Private	1880	Green brook, two 30 feet diameter, 20 feet deep, and three rock wells, 6 inches x 200 feet. Canoe brook, 20 wells, 90 to 155 feet.	1,000,000	No treatment.	Supplied from Laurel Springs.
Summit	Commonwealth Water and Light Co.	Private	1880	Green brook, two 30 feet diameter, 20 feet deep, and three rock wells, 6 inches x 200 feet. Canoe brook, 20 wells, 90 to 155 feet.	1,000,000	No treatment.	Supplied from Laurel Springs.
Surf City	Surf City Water Co.	Private	1907	One driven well.	100,000	No treatment.	
Sussex	Sussex Water Co.	Municipal	1896	Lake Lutherford	80,000	No treatment.	
Swedesboro	Woodwich Water Co.	Private	1901	Three wells, 132 feet.	80,000	No treatment.	
Tenack							Supplied from New Milford.
Tenafly							Supplied from New Milford.
Trenton	Water Commission	Municipal	1859	Delaware river	17,000,000	No treatment.	
Toms River	Toms River Water Co.	Private	1897	Three driven wells, 35 feet	80,000	No treatment.	
Tuckerton	Tuckerton Water Co.	Private	1898	Cedar swamp, stream.	50,000	No treatment.	
Union, Bergen County.	Hackensack Water Co.						Supplied from New Milford.
Union, Middlesex County.	Hackensack Water Co.						Supplied from Elizabeth.
Ventnor	Ventnor City	Municipal	1908	Two wells, 825 feet.	25,000	No treatment.	
Verona							Supplied from Essex Falls.
Vincetown	Vincetown Water Co.	Private	1880	Hancocks creek	55,000	No treatment.	
Vineland	Borough of Vineland	Municipal	1900	Twelve wells, 120 feet.	600,000	No treatment.	
Wallington	Borough of Wallington	Municipal	1901	Spring; two wells, 262 feet.	140,000	No treatment.	
Warren Paper Mills.	Warren Manufacturing Co.	Private	1871	Springs	35,000	Sand filter.	
Washington	Washington Water Co.	Private	1881	Mountain stream	200,000	No treatment.	
Wanamassa							Supplied from Asbury Park.
Watchung							Supplied from New Milford.
Wenonah	Wenonah Water Co.	Private	1886	Six wells, 96 feet to 128 feet.	39,000	No treatment.	
West Allenhurst							Supplied from Asbury Park.
West Avon							Supplied from Asbury Park.
West Cape May							Supplied from Cape May City.
West End							Supplied from Long Branch.
Westfield							Supplied from Plainfield.
West Hoboken							Supplied from New Milford.
Westmont							Supplied from Merchantville.
West New York							Supplied from New Milford.
West Orange							Supplied from Little Falls.
Westville	Westville-Newbold Water Co.	Private	1897	Two wells, 150 feet.	50,000	No treatment.	
Westwood	Westville-Newbold Water Co.	Private	1897	Two wells, 150 feet.	50,000	No treatment.	
Wharton	Board of Wharton	Municipal	1910	Mine spring	20,000	No treatment.	Supplied from New Milford.
Whiteville							Supplied from Asbury Park.
Wildwood	Wildwood Water Works Co.	Private	1894	One well, 800 feet; nine wells, 350 feet.	230,000	No treatment.	
Wildwood Crest	Wildwood Water Works Co.	Private	1894	One well, 800 feet; nine wells, 350 feet.	230,000	No treatment.	
Williamstown	Monroe Water Co.	Private	1902	Three wells, 112 feet to 124 feet.	30,000	No treatment.	
Woodbine	Woodbine Land and Improvement Co.	Private	1896	Five wells, 150 feet.	110,000	No treatment.	
Woodbridge							Supplied by Middlesex Water Co.
Woodbridge Township							Supplied from Perth Amboy.
Woodbury	City of Woodbury	Municipal	1886	Mantua creek	600,000	Sedimentation.	
Woodbury Heights	City of Woodbury	Municipal	1886	Mantua creek	600,000	Sedimentation.	
Woodryne							Supplied from Merchantville.
Woodridge							Supplied from New Milford.
Woodstown	Woodstown Water Department	Municipal	1892	Six wells, 150 feet.	90,000	No treatment.	
Wrightstown	Wrightstown Water, Electric Light and Sewer Co.	Municipal	1899	One well, 24 feet x 12 feet.	10,000	No treatment.	



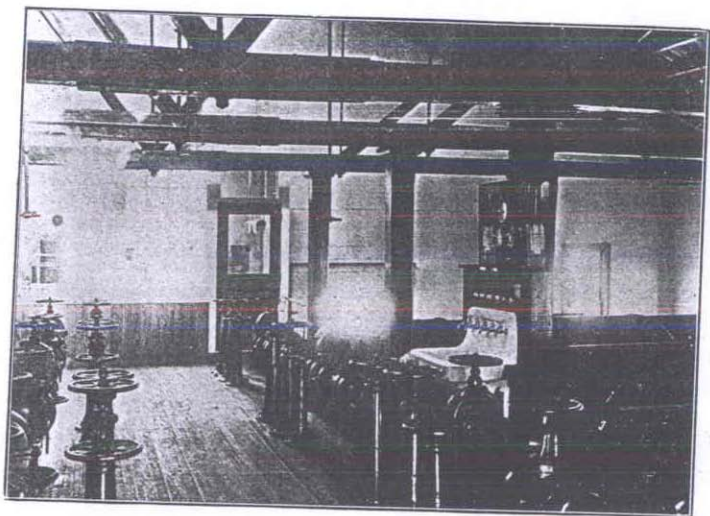
Hypochlorite Dosing Tank, Midland Park.



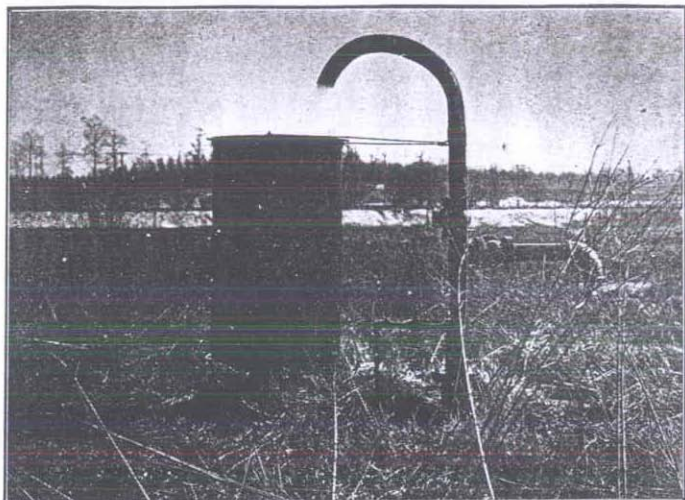
Hypochlorite Mixing Tank, Midland Park.



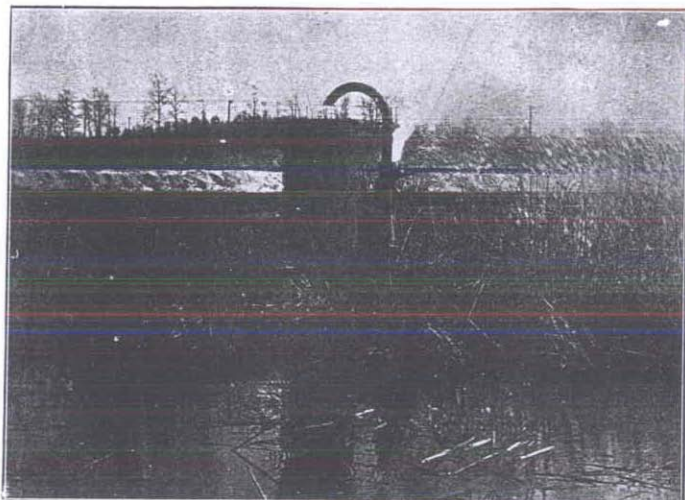
Sand Filter, Chemical Dosing Tanks and Laboratory, Burlington Water Works.



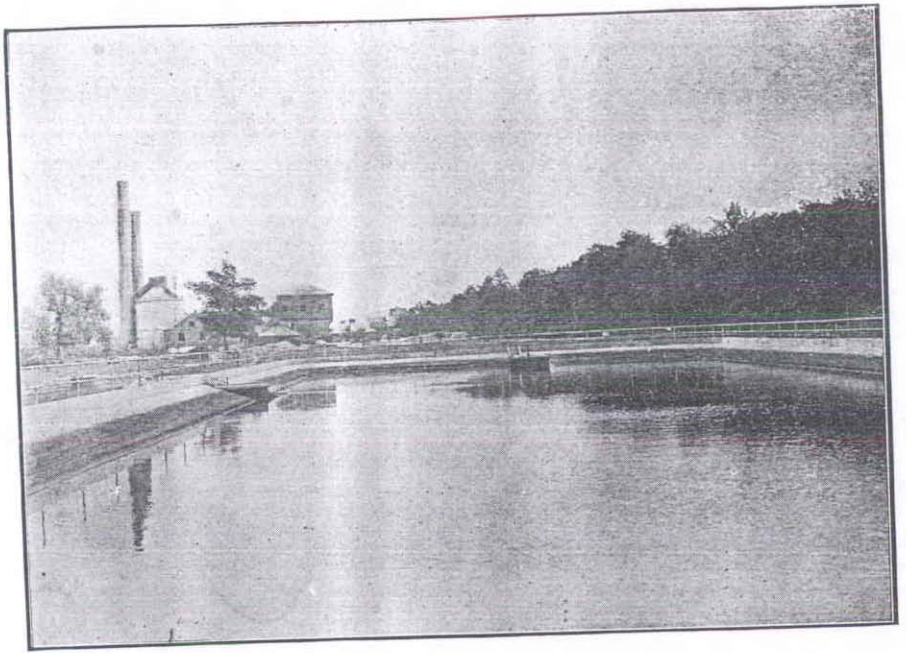
Control Apparatus, Pressure Filters and Laboratory, Municipal Water Plant, Rahway, N. J.



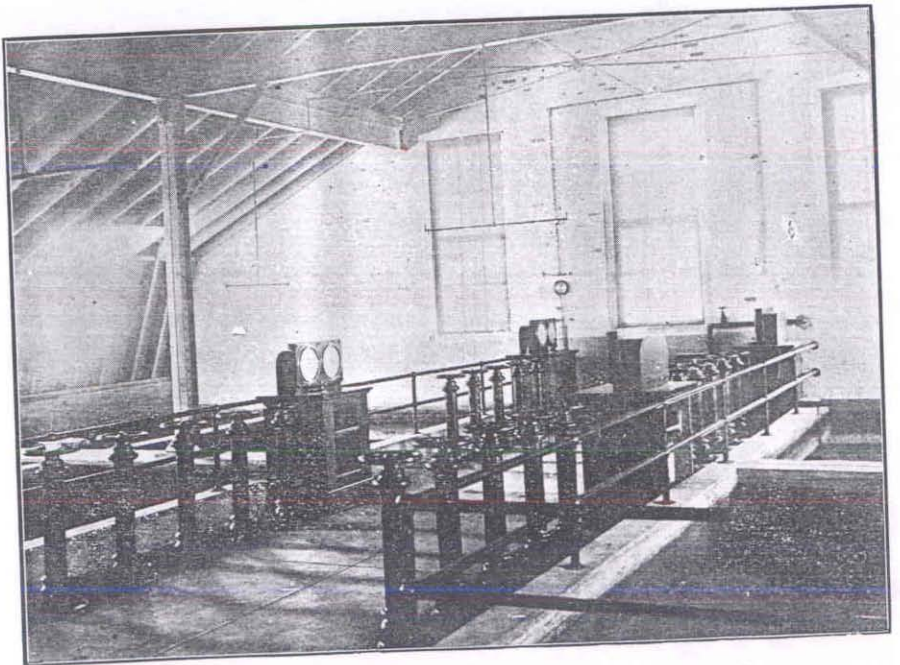
An Air-Lift Well, City of Camden.



Cleaning an Artesian Well, City of Camden.



Storage Reservoir, Atlantic City.



Control Apparatus and Sand Filters, Water Purification Plant, Burlington.

The following tables give the analytical results obtained upon the examination of water taken from dairy and creamery premises. It is cheering to note that a smaller number of wells from these premises was condemned as unfit for use this year than last. This is due to the fact that our friends the farmers are awakening to the need of pure and wholesome water and have endeavored to obtain such a supply upon their premises.

CONTINUOUS RECORD OF ANALYSES OF WATER FROM THE SUPPLY OF DAIRIES—RESULTS IN PARTS PER MILLION EXCEPT WHERE OTHERWISE STATED.

TOWN.	DATE.	SOURCE OF SUPPLY.	Color.	Odor, cold.	Odor, hot.	Turbidity.	NITROGEN AS				Chlorine.	B. coli counts.
							Ammonia.	By permanganate in solution.	Nitrites.	Nitrates.		
Bergen County—												
Franklin Township.....	July 15, '10.....	John Sherer.....	0	0	0	0	.004	.024	0.0	0.0	1.0	In 0.1 cc.
Lyndhurst.....	Aug. 31, '10.....	Matthew Adams.....	0	0	0	0	.029	.026	.005	5.00	7.5	Absent
"	June 10, '10.....	Mr. Lorenzo.....	0	0	0	0	.008	.032	.009	12.0	15.2	In 10.0 cc.
Dundee Lake.....	Aug. 12, '10.....	Jas. Brunauer.....	0	0	0	0	.056	.068	.023	8.0	15.2	In 1.0 cc.
Washington Township.....	Aug. 10, '10.....	Geo. Schlegel.....	90	off	off	0	ppt	.....	.032	0.0	8.5	In 10.0 cc.
Burlington County—												
Bordentown.....	Sept. 22, '10.....	Garret Buckalew.....	0	0	0	0	.018	.056	.016	11.20	96.0	In 0.1 cc.
"	Sept. 22, '10.....	Hamilton Bros.....	15	0	0	40	.012	.024	.004	1.08	28.0	Absent
"	Sept. 21, '10.....	Geo. Holloway.....	0	0	0	0	.014	.083	.004	40.00	50.0	In 10 cc.
"	Nov. 22, '09.....	Frank Norcross.....	0	0	0	0	.024	.088	.000	6.40	29.0	Absent.
"	Jan. 10, '10.....	"	0	0	0	0	.055	.086	.004	18.0	57.0	"
Burlington.....	Nov. 24, '09.....	Mary Alorton Est.....	0	0	0	40	.042	.046	.002	1.80	2.5	"
"	Nov. 24, '09.....	William Borden.....	35	0	0	40	.128	.040	0.0	1.0	1.0	"
"	April 27, '10.....	Aaron W. Johnson.....	0	0	0	0	.015	.076	0.0	120.0	120.0	"
Chesterfield.....	Sept. 21, '10.....	Lewis Klein.....	0	0	0	0	0.0	.016	.002	3.24	2.0	"
"	Sept. 21, '10.....	James Shanahan.....	0	0	0	0	.....	.....	.002	3.40	4.5	In 10 cc.
"	Nov. 22, '09.....	Jas. A. Southard.....	0	0	0	0	.008	.060	.008	0.80	23.0	In 10.0 cc.
"	Nov. 10, '10.....	"	0	0	0	0	.024	.132	.001	1.44	28.0	In 10.0 cc.
"	Sept. 21, '10.....	"	0	0	0	0	.042	.042	.002	1.04	25.5	Absent.
Evesham.....	March 22, '10.....	Geo. H. Platt.....	0	0	0	0	.146	.084	0.0	24.0	24.0	"
Florence.....	Nov. 26, '09.....	William Sprinkle.....	0	0	0	0	.086	.004	.040	24.0	76.0	In 10.0 cc.
"	April 29, '10.....	"	0	0	0	0	.082	.116	.008	26.0	92.5	In 0.1 cc.
"	April 29, '10.....	Charles Stout.....	0	0	0	0	.004	.032	0.0	8.0	19.0	Absent.
"	April 27, '10.....	Frank Warren.....	40	0	0	25	.008	.096	.032	0.64	5.0	"
Medford.....	March 31, '10.....	Samuel Jorden.....	0	0	0	0	.008	.028	0.0	14.0	17.0	"
"	April 18, '10.....	"	0	0	0	0	.076	.052	0.0	12.0	14.5	In 10.0 cc.

CONTINUOUS RECORD OF ANALYSES OF WATER FROM THE SUPPLY OF DAIRIES—RESULTS IN PARTS PER MILLION EXCEPT WHERE OTHERWISE STATED.

TOWN.	DATE.	SOURCE OF SUPPLY.	Color.	Odor, cold.	Odor, hot.	Turbidity.	NITROGEN AS				Chlorine.	B. coli communs.
							Ammonia.	By permanganate in solution.	Nitrites.	Nitrates.		
New Hanover.	June 23, '10.	Burlington County—Con.	0	0	0	0	.004	.056	0.0	24.0	73.0	Absent.
	March 31, '10.	W. H. Davis.	30	0	0	sit	.008	.108	.005	5.20	87.0	"
	March 31, '10.	L. R. Clevenger.	0	0	0	sit	.042	.144	.020	18.0	113.0	Absent.
	March 7, '10.	F. P. Allen.	15	off	off	sit	ppt.	.210	.040	8.0	70.5	"
	Nov. 23, '09.	J. S. Harshorn.	0	2-e	3-e	sit	.044	.060	.004	2.20	8.0	In 10.0 cc.
	Nov. 23, '09.	Thomas Assay.	0	0	0	0	.004	.008	0.0	1.44	9.0	Absent.
	Nov. 23, '09.	Clifford Atkinson.	80	3-off	3-off	120	.032	.040	0.0	0.48	3.0	"
	Nov. 26, '09.	George W. Borden Co.	0	1-musty	2-musty	sit	.004	.228	.025	0.0	82.0	"
	Nov. 23, '09.	Eva Burr.	0	0	0	0	.008	.016	0.0	0.0	49.0	In 10.0 cc.
	Nov. 23, '09.	Tallman Cobb.	0	0	0	0	.012	.024	0.0	4.80	9.5	In 10.0 cc.
"	April 25, '10.	"	0	off	off	sit	.012	.064	.010	14.4	184.0	In 10.0 cc.
	Nov. 24, '09.	Frank Cook.	0	0	0	0	.042	.068	.005	10.0	10.0	Absent.
	April 25, '10.	Winfield Scott.	0	0	0	0	.016	.024	0.0	3.20	33.0	In 10.0 cc.
	April 25, '10.	Philip Keif.	0	1-aro	1-off	0	.016	.086	.008	4.40	2.5	Absent.
	Nov. 23, '09.	Clarence Mason.	0	0	0	0	.008	.016	0.0	3.20	3.0	"
Upper Freehold.	April 25, '10.	Ridgeway Whitecomb.	0	0	0	0	.008	.060	.004	1.08	79.0	In 1.0 cc.
	April 11, '10.	Jas. O'Connell.	15	0	0	25	.016	.056	.002	0.24	27.0	Absent.
Audubon.	March 21, '10.	Camden County—	0	0	0	0	.008	.036	0.0	12.80	46.0	"
	March 21, '10.	Jos. H. Rexen.	0	0	0	sit	.018	.042	.002	8.0	23.0	"
	March 23, '10.	Winfield Scott.	20	0	0	0	.004	.008	0.0	1.80	2.5	"
	March 23, '10.	Philip Keif.	0	0	0	sit	.020	.084	.009	16.0	57.0	In 10.0 cc.
	March 23, '10.	Benjamin Sharp.	0	0	0	0	.020	.084	.009	16.0	57.0	In 10.0 cc.
Collingswood.	March 23, '10.	Henry Schnitzels.	0	0	0	.020	.060	.003	3.00	105.0	Absent.	

CONTINUOUS RECORD OF ANALYSES OF WATER FROM THE SUPPLY OF DAIRIES—RESULTS IN PARTS PER MILLION EXCEPT WHERE OTHERWISE STATED.

TOWN.	DATE.	SOURCE OF SUPPLY.	Color.	Odor, cold.	Odor, hot.	Turbidity.	NITROGEN AS				Chlorine.	B. coli communs.
							Ammonia.	By permanganate in solution.	Nitrites.	Nitrates.		
Delaware.	March 22, '10.	Camden County—Con.	0	0	0	0	.008	.060	0.0	4.80	4.0	Absent.
	March 22, '10.	George Fortner.	0	0	0	0	.008	.056	0.0	16.8	79.0	In 10.0 cc.
	March 22, '10.	Jas. K. Lippincott.	0	0	0	0	.008	.020	.002	28.0	74.0	Absent.
	March 22, '10.	"	0	0	0	0	.012	.030	0.0	13.20	11.0	"
	Aug. 8, '10.	Charles Rogers.	0	0	0	sit	.284	.032	.140	9.60	11.0	"
Voorhees.	March 23, '10.	Christian Hartner.	0	0	0	0	too h.	.144	.120	12.0	64.5	"
	March 22, '10.	George Gardner.	25	0	0	sit	.008	.124	.006	12.8	31.5	In 10.0 cc.
Irvington.	June 14, '10.	Reuben E. Sims.	0	0	0	sit	.008	.124	.006	12.8	31.5	In 10.0 cc.
	June 14, '10.	Essex County—	0	2-m	3-m	sit	ppt	.....	0.200	18.0	108.0	In 0.1 cc.
Livingston.	July 11, '10.	Louis Bolinsky.	0	1-m	2-m	sit	.084	.080	0.300	9.60	30.5	In 0.1 cc.
	July 11, '10.	Philip Fein.	0	0	0	0	.008	.016	0.0	5.60	8.5	Absent.
	July 14, '10.	"	25	1-e	2-e	40	.004	.046	.014	8.0	14.0	In 10.0 cc.
	April 28, '10.	E. E. Bedford.	0	0	0	sit	.416	.128	.018	12.8	112.5	In 1.0 cc.
South Orange.	May 2, '10.	Jas. H. Brown.	0	0	0	0	.008	.036	0.0	1.0	9.5	Absent.
	April 28, '10.	F. Raymond.	0	0	0	sit	.004	.032	.002	8.0	11.5	In 1.0 cc.
	July 14, '10.	August Recessing.	0	0	0	0	.008	.044	.003	3.20	3.5	In 0.1 cc.
	Aug. 19, '10.	Casper Schultz.	0	0	0	sit	.008	.116	.006	5.60	10.0	In 1.0 cc.
Vailsburg.	June 29, '10.	Rebecca Fein.	0	0	0	sit	.008	.116	.008	28.0	67.0	In 0.1 cc.
	July 26, '10.	Charles Fein.	0	0	0	0	.012	.082	.012	0.80	38.0	In 0.1 cc.
	Sept. 11, '10.	Louis F. Schmidt.	0	1-e	0	0	.048	.054	.007	4.80	128.0	In 0.1 cc.
	June 29, '10.	Jacob Cohen.	0	0	0	sit	.012	.080	.014	8.0	20.0	In 10.0 cc.
June 29, '10.	Nathan Wollard.	0	0	0	sit	.078	.036	0.0	8.80	13.0	In 10.0 cc.	

CONTINUOUS RECORD OF ANALYSES OF WATER FROM THE SUPPLY OF DAIRIES—RESULTS IN PARTS PER MILLION EXCEPT WHERE OTHERWISE STATED.

TOWN.	DATE.	SOURCE OF SUPPLY.	Color.	Odor, cold.	Odor, hot.	Turbidity.	NITROGEN AS				Chlorine.	B. coli communs.
							Ammonia.	By permanganate in solution.	Nitrites.	Nitrates.		
Harrison	Aug. 8, '10	Gloucester County— Samuel W. Brown, Jr.	0	0	0	0	.016	.024	.060	13.60	48.0	Absent.
	April 5, '10	Edw. Owen	0	0	0	0	.016	.020	0.0	8.80	9.5	"
	April 5, '10	E. J. Beal	0	0	0	0	.008	ppl.	.004	7.20	67.0	"
	April 5, '10	A. J. Ridgway	0	0	0	0	.018	.024	0.0	18.0	14.0	"
	Aug. 8, '10	"	0	0	0	0	.025	.084	.070	8.0	15.0	"
Raritan	March 23, '10	Hunterdon County— Gorden Buchanan	0	0	0	slt	.008	.112	0.0	12.0	28.0	In 1.0 cc.
	March 23, '10	J. Polhemus	0	0	0	slt	.008	.072	0.0	1.40	53.0	Absent.
	March 22, '10	John Snyder	0	0	0	slt	.160	.080	.002	0.96	2.0	In 10.0 cc.
	March 10, '10	L. C. Dalley	0	0	0	0	.018	.100	.004	16.0	85.0	In 1.0 cc.
	March 23, '10	Henry Webb	15	0	0	25	.016	.686	.010	5.60	17.0	In 10.0 cc.
Unlon	March 23, '10	Theo. Zellsdorff	0	0	0	slt	.012	.064	0.0	8.0	7.5	Absent.
	March 15, '10	Jos. Pettinger	0	0	0	0	.024	.148	.006	10.0	32.0	In 1.0 cc.
Hamilton	Jan. 7, '10	Mercer County— Wm. H. Cumberly	0	0	0	0	.008	.020	0.0	2.0	2.5	Absent.
	April 6, '10	Addison H. Stullis	0	0	0	0	.008	.020	0.0	32.0	60.0	"
	April 6, '10	William O. Wilson	0	0	0	0	.012	.024	.002	14.40	22.5	In 1.0 cc.
	Dec. 16, '09	Jennie Phillips	0	0	0	0	.008	.682	0.0	14.80	9.5	In 10.0 cc.
	Dec. 2, '09	Levi Bleam	0	0	0	0	.072	.076	.018	11.20	46.0	In 1.0 cc.
Lawrence	March 2, '10	"	0	0	0	0	.012	.182	0.0	8.80	22.0	In 1.0 cc.
	Dec. 7, '10	Reuben Farr	0	0	0	0	.032	.060	0.0	10.0	3.0	In 1.0 cc.
	March 2, '10	Bertram Gulick	15	0	0	25	.024	.600	.028	10.40	24.5	In 10.0 cc.
	Dec. 9, '09	Edward Howe	0	0	0	0	.024	.060	0.0	6.0	10.5	In 10.0 cc.
	Dec. 9, '09	"	0	0	0	0	.008	.012	0.0	0.44	4.5	Absent.

CONTINUOUS RECORD OF ANALYSES OF WATER FROM THE SUPPLY OF DAIRIES—RESULTS IN PARTS PER MILLION EXCEPT WHERE OTHERWISE STATED.

TOWN.	DATE.	SOURCE OF SUPPLY.	Color.	Odor, cold.	Odor, hot.	Turbidity.	NITROGEN AS				Chlorine.	B. coli communs.
							Ammonia.	By permanganate in solution.	Nitrites.	Nitrates.		
Princeton	Oct. 26, '10	Mercer County— Burton Johnson	0	0	0	slt	.024	.032	.008	4.80	16.0	In 0.1 cc.
	Oct. 2, '09	James Murooney	0	0	0	slt	.068	.000	.024	16.0	43.5	In 0.1 cc.
	Oct. 2, '09	Wm. S. Weart	0	0	0	0	.008	.008	.009	2.80	10.5	In 10.0 cc.
	April 6, '10	D. Livingston Cook	0	0	0	0	.012	.016	0.0	8.0	13.5	In 10.0 cc.
	Dec. 9, '09	William Hendrickson	0	0	0	0	.008	.012	.003	0.88	39.0	Absent.
West Windsor	Dec. 9, '09	Isaac S. Mather	0	0	0	0	.008	.032	.004	2.80	9.0	In 1.0 cc.
	Oct. 26, '10	Geo. Vanderbilt	0	dis	0	slt	.024	.036	0.0	2.20	9.5	In 1.0 cc.
	Oct. 26, '10	Jacob C. Vreeland	0	0	0	0	.024	.036	.003	6.40	6.5	In 10.0 cc.
	Oct. 26, '10	"	0	0	0	0	.012	.032	.024	3.60	8.5	Absent.
	Feb. 8, '10	Middlesex County— J. E. L. Amerman	0	0	0	25	.012	.024	0.0	1.68	3.5	In 10.0 cc.
Highland Park	Feb. 8, '10	Frank Ayres	0	0	0	0	.012	.032	0.0	0.44	3.5	Absent.
	Feb. 18, '10	Mrs. Wm. Anderson	0	0	0	slt	.012	.272	.002	4.0	91.0	"
	March 18, '10	Michael Anderson	25	0	0	25	.076	.164	.026	8.40	251.5	In 1.0 cc.
	Feb. 8, '10	Thomas Buckleaw	0	0	0	slt	.042	.144	.003	4.8	150.0	In 0.1 cc.
	July 8, '10	"	0	0	0	slt	.116	.046	.032	0.64	3.0	In 10.0 cc.
North Brunswick	Feb. 7, '10	C. R. DeCosta	0	0	0	slt	.018	.032	0.0	10.0	3.0	In 10.0 cc.
	March 18, '10	David Joran	0	0	0	slt	.600	.070	.008	14.4	39.0	In 0.1 cc.
	June 4, '10	Albert Lewis	10	0	0	0	.100	.106	.008	8.0	39.0	In 0.1 cc.
	Feb. 9, '10	Henry Long	0	0	0	0	.012	.042	.002	6.40	4.5	Absent.
	Feb. 3, '10	Antonio G. Otken	0	0	0	0	.032	0.0	0.0	3.20	4.5	In 10.0 cc.
Piscataway	Feb. 3, '10	Henry Otken	0	0	0	0	.008	.024	0.0	1.80	6.0	Absent.
	Jan. 31, '10	Sam Van Angler	0	0	0	0	.088	.028	.014	8.60	13.5	"
	May 4, '10	MacDonald Bros.	0	0	0	slt	.004	.090	.002	9.60	21.0	In 1.0 cc.
	Feb. 8, '10	Walter Rush	0	0	0	0	.120	.120	.014	14.4	50.0	In 10.0 cc.
	Feb. 8, '10	"	0	0	0	0	.120	.120	.014	14.4	50.0	In 10.0 cc.

CONTINUOUS RECORD OF ANALYSES OF WATER FROM THE SUPPLY OF DAIRIES—RESULTS IN PARTS PER MILLION EXCEPT WHERE OTHERWISE STATED.

TOWN.	DATE.	SOURCE OF SUPPLY.	Color.	Odor, cold.	Odor, hot.	Turbidity.	NITROGEN AS				Chlorine.	B. coli communs.
							Ammonia.	By permanganate in solution.	Nitrates.	Nitrates.		
Bernards	Feb. 25, '10	Somerset County— John Saunders	0	1-off	2-off	40	.284	.166	.012	1.28	26.0	In 10.0 cc.
	Feb. 25, '10	William White	0	0	0	0	.020	.056	0.0	6.40	16.5	In 10.0 cc.
	Feb. 9, '10	Arthur I. Campbell	0	0	0	slt	.013	.092	0.0	6.4	18.0	In 10.0 cc.
	Feb. 2, '10	Chas. Criss	0	0	0	0	.008	.060	0.0	2.20	3.5	Absent.
Franklin	Feb. 2, '10	Italo Facchini	0	0	0	slt	.008	.116	0.0	2.0	8.0	In 10.0 cc.
	Jan. 31, '10	W. Hutchinson	0	0	0	0	.008	.044	0.0	3.60	6.5	In 10.0 cc.
	Feb. 2, '10	Jacob Lavine	25	0	0	40	.060	too h.	0.0	6.8	44.0	In 0.1 cc.
	Feb. 7, '10	James McCracken	15	0	0	slt	.008	.032	0.0	5.60	13.0	In 10.0 cc.
Hillsboro	Feb. 2, '10	Simcon Morris	0	0	0	0	.018	.144	0.0	18.0	80.0	In 10.0 cc.
	Feb. 2, '10	Perduk Bros.	0	0	0	slt	.008	.042	0.0	0.32	3.0	In 10.0 cc.
	Jan. 31, '10	Wm. H. Pulmky	0	3-off	4 off	25	too h.	too h.	prec	24.0	64.0	In 0.1 cc.
	Feb. 9, '10	Andrew Settersiron	0	0	0	0	.008	.042	0.0	2.20	1.5	In 1.0 cc.
Montgomery	Jan. 31, '10	John L. Totten	0	0	0	0	.004	.088	0.0	6.40	30.0	In 1.0 cc.
	Feb. 2, '10	S. G. Williams	0	0	0	slt	.024	.042	.004	16.0	30.0	In 10.0 cc.
	June	S. A. Williams	0	0	0	0	.144	.042	.016	9.60	23.5	In 0.1 cc.
	July	Wm. Shoemaker	0	0	0	0	.008	.016	0.0	0.96	1.5	In 10.0 cc.
Quarryville	June	John Stasack	5	0	0	0	.008	.008	0.0	3.20	8.0	In 10.0 cc.
	Dec. 1, '09	Geo. W. Campbell	0	0	0	0	.028	.028	0.0	1.10	5.5	Absent.
	Dec. 1, '09	David Cox	0	0	0	slt	.004	.012	0.100	2.0	14.0	"
	Dec. 1, '09	Wm. S. Durling	0	0	0	slt	.008	.008	0.0	0.80	2.5	"
Springfield	Dec. 22, '09	Mrs. John Duryea	0	0	0	0	.012	.132	0.0	12.0	93.0	In 0.1 cc.
	Dec. 22, '09	Duryea Bros.	0	0	0	0	.018	.042	0.0	1.44	3.5	In 10.0 cc.
	Dec. 2, '10	Alfred Hughes	0	0	0	slt	.008	.068	0.0	3.60	8.5	In 0.1 cc.
	March 2, '10	"	0	0	0	slt	.012	.218	.006	3.60	10.5	In 0.1 cc.
Union	Dec. 1, '09	Robert P. Jennings	35	0	0	25	.008	.128	0.0	4.80	17.5	In 0.1 cc.

CONTINUOUS RECORD OF ANALYSES OF WATER FROM THE SUPPLY OF DAIRIES—RESULTS IN PARTS PER MILLION EXCEPT WHERE OTHERWISE STATED.

TOWN.	DATE.	SOURCE OF SUPPLY.	Color.	Odor, cold.	Odor, hot.	Turbidity.	NITROGEN AS				Chlorine.	B. coli communs.
							Ammonia.	By permanganate in solution.	Nitrates.	Nitrates.		
Montgomery	Dec. 22, '09	Somerset County— Robert P. Jennings	0	0	0	0	.012	.100	0.0	0.64	3.5	In 1.0 cc.
	Dec. 1, '09	Charles Opce	0	0	slt	.008	.092	0.0	9.60	6.5	In 0.1 cc.	
	April 12, '10	Sussex County— Seeley M. Decker	0	0	0	.008	.108	0.0	22.0	39.0	In 10.0 cc.	
Wantage	Nov. 13, '09	Engle Shaugher	0	2-musty	2-musty	0	.016	.028	.006	1.20	1.5	Absent.
	April 8, '10	W. W. Treasworth	0	0	0	.004	.020	0.0	2.80	3.5	"	
Kenilworth	July 15, '10	David Stebbins	0	0	0	0	.042	.064	.024	12.8	33.0	In 1.0 cc.
	Dec. 17, '09	Albert Wamack	0	0	slt	.012	.056	.004	14.0	56.5	In 10.0 cc.	
	Feb. 24, '10	A. Clifford Woodruff	0	0	0	.020	.032	0.0	4.80	10.0	Absent.	
	Feb. 24, '10	Theron C. Knapp	0	0	0	.012	.020	0.0	1.04	5.0	"	

REPORT OF STATE BOARD OF HEALTH.

CONTINUOUS RECORD OF ANALYSES OF WATER FROM THE SUPPLY OF CREAMERIES--RESULTS IN PARTS PER MILLION EXCEPT WHERE OTHERWISE STATED.

DATE.	NUMBER.	SOURCE OF SUPPLY.	Color.	Odor, cold.	Odor, hot.	Turbidity.	NITROGEN AS				Chlorine.	B. coli communs.
							Ammonia.	By permanganate in solution.	Nitrates.	Nitrates.		
June 10, '10	W 1901	Allentown, Monmouth County-- Allentown Creamery Association	0	0	0	0	.008	.008	0.0	6.4	11.0	In 0.1 cc.
May 6, '10	D 1882	Alloway, Salem County-- Fenwick A. Schweler	30	1-m	2-m	sit	.042	.136	0.0	0.28	4.0	In 1.0 cc.
March 3, '10	D 987	Baptistown-- Geo. H. Scott	0	0	0	sit	.008	.036	.004	1.40	11.5	In 10.0 cc.
July 15, '10	D 1191	Barley Sheaf, Hunterdon County-- J. Max	0	0	0	sit	.012	.024	0.0	1.0	1.0	Absent.
Oct. 24, '10	W 1948	Caldwell, Essex County-- Harry Backus	0	0	0	0	0.0	.008	0.0	3.0	11.0	"
May 5, '10	D 1850	Elmer, Salem County-- Isaac B. Reeve	0	0	0	0	.162	.048	0.0	2.20	7.0	"
March 3, '10	D 959	Everittstown-- Geo. H. Scott	0	0	0	0	.012	.036	0.0	2.4	1.5	In 10.0 cc.
Aug. 15, '10	D 1951	Flemington, Hunterdon County-- Seller Bros.	10	0	0	sit	prec	.006	1.20	14.0	In 0.1 cc.	
Nov. 29, '09	A 9704	Lamington-- Jos. Hendershot	red	0	0	80	.012	.208	0.0	1.80	7.0	In 0.1 cc.
Nov. 29, '09	A 9705	" "	0	1-off	2-off	sit	.120	.088	.020	4.80	22.5	In 0.1 cc.
Nov. 29, '09	A 9706	" "	0	0	0	25	.012	.012	0.0	5.6	5.0	Absent.
March 4, '10	D 950	Montgomery Township-- Amwell Valley Dairy	0	0	0	sit	.024	.056	0.0	2.40	3.0	"

CONTINUOUS RECORD OF ANALYSES OF WATER FROM THE SUPPLY OF CREAMERIES--RESULTS IN PARTS PER MILLION EXCEPT WHERE OTHERWISE STATED.

SEWERAGE AND WATER SUPPLIES.

DATE.	NUMBER.	SOURCE OF SUPPLY.	Color.	Odor, cold.	Odor, hot.	Turbidity.	NITROGEN AS				Chlorine.	B. coli communs.
							Ammonia.	By permanganate in solution.	Nitrates.	Nitrates.		
March 3, '10	D 958	Oak Summit-- Harry Sussman	0	0	0	25	.016	.108	.006	11.6	6.5	In 1.0 cc.
June 21, '10	D 1876	Readington, Hunterdon County-- Farmers' Exchange Company	0	0	0	sit	.008	.042	.028	5.20	9.5	In 0.1 cc.
May 6, '10	D 1851	Salem, Salem County-- John Q. Davis	180	1-e	2-e	80	.068	.042	0.0	.....	452.0	In 1.0 cc.
Nov. 5, '09	D 911	Three Mile Run, Middlesex County-- A. Dehart Voorhees	0	0	0	0	.008	.036	0.0	2.80	9.0	Absent.
Nov. 11, '09	A 9702	Warbase-- H. Tepperman	15	1-m	2-m	sit	.018	.136	.016	0.88	13.0	In 1.0 cc.
Dec. 14, '09	D 950	Wrightstown-- McEwan Milk Company	0	0	0	25	.004	.104	.030	0.0	3.0	In 1.0 cc.
April 20, '10	D 1175	" "	0	0	0	sit	.008	.112	.068	0.16	3.0	In 0.1 cc.
May 11, '10	D 1888	" "	0	0	0	0	.012	.182	.018	0.08	2.5	Absent.

CONTINUOUS RECORD OF ANALYSES OF WATER FROM THE SUPPLY OF STATE WISE

DATE.	SOURCE OF SUPPLY.	Color.		
		Color.	Odor, cold.	Odor, hot.
Feb. 9, 1910	Bordentown Industrial School. Barrel.....	15	0	0
Dec. 1, 1909	New Jersey State Home for Boys, Jamesburg, N. J. New reservoir at inlet,	0	1-e	2-e
Dec. 1, "	New Jersey State Home for Boys, Jamesburg, N. J. Tap in engine room,	0	1-e	2-e
Dec. 1, "	New Jersey State Home for Boys, Jamesburg, N. J. New reservoir at outlet,	0	1-e	2-e
Mar. 11, 1910.	Morris Plains State Hospital. Dug well, 20' x 4'.....	0	off	off
July 7, "	Sussex County Almshouse, Newton, N. J. Corsen's Brook.....	5	0	0
Nov. 3, 1909.	New Jersey Rahway Reformatory. Rahway city water.....	0	0	0
May 17, 1910.	New Jersey Rahway Reformatory. Brook, water used for boilers.....	260	2-m	3-m
Aug. 27, "	New Jersey Rahway Reformatory.....	red	0	0
Oct. 4, "	New Jersey Rahway Reformatory. Driven well, 480' x 8" flows.....	0	0	0
Oct. 31, "	New Jersey Rahway Reformatory. Dug well.....	0	0	0
Mar. 8, "	New Jersey State Village for Epileptics, Skillman, N. J. Unfiltered water.....	0	0	0
Mar. 8, "	New Jersey State Village for Epileptics, Skillman, N. J. Driven well, filtered water.....	15	0	0
Mar. 20, "	New Jersey State Village for Epileptics, Skillman, N. J. Driven well.....	0	0	0
June 13, "	New Jersey State Village for Epileptics, Skillman, N. J. Lake.....	35	1-v	2-v
June 13, "	New Jersey State Village for Epileptics, Skillman, N. J. Filter tank.....	0	1-v	2-v
July 11, "	New Jersey State Village for Epileptics, Skillman, N. J. Pond water.....			
July 11, "	New Jersey State Village for Epileptics, Skillman, N. J. Filtered brook water.....			
Sept. 20, "	New Jersey State Village for Epileptics, Skillman, N. J. Filters.....	5	2-e	3-e
Oct. 21, "	New Jersey State Village for Epileptics, Skillman, N. J. Raw water.....	10	2-e	3-e
Oct. 21, "	New Jersey State Village for Epileptics, Skillman, N. J. Water from tank.....	30	1-v	2-v
Oct. 21, "	New Jersey State Village for Epileptics, Skillman, N. J. Filtered water.....	0	2-v	3-v
Feb. 9, "	New Jersey State School for Deaf, Trenton, N. J. Tap. Boiled water.....	25	1-m	2-m
Mar. 22, "	New Jersey State Hospital, Trenton, N. J. Well No. 1.....	0	0	0
Mar. 22, "	New Jersey State Hospital, Trenton, N. J. Well No. 4.....	0	0	0
Mar. 22, "	New Jersey State Hospital, Trenton, N. J. Well No. 6.....	0	0	0
Mar. 22, "	New Jersey State Hospital, Trenton, N. J. Well No. 3.....	0	0	0
Mar. 22, "	New Jersey State Hospital, Trenton, N. J. Well No. 5.....	0	0	0

INSTITUTIONS—RESULTS IN PARTS PER MILLION EXCEPT WHERE OTHER- STATED.

Turbidity.	Total solids.	Loss on ignition.	Mineral residue.	Appearance on ignition.	NITROGEN AS				Chlorine.	Alkalinity.	Hardness, total.	Iron.	Bacterio per cc. 20°.	Bacteria per cc. 37°.	B. coli communis.
					Ammonia.	By permanganate in solution.	Nitrites.	Nitrates.							
slt					.012	.056	0.0	2.80	3.0	0.0					Absent.
slt					.020	.060	0.0	0.48	2.0	0.0					In 1.0 cc.
slt	50	27	23	Darkening	.012	.064	0.0	0.48	3.0	4.0		0.6			In 10.0 cc.
25	85	33	52	Darkening	.012	.060	0.0	0.48	3.0	3.0		0.5			In 10.0 cc.
35					.042	.156	.014	0.80	16.5			1.8			In 10.0 cc.
slt					.012	.056	0.0	0.12	0.5	52.0					In 10.0 cc.
0					.012	.060	0.0	0.24	6.5	76.0					Absent.
0	146	63	83							8.0	29.9	12.0			
0	292	66	226	No change	.044	.043	0.0	0.0	9.5	179.0	162.5	0.4			
0	2041	335	1708	Slt. dark	.030	.040	0.0	0.0	15.0	144.0	310.00	0.4			
slt					.008	.044	.007	0.0	12.5	184.0					
0	690	132	553	No change	.008	.016	0.0	1.12	9.5	156.0		0.0			
slt	1016	36	980	No change	.008	.016	0.0	0.24	14.5	63.0		0.6			
0	93	33	60	Black	.008	.016	0.0	0.48	14.5	68.0					
25					.024	.154	.004	0.12	1.5	13.0		0.4			In 0.1 cc.
0	144	33	111	Slt. dark	.032	.046	.004	0.16	3.0	58.0		0.0			In 10.0 cc.
												24			In 1.0 cc.
slt	165	36	129	Dark	ppt		.016	0.0	4.5	64.0		0.0			In 1.0 cc.
60	131	36	95	Black	.056	.352	.004	0.0	4.5	43.0		1.4			In 1.0 cc.
60	160	48	112	Black	.084	.324	.007	0.0	4.5	53.0		1.2			In 0.1 cc.
0	202	51	151	Black	.220	.160	.004	0.0	4.5	61.0		0.2			In 0.1 cc.
slt					.016	.044	0.0	0.32	1.5	17.0					Absent.
0					.008	.012	0.0	1.52	4.5	41.0					
0					.024	.008	0.0	0.16	2.0	124.0					
0					.020	.024	0.0	1.28	4.0	40.0					
0					.012	.020	0.0	1.12	3.0	34.0					
0					.012	.016	0.0	0.64	3.0						

Detailed Report of the Sewage Disposal Plants.

F. E. DANIELS, A.M., Chemist and Bacteriologist.

Mr. H. M. Herbert, Chief Division of Sewerage and Water Supplies Board of Health of the State of New Jersey, Trenton, New Jersey:

DEAR SIR—I beg leave to submit a brief report of the work done during the year in connection with the sewage disposal plants in the State of New Jersey. This report is intended to be general and to supplement the various special reports that I have made from time to time.

The work has been done along the same general lines as indicated in the report of last year. The illustration of the field case, which was mentioned in former reports, appears in this issue. As can be seen from the picture, this case carries all that is necessary to have for field work, and sample collection. The chemical samples are chloroformed and the bacterial samples are plated and bile tubes are inoculated. The tests for dissolved oxygen are also made in the field. The unique feature of the case is the method of opening. This case has been in constant use for over two years, and has proved satisfactory in every way. I designed it to suit my own special needs, but I have already had a request for a duplicate one, which I sent to the Massachusetts Institute of Technology. A similar one is now being made for our field work on water supplies.

Following the descriptions and tabular summary of the disposal plants will be found a table of the analytical results.

On a separate folder will be seen a map of the State showing the location of the disposal plants. This map is similar to the one of last year, but it has been revised and brought up to date. As will be seen, there are at this writing, October 31st, 1910, eighty-



Field Outfit for Sewage Work.

two plants in operation and twelve under construction, making a total of ninety-four in all.

On a companion map will be seen the remaining sewerage systems in the State which have not yet had disposal plants attached thereto.

The dates under the names give the time prior to which pollutions were ordered to cease. The towns bearing the date, June 1st, 1904, are now under the jurisdiction of the Passaic Valley Sewerage Commission, and are included in the irregular black line which forms the boundary of the territory presided over by this Commission.

To the south of this district lies the joint trunk sewer. This sewer serves the municipalities of Summit, South Orange, West Orange, Vailsburg, Irvington, Millburn and part of Newark.

A few municipalities have as yet no dates assigned and some are in the courts for having exceeded the time allowed to pollute the waters of the State.

The following paragraphs will give descriptions of new plants only, and for accounts of the others, the reader will be referred to previously published reports.

ALLENHURST.—See report for 1909, page 227.

ASBURY PARK.—See report for 1909, page 227.

ASYLA.—See report for 1909, page 228.

ATLANTIC CITY.—Dover Outlet: According to the plans, the plant for the Chelsea district of Atlantic City is located on Dover avenue, and consists of a retention tank 12 feet square and 9 feet deep, over which are located the mixing and dosing apparatus suitable for preparing and administering a solution of chloride of lime for disinfecting the sewage in the retention tank. The mixing and dosing tanks are surrounded by a neat building and upon each ebb tide the disinfected sewage is discharged automatically into the Thoroughfare through an 8-inch outlet pipe.

The writer has been unable to inspect this plant personally, but hopes to do so in the near future.

AVON.—See report for 1909, page 229.

BELMAR.—The work on this plant, which was delayed by the courts, has again been started, and it is hoped that by the coming spring the plant will be in operation. A report and description will then follow.

BORDENTOWN.—This plant is practically finished and ready to be operated. It will be put in commission just as soon as the collecting system of sewers is completed.

This is one of the most elaborate disposal plants in the State. It consists of screens, septic tanks, primary and secondary contact filters, settling basin with aërating weir and sand beds. There is also a flood emergency basin and sludge pit. The screen chamber is divided into two portions, each one containing two vertical bar screens. In the first screen the spaces between the bars are $1\frac{1}{4}$ inches, while in the second the spaces are $\frac{5}{8}$ -inch. These grids are 4 feet 6 inches wide by 9 feet high.

The septic or settling tanks are two in number, located side by side, having steep V-shaped bottoms and arched roofs. They measure 150 feet long by 13 feet broad, with a total depth of 12 feet to the flow line. The sludge is to be emptied into a special sludge pit 25 feet by 25 feet.

There are four primary and four secondary contact beds, each 80 feet by 50 feet, and contain stone and large gravel 4 feet deep. The floors of the beds are covered with inverted U-shaped tiles spaced one inch apart. At the rear of the contact beds is a collecting and settling basin 302 feet long by 22 feet wide, having an aërating weir built along the rear wall and extending the whole length of the basin. The crest of the weir is two feet from the bottom of the basin.

To the rear of the basin are four sand filters 128 feet by 45 feet by $2\frac{1}{2}$ feet deep, and back of these are the sludge pit and the flood emergency basin. This basin is 228 feet by 118 feet and has earth embankments 11 feet high. Numerous vent pipes topped with galvanized iron cowls give the whole plant an impressive appearance. Control and regulation is by means of hand valves and gates.

BRADLEY BEACH.—See report for 1909, page 229.

BROWN'S MILLS-IN-THE-PINES.—See report for 1909, page 229.

BURLINGTON.—See report for 1909, page 230.

CALDWELL.—See report for 1909, page 231.

CALSTADT.—The disposal plant for Carlstadt consists of a concrete septic tank of two compartments, each 40 feet by 10 feet inside measure and 6.35 feet deep. The tank has a reinforced concrete top and discharges into a ditch in the meadows over which the tide ebbs and flows. This tank takes care of only part of the

sewage of Carlstadt, the remainder flowing into the system of East Rutherford.

CHANGEWATER.—The plant at Changewater serves to purify the sewage from the Hopatcong woolen mills. It consists of a septic tank 5 feet by 3 feet by 5 feet deep, which overflows into a siphon chamber 4 feet by 3 feet by 15 inches deep. The siphon discharges upon a bed of sand 10 feet by 12 feet by 18 inches, under which is a 12-inch layer of gravel.

The plant is well built and well taken care of and the effluent discharged into the river is excellent.

COLLINGSWOOD.—See report for 1909, page 232.

DEAL BEACH.—See report for 1909, page 232.

DELFORD.—See report for 1909, page 232.

EAST RUTHERFORD.—The septic tank for the disposal of parts of the sewages of East Rutherford and Carlstadt consists of two compartments, each 88 feet by 16½ feet by 7 feet deep. The tank is covered by a concrete roof and discharges into the Hackensack. Another septic tank for part of the borough is located at Carlton Hill. Here electric pumps pump the septic effluent into the Passaic river.

ESSEX FIELDS.—During the past year there have been added to the plant described on page 233 of the report for 1909, three sand filtration beds. These beds are 4 feet deep and have a combined area of about 11,000 square feet. This is a very important addition and materially relieves the load during rainy weather. The plant does excellent work.

FLEMINGTON.—See report for 1909, page 233.

FREEHOLD.—See report for 1909, page 234.

GLEN GARDNER.—See report for 1909, page 234.

HADDONFIELD.—This plant is undergoing improvements. In place of two of the original sand beds, a sprinkling filter and settling basin are being built.

HILLIARD'S ISLAND, Shark river.—See report for 1909, page 246.

INTERLAKEN.—See report for 1909, page 235.

ISLAND HEIGHTS.—Island Heights is a small town on the Toms river, near Barnegat bay, in Ocean county. It has a permanent population of about 300, but this is considerably increased by visitors in summer. The sewer system consists of between one and

two miles of terra cotta pipe ranging in size from 16 inches to 6 inches.

The main outfall leads to a basket screen 3½ feet by 5½ feet. After passing this screen the sewage is conducted in channel pipes to one of three sand beds. These beds are about 125 feet square and the flow is diverted by hand as often as necessary from one bed to the next in rotation. At the time of inspection the plant showed improper management and lack of care, but if the instructions given are carried out, there is no reason why this plant should not give satisfactory results for some time to come. The effluent empties into a stream called Dillon's creek.

JAMESBURG.—See report for 1909, page 236.

LAKEHURST.—See report for 1909, page 236. Since the above mentioned report was written one of the new sand beds has been put in operation. This bed is of sand, having an area of about 5,000 square feet, and of itself has a greater capacity than the old plant. The proprietors were advised to divide this bed and use each half alternately. By next season, the other bed is expected to be in use.

LAKEWOOD.—Part of this plant is now in operation and takes the major portion of the sewage of the town.

The plant consists of two sets of horizontal screens and two sets of sand beds, one set being on a higher level than the other. The high level sets are now working.

The sewage is screened by flowing upward through a mat of rye straw held in position by an iron frame-work. From thence, it flows upon some of the beds of sand. Regulation and control is entirely by hand.

The effluent discharges into the Metedeconk river. Upon the completion of the plant a more complete description will be given.

LAWRENCEVILLE.—See report for 1909, page 237.

LOCH ARBOUR.—See report for 1909, page 237. The new outlet pipe has been put in place.

MAHWAH.—At Mahwah, N. J., there has been installed to take care of the sewage from the factory of the American Brake Shoe and Foundry Company, a disposal plant consisting of screen and flush tank and two sand filters. The tank is 8 feet by 15 feet inside measure and 2½ feet deep. There is a 5/8-inch bar grid inclined at about 30 degrees from the vertical with 5/8-inch spaces between bars. The screen is located at the outlet end of the tank,

and just outside the wall is located the siphon. This siphon draws 2 feet and discharges directly upon the sand beds.

The beds are each 100 feet by 30 feet and 3 feet deep. Distribution is effected by means of two longitudinal rows of 6-inch by 6-inch square troughs supported about 4 inches above the sand. At intervals of 10 feet, the sewage falls through 1½-inch holes upon a splash-plate 15 inches in diameter.

I have not as yet had an opportunity to inspect this plant, but a recent letter from the engineers informs me that this plant is working very efficiently.

MANASQUAN.—See report for 1909, page 237.

MERCHANTVILLE.—See report for 1909, page 237.

MIDLAND PARK.—At Midland Park a sewage plant has been installed to take care of the sewage from the Granite Linen Mills.

This plant consists of three sand beds having a total area equal to one-sixth of an acre. The sand is two feet deep and the flow of sewage thereon is regulated by hand. The beds are used in rotation, and the change is made by means of gates in a large brick manhole.

MILLVILLE.—See report for 1909, page 237.

MOORESTOWN.—See report for 1909, page 238.

MORRIS PLAINS.—See report for 1909, page 238.

MORRISTOWN.—Morristown, a town of about 13,000 inhabitants, is pleasantly located in the eastern part of Morris county. A new system of sanitary sewers has recently been installed which delivers the sewage of the town to a modern, up-to-date disposal plant.

This plant consists of a septic tank, five contact beds and four sand filters.

The septic tank has four compartments, the inside measurements of which are 110 feet by 15 feet and 8 feet deep to the flow line.

The contact beds are five triangular beds 172 feet base and 118.5 feet altitude, arranged in the form of a pentagon. These are filled with slag 6 feet deep. Automatic floats and tilting apparatus control the flow into the beds, the outlets discharging into a valve chamber in the valve house. Here valves are changed by hand, which direct the flow upon the sand beds.

The four sand beds are each 150 feet by 110 feet and contain 3 feet of sand with 6-inch gravel underneath.

The effluent empties into the Whippany river.

NEWARK CITY HOME.—See report for 1909, page 240.

NEW LISBON.—See report for 1909, page 240.

NEWTON.—See report for 1909, page 240.

OCEAN GROVE.—See report for 1909, page 241.

OVERBROOK.—See report for 1909, page 242.

PEMBERTON.—See report for 1909, page 243.

PLAINFIELD.—See report for 1909, page 243.

POINT PLEASANT.—See report for 1909, page 244.

PRINCETON.—See report for 1909, page 244.

QUARRYVILLE.—The disposal plant at Quarryville was designed to take care of the wastes from the creamery of the Horton & Lewis Cream Company. The tank for preliminary treatment has been installed and the septic effluent from this tank is emptied into the stream. No provisions have yet been made for secondary treatment.

RAHWAY.—At the New Jersey State Reformatory, at Rahway, N. J., has been installed a new disposal plant. This plant is finished but owing to delay in the arrival of chloride of lime has not yet been put in operation. The sewage enters a screening chamber. From this chamber the flow passes into a Dortmund tank 10 feet square and 9 feet deep, and thence into one of two detention tanks 19 feet by 4 feet 6 inches and 4 feet deep at inlet end and 6 feet deep at outlet end. Between the Dortmund and detention tanks the sewage receives a dose of chloride of lime solution.

Provision is made to draw off the accumulated sludge into a sump from which it is pumped out. The sewage after leaving the detention tank flows down the 10-inch pipe to the tidal tank located on the river bank.

This tank is 20 feet square and 5 feet deep to the flow line, and it discharges the sewage only on ebb tide.

RED BANK.—See report for 1909, page 245.

RIDGEWOOD.—Owing to the installation of a new distribution and control apparatus by Merritt & Company, of Camden, N. J., the plant at Ridgewood shows remarkable improvement. After the septic tank has been cleaned out and proper attention is paid to operation, it is hoped that this plant will do creditable work.

At the last inspection made I found the changes for the better were so apparent as to be almost incredible.

For a general description, see report for 1909, page 246.

RIVERSIDE.—Riverside is a flourishing manufacturing town of about 5,000 inhabitants, situated in Burlington county, on the Delaware river, at the mouth of the Rancocas.

Recently a system of sewers has been installed and a modern sewage purification plant.

The outfall sewer empties into a well from which the sewage is pumped by centrifugal pumps into four sedimentation tanks. These are each 60 feet by 18 feet by 6 feet deep. From the sedimentation tanks the flow passes into two settling basins 31.6 feet by 23 feet by 6 feet, between which has been driven an aëration well. The well consists of a 10-inch pipe 100 feet deep, inside of which is suspended a 6-inch pipe through a funnel in the top and flows down and then up the 10-inch pipe. The sewage then passes along a square runway to the air-lock sewage feed in the control house in the center of the four contact beds.

These contact beds are 50 feet square and 3 feet deep, filled with crushed stone. After contact treatment, the effluent passes upon sand beds. These are four in number, each 50 feet square and 3.5 feet deep. From these the effluent is discharged into the Delaware river. There is also a sludge sand bed 50 feet by 25 feet to be used in cleaning out the sedimentation tanks.

ROEBLING.—The disposal plant for the town of Roebling consists of a screening chamber 11 feet by 5 feet; two sedimentation tanks each 65 feet by 14 feet by 10 feet; a dosing chamber 29 feet by 24 feet by 3 feet; four primary contact beds, each 44 feet by 44 feet by 4 feet; four secondary contact beds, each 44 feet by 44 feet by 4 feet; a settling tank, and two sand filters, each 90 feet by 90 feet by 3 feet. Regulation is accomplished by 10-inch Merritt automatic sequence siphons and 8-inch timed siphons. The effluent empties directly into the Delaware river.

RALSTON.—At St. Margaret's Home, an institution for orphaned children, located at Ralston, in Morris county, has been installed a small sewage disposal plant.

It consists of a concrete tank about 20 feet by 6 feet, divided into three compartments by cross-partitions. The first acts as a septic tank, while the others serve for a flush-tank. When the siphon discharges, the liquid flows into ramifying lines of sub-surface absorption tiles. The location is high, and no doubt will work effectively for some time to come. The first compartment needs cleaning out frequently.

SEA GIRT.—The septic tank for the Sea Girt Company is 44 feet by 18½ feet, outside measure, divided into three compartments. The tank is provided with numerous baffles and the effluent is discharged out to sea through an 8-inch outlet pipe.

SEA GIRT STATE CAMP.—At the State camp at Sea Girt is installed a sewage disposal plant consisting of a two-compartment septic tank. Each compartment is 42 feet by 10 feet inside measurement and 7 feet deep to the flow line.

The sewage is raised into the tank by two Priestman sewage ejectors, worked by compressed air.

The effluent is discharged into the ocean.

SOHO.—See report for 1909, page 246.

SPRING LAKE.—See report for 1909, page 246.

STONE HARBOR.—See report for 1909, page 247.

TRENTON.—See report for 1909, page 247.

VINELAND.—See report for 1909, page 247.

WATER WITCH.—See report for 1909, page 247.

WENONAH.—See report for 1909, page 247.

WESTFIELD.—See report for 1909, page 248.

WOODBURY.—See report for 1909, page 249.

WOODSTOWN.—See report for 1909, page 249.

TABULAR SUMMARY OF THE PRINCIPAL SEWAGE DISPOSAL PLANTS IN THE STATE OF NEW JERSEY.

PLACE.	SERVICE.	SYSTEM.	APPROX. COST.	ENGINEER.
Aidene	Factory	Septic tank, contact filter.		G. K. Hooper.
Alenhurst	Municipality	Septic tank	\$4,000.00	G. E. Hill.
Asbury Park	Municipality	Septic tank	27,272.77	G. E. Hill.
Asyla	Almshouse & asylum.	Screens, septic tank, primary and secondary contact.		J. J. Albertson.
Atlantic City (part)	Municipality	Disinfection		F. Herbert Snow.
Ayon	Municipality	Septic tank		J. H. Emlen.
*Belmar	Municipality	Septic tank		G. E. Hill.
Bordentown	Municipality	Septic tank, primary and secondary contact, sand filtration.	\$58,306.70	W. W. Young.
Bradley Beach	Municipality	Septic tank		Niart Rogers.
*Bridgeport I.	Municipality	Disinfection		Clyde Potts.
*Bridgeton II.	Municipality	Disinfection		Clyde Potts.
Brown's Mills	Hotel and cottages.	Septic tank and ground seepage.		Nat. Gas & Construction Co.
Burlington	Municipality	Pump well, settling tank, land filtration.		Cbas. A. Blatchley.
Burlington	Factory	Septic tank, sprinkling filters, sand filtration.		
Caldwell	Prison	Septic tank, tile absorption.		
Carlstadt	Municipality	Septic tank	\$3,145.00	Wise & Watson.
Carlton Hill	Municipality	Septic tank	4,247.00	Wise & Watson.
Changeover	Factory	Septic tank, intermittent sand filtration.		F. E. Daniels.
*Chatham-Madison.	Municipalities	Septic tank, sand filtration.	\$8,696.00	Hering & Fuller—Clyde Potts.
Collingswood	Municipality	Septic tank, primary contact.	3,600.00	G. E. Hill.
Cresskill	Municipality	Septic tank, ground seepage.		E. E. Throckmorton.
Deal Beach	Municipality	Septic tank		P. E. Van Buskirk.
Deiford	Municipality	Septic tank		Wise & Watson.
East Rutherford	Municipality	Septic tank, primary contact, sand filtration.	\$4,650.00	Pugh & Hubbard.
Essex Pells.	Municipality	Septic tank, primary contact, sand filtration.	6,000.00	
Flemington	Municipality	Screens, flush tank, land filtration.		Waring, Chapman & Farquhar.
Freshold	Municipality	Septic tank, sand filtration.		Waring, Chapman & Farquhar.
Glenn Gardner	Sanatorium	Septic tank, sprinkling filters, cindez filtration.	\$8,185.65	Charles McMillan.
Endicottfield	Municipality	Septic tank, sand filtration.		Alexander Potter.
Hilliard's Island.	Store and residence.	Septic tank, sand filtration.		
Interlaken	Municipality	Septic tank	\$3,700.00	G. E. Hill.
Island Heights.	Municipality	Sand filtration		
*Jamesburg	State Home for Boys.	Flush tank, land filtration.		Clyde Potts.
*Keyport	Municipality	Disinfection	5,800.00	Boyd McLean.
Lakehurst	Hotel and cottages.	Septic tank, sand filtration.		

* The plants marked with an asterisk are in process of construction and the cost is estimated.

TABULAR SUMMARY OF THE PRINCIPAL SEWAGE DISPOSAL PLANTS IN THE STATE OF NEW JERSEY—Continued.

PLACE.	SERVICE.	SYSTEM.	APPROX. COST.	ENGINEER.
Lakewood	Municipality	Septic tank, sand filtration.		Alexander Potter.
Lawrenceville	School	Septic tank, broad irrigation.		J. J. R. Cross.
Loch Arbour.	Municipality	Septic tank	\$2,950.00	G. E. Hill.
Malwah	Factory	Septic tank, sand filtration.		Waring, Chapman & Farquhar.
Manasquan	Municipality	Septic tank	4,310.00	Pugh & Hubbard.
*Margate City	Municipality	Two disinfection plants.		E. B. Phelps.
Merchantville	Municipality	Septic tank, primary contact, sand filtration.	\$19,500.00	G. E. Hill.
Midland Park	Factory	Sand filters		Hering & Fuller.
Millville	Municipality	Septic tank, aeration well, primary contact, disinfection.	26,577.00	Wm. H. Boardman.
Moorestown	Municipality	Septic tank, primary contact.		Alexander Potter.
Morris Plains.	Asylum	{ 1. Screens, broad irrigation.		
Morrisstown	Municipality	{ 2. Screens, septic tank, sand beds.		
New Lisbon I.	Municipality	Septic tank, primary and secondary contact, sand filtration.	\$100,000.00	Williams, Proctor & Potts.
New Lisbon II.	Almshouse	Septic tank, tile absorption.		Earl Thompson.
Newton I.	Asylum	Septic tank, primary contact.		Earl Thompson.
Newton II.	Municipality	Septic tank, sand beds.	20,000.00	Williams, Proctor & Potts.
Ocean Grove	Municipality	Septic tank, sand beds.		Williams, Proctor & Potts.
Overblook	Asylum	Two septic tanks.	\$10,000.00	Williams, Proctor & Potts.
Pemberton	Municipality	Septic tank, primary contact, sand filtration.	20,400.00	James Owen.
Plainfield	Municipality	Settling pool, broad irrigation.		Joseph O. Osgood.
Plainfield	Municipality	Septic tank, primary and secondary contact beds.		
Pleasantville	Hotel	Septic tank, primary contact bed.		F. E. Daniels.
Princeton	Municipality	Septic tank	\$3,800.00	Pugh & Hubbard.
Princeton I.	Municipality	Septic tank, sand filtration.		W. A. McKenzie.
Princeton II.	Municipality	Broad irrigation		
Princeton III.	Municipality	Broad irrigation		
Quarryville	Creamery	Septic tank, secondary treatment to be installed.		Albright & Mebus.
Raisson	Children's Home.	Septic tank, tile absorption.		Edward Howell.
Railway	State Reformatory.	Disinfection		E. B. Phelps.
Red Bank	Municipality	Grit chamber, septic tank.		T. H. Grant.
Ridgewood	Municipality	Septic tank, primary contact.	\$20,687.77	G. E. Hill.
Riverside	Municipality	Septic tank, primary contact, sand filtration.	\$26,398.00	Wm. H. Boardman.
Roebling	Municipality	Septic tank		I. Hoiby.
Sea Girt I.	Municipality	Septic tank		Pugh & Hubbard.
Sea Girt II.	State Camp.	Septic tank		James Owen.
Soho	Hospital	Septic tank, tile absorption.		James Owen.

* The plants marked with an asterisk are in process of construction and the cost is estimated.

TABULAR SUMMARY OF THE PRINCIPAL SEWAGE DISPOSAL PLANTS IN THE STATE OF NEW JERSEY—Continued.

PLACE.	SERVICE.	SYSTEM.	APPROX. COST.	ENGINEER.
*South River.....	Municipality.....	Septic tank, sand filtration.....	.....	W. W. Young.
Spring Lake.....	Municipality.....	Three septic tanks.....	\$9,810.00	Pugh & Hubbard.
Stone Harbor.....	Municipality.....	Disinfection.....	600.00	E. B. Phelps.
Trenton I.....	Factory.....	Septic tank.....	.....	Bact. Sewage Purification Co.
Trenton II.....	P. R. R. Shops.....	Septic tanks.....	.....	Bact. Sewage Purification Co.
Trenton III.....	I. O. F. Home.....	Septic tank, sand filtration.....	\$2,800.00	Clyde Potts.
*Ventnor.....	Municipality.....	Two disinfection plants.....	.....	E. B. Phelps.
Verona.....	Newark City Home.....	Sub-surface irrigation.....	.....	Alexander Potter.
Vineland I.....	Municipality.....	Settling basin, sand filtration.....	.....
Vineland II.....	Children's Home.....	Septic tank, sand filtration.....	.....
*Washington.....	Municipality.....	Septic tank, primary contact, sand filtration.....	\$18,000.00	Clyde Potts.
Water Witch.....	Municipality.....	Septic tank.....	1,500.00	Bact. Sewage Purification Co.
Wenonah I.....	Municipality.....	Septic tank, sand beds.....	.....	Wm. C. Cattell.
Wenonah II.....	Municipality.....	Septic tank.....	.....	Wm. C. Cattell.
Westfield.....	Municipality.....	Screens, land filtration.....	.....
Woodbury.....	Municipality.....	Detention tidal tank.....	.....	William Eashy.
Woodstown.....	Municipality.....	Septic tank, sand beds.....	\$2,722.00	G. E. Hill.

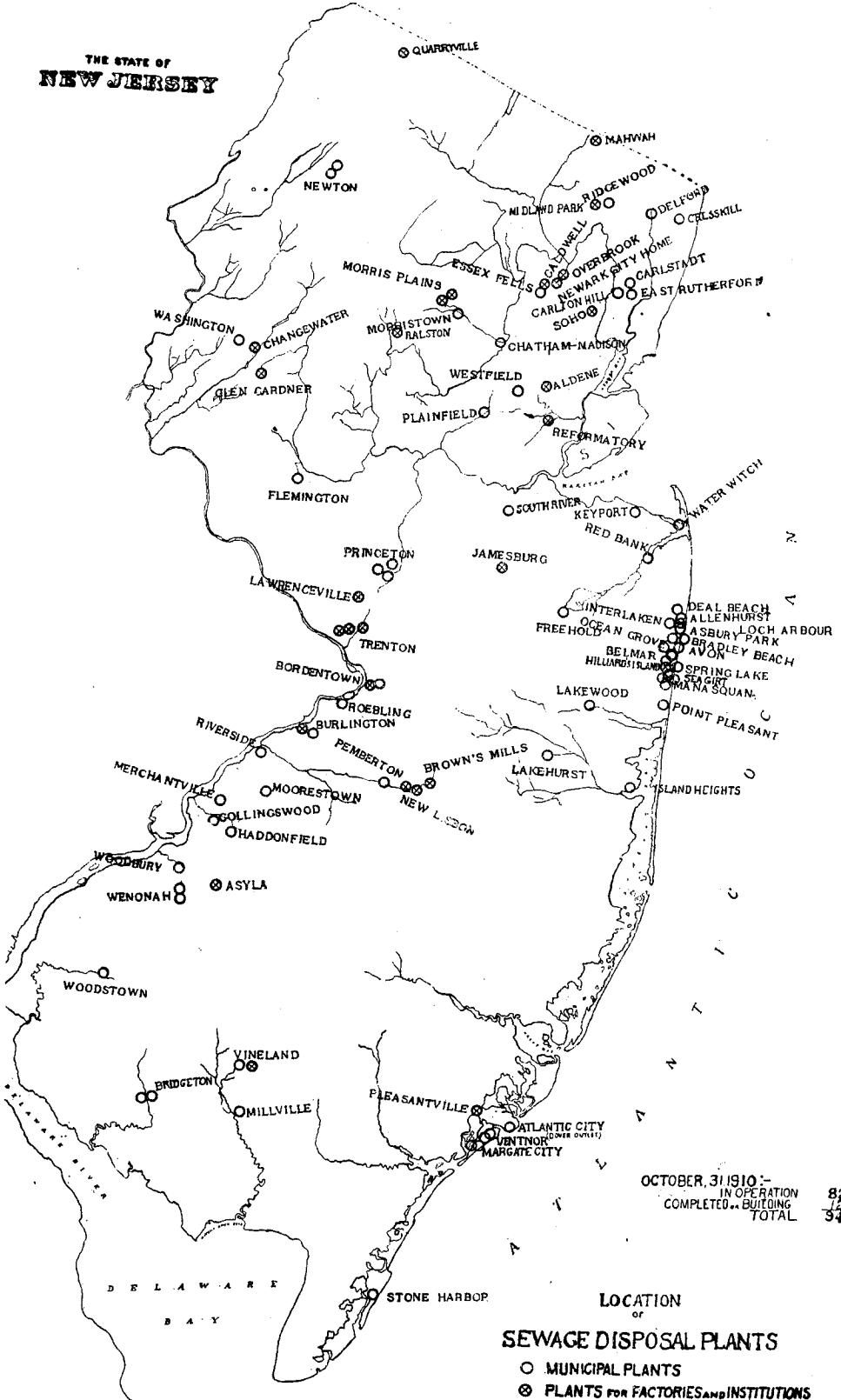
* The plants marked with an asterisk are in process of construction and the cost is estimated.

TABLE OF ANALYSES OF SEWAGE AND EFFLUENTS.

Results in parts per million except where otherwise stated.

Table with columns: LOCATION AND DATE OF SAMPLE, SOURCE OF SAMPLE, Temperature, Degrees Fahr., Color, Odor, Turbidity, Sediment, Total Solids, Fixed Solids, Volatile Solids, Solids in Solution, Fixed Solids in Sol., Vol. Solids in Sol., Solids in Suspension, Fixed Solids in Susp., Vol. Solids in Susp., Chlorine, NITROGEN AS (Total (Kj) in Sol., Total (Kj) in Sol., Free Ammonia, Organic (difer.) in Sol., Organic (difer.) in Sol., Nitrites, Nitrates, Oxygen Consumed, Oxygen Cons. in Sol., Oxygen Dissolved, Bacteria per cc. 20°, Bacteria per cc. 37°, Red. Colonies per cc. 37°, B. Coll per cc., Putrescibility, Days, REMARKS.

THE STATE OF
NEW JERSEY



OCTOBER, 31, 1910 -
 IN OPERATION 82
 COMPLETED - BUILDING 17
 TOTAL 99

LOCATION
OF
SEWAGE DISPOSAL PLANTS

- MUNICIPAL PLANTS
- ⊗ PLANTS FOR FACTORIES AND INSTITUTIONS

Report of the Bureau of Vital Statistics.

DAVID S. SOUTH, State Registrar.

It is significant that with thirty years of vital statistics in this State we have just enacted laws which will probably permit the primary object of this department to be realized, that of presenting an accurate marriage, birth and death rate, which was practically impossible under the old laws, especially those in reference to marriages and births.

By recommendation of the State Board of Health many changes have been made in the laws pertaining to vital statistics, the more important of which is the Marriage License law which became effective July 1st, 1910, and a revision of the laws in reference to births and deaths which went into effect October 1st, 1909. Other important changes in the work of the department include the adoption of the standard certificate of death as approved by the Bureau of the Census, Washington, D. C., and leading registration states in this country.

These changes in the laws and form of certificates will permit a close sympathy in the work of the Bureau of Vital Statistics of this State and the Bureau of the Census at Washington, D. C., as well as the leading registration states, and reflects credit upon the lawmakers of New Jersey for keeping to the front in this important branch of statistical and health work.

We are therefore at the point where the proper enforcement of these laws will enable New Jersey to take an honorable place with other states which believe that the registration of the vital events of their citizens is indispensable to an enlightened and progressive administration of public affairs.

MARRIAGES.

In reference to the Marriage License law we would suggest it be amended so as to require a certain time to elapse from the date the license is issued to the date the ceremony is to take place; in some

states there is a provision of this kind which varies from five or six hours to five or six days, and if we are to raise the ideals of marriage and thus the family with all its related institutions, certain well-defined restrictions should safeguard the marriage ceremony.

The question of uniform marriage and divorce laws is now receiving the attention of sociologists in this country, and with just cause. The increasing divorce rate, the loose laws in regard to marriage and the limited restrictions provided therein, the various requirements of the different states in reference to marriage, all present a problem which must be solved by wise and uniform legislation.

In discussing the question of marriage, Prof. McKeever, of the Kansas State Agricultural College, suggests, that the male person applying for the marriage license should be compelled to show comparative freedom from the more serious chronic diseases. He should also be compelled to show knowledge of the rudiments of home sanitation and the psychology of child development, together with some degree of compatibility of temperament. He should also prove his ability to do honorable work and provide a means of livelihood. Prof. McKeever also suggests that the female applying for marriage license shall know the rudiments of domestic science and art, including personal knowledge of how to do housework and ability to manage the business affairs of a successful household. He believes the problem of the youth is more a matter of training than of breeding, and the father and mother should be especially prepared to train their child properly to develop into an efficient social entity.

For those who think the Marriage License law of New Jersey a hardship, we might quote the views of Prof. George Elliott Howard, of the University of Nebraska, who contends that common-law marriage be abolished and further recommends a rigorous system of civil banns, with a notice of intention to be recorded about twenty days before the issuance of the license; besides publication in the daily press.

The New Jersey Marriage License law appears to be working smoothly, and while it contains none of the recommendations of the authorities quoted above, is a vast improvement over the old system and goes a great way toward a uniform matrimonial code which we believe in the end would better solve the problem of divorce than uniform and improved laws regulating divorce procedure.

BIRTHS.

The present law in reference to reporting births became effective October 1st, 1909. Prior to the passage of this act about 70 per cent. of the births that took place in New Jersey were reported, while at the present time it is estimated at least 80 per cent. of the births are reported, with indications of still better results.

It is important that the law requiring births to be promptly reported be rigidly enforced; however, great difficulty is experienced by this department in securing definite data in regard to violations of the act. With practically complete reports of marriages and deaths there is no reason why births also should not be immediately and accurately reported. The data secured from records of marriages, births and deaths is so interdependent that full and complete reports are necessary before the subject can be efficiently handled.

There are many statistical tables in regard to births which we hope to publish when trustworthy figures as to the full number of births are available.

DEATHS.

The mortality tables contained in this report are complete and instructive, and the well-marked decline in the State death-rate during the past thirty-one years is in proportion to the additional authority given each year by the legislature to the State Board of Health for protecting the public health.

In some localities a higher death-rate than the average is noticed, due in a few instances to certain local conditions beyond the control of health authorities; however, the continued diminution of the State death-rate will no doubt depend on the legal and financial support given this branch of the State government by the legislature.

It is the aim of this department to so improve the registration laws relating to births, still-births, deaths and marriages that the study of human life in New Jersey will be an open sesame to students of hygiene, sanitariums, health officers, legislators, and others whose duty it is to promote the welfare of our people and prepare the way for greater and better civilization.

BURLINGTON COUNTY.

Table with 15 columns (years 1905-1909) for Births, Marriages, and Deaths across various towns in Burlington County. Includes entries like Bass River, Beverly City, Bordertown City, etc.

*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

CAMDEN COUNTY.

Table with 15 columns (years 1905-1909) for Births, Marriages, and Deaths across various boroughs and townships in Camden County. Includes entries like Audubon Borough, Camden City, Centre, etc.

*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

CAPE MAY COUNTY.

Table with 15 columns (years 1905-1909) for Births, Marriages, and Deaths across various boroughs and townships in Cape May County. Includes entries like Anglesea Borough, Avalon, Cape May City, etc.

*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated. **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 included in it, the death-rate is not a criterion of health conditions.

HUNTERDON COUNTY.

Table for Hunterdon County showing Births, Marriages, and Deaths from 1905 to 1909 for various places including Alexandria, Bethlehem, Bloomsbury Borough, Clinton Borough, Clinton Township, Delaware, East Amwell, Franklin, Frenchtown, Hampton, High Bridge, Holland, Langwood, Lambertville, Lebanon, Raritan, Readington, Stockton, Tewksbury, Union, and West Amwell.

*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

MERCER COUNTY.

Table for Mercer County showing Births, Marriages, and Deaths from 1905 to 1909 for various places including East Windsor, Ewing, Hamilton, Hightstown, Hopewell Borough, Hopewell Township, Lawrence, Pennington Borough, Princeton Borough, Princeton Township, Trenton, Washington, and West Windsor.

*Marriage certificates received from County Clerk in which the places where the marriages were performed are not stated.

MIDDLESEX COUNTY.

Table for Middlesex County showing Births, Marriages, and Deaths from 1905 to 1909 for various places including Cranbury, Dunellen, East Brunswick, Helmetta, Highland Park Borough, Jamesburg, Madison, Metuchen, Milltown, Monroe, New Brunswick, North Brunswick, Perth Amboy, Piscataway, Raritan, Roosevelt Borough, Sayreville, South Amboy, South Brunswick, South River, Spottswood Borough, and Woodbridge.

REPORT OF STATE BOARD OF HEALTH.

TABLE 2.—SHOWING NUMBER OF DEATHS IN NEW JERSEY FROM EACH OF THE CLASSIFIED CAUSES, BY COUNTIES, FOR THE YEAR ENDING DECEMBER 31, 1909.

Table showing the number of deaths by cause (e.g., Typhoid Fever, Smallpox, Measles, etc.) across various counties (Atlantic, Bergen, Burlington, etc.) and the total for each cause.

TABLE 2.—SHOWING NUMBER OF DEATHS IN NEW JERSEY FROM EACH OF THE CLASSIFIED CAUSES, BY COUNTIES, FOR THE YEAR ENDING DECEMBER 31, 1909.—Continued.

Continuation of Table 2, showing death counts for causes like Rheumatism, Diabetes, and various nervous system diseases across counties including Atlantic, Bergen, Burlington, etc., and a final 'Total' column.

TABLE 2.—SHOWING NUMBER OF DEATHS IN NEW JERSEY FROM EACH OF THE CLASSIFIED CAUSES, BY COUNTIES, FOR THE YEAR ENDING DECEMBER 31, 1909—Continued.

Table with 17 columns for counties (Atlantic, Bergen, Burlington, Camden, Cape May, Cumberland, Essex, Gloucester, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, Sussex, Union, Warren) and a Total column. Rows list various causes of death such as Varicela, Tuberculosis, and Inflammatory Peritonitis.

TABLE 2.—SHOWING NUMBER OF DEATHS IN NEW JERSEY FROM EACH OF THE CLASSIFIED CAUSES, BY COUNTIES, FOR THE YEAR ENDING DECEMBER 31, 1909—Continued.

Continuation of Table 2 from the previous page, showing causes of death and their distribution across counties including Atlantic, Bergen, Burlington, Camden, Cape May, Cumberland, Essex, Gloucester, Hudson, Hunterdon, Mercer, Middlesex, Monmouth, Morris, Ocean, Passaic, Salem, Somerset, Sussex, Union, Warren, and Total.

TABLE 6.—SHOWING AGES AT DEATH AND OCCUPATIONS OF DECEDENTS IN DECEMBER

NEW JERSEY FROM CERTAIN SELECTED DISEASES FOR THE YEAR ENDING 31, 1909.

Table with 11 columns for age groups (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) and 28 rows for various occupations (e.g., Laborers, Physicians, Plumbers). Includes sub-sections for Diseases of the respiratory system, Digestive system, Genito-urinary system, and Pneumonia.

Table with 11 columns for age groups (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) and 28 rows for various occupations (e.g., Porters, Potters, Printers, Railroad employes, etc.).

TABLE 8.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909—(Continued).

DEATHS IN ATLANTIC CITY.	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.
	Acute Nephritis.....	96	1									
Bright's Disease.....	97	1										
Other Diseases of the Kidneys and Adnexa.....	100											
Diseases of the Bladder.....	102											
Diseases of the Urethra, Stricture, Abscess, etc.....	103 B											
Diseases of the Prostate.....	104											
Uterine Tumors (Non-Cancerous).....	111											
Other Diseases of the Uterus.....	112											
Accidents of Pregnancy.....	116											
Other Accidents of Labor.....	118											
Puerperal Septicæmia.....	119 A											
Puerperal Albuminuria and Eclampsia.....	121											
Erysipelas.....	125 1	1										
Gangrene.....	126											
Phlegmon, Acute Abscess.....	128											
Other Diseases of the Skin and Adnexa.....	129 F											
Other Diseases of Bones.....	132		2									
Congenital Debility, Icterus and Sclerema.....	138 30	18										
Infantile Inanition, Want of Care.....	139 3	1										
Senile Debility.....	141											
Suicide or { By Asphyxia.....	142	B										
Attempt at { By Firearms.....			D									
Suicide. { By Drowning.....			F									
Other Accidental Injuries.....												
Burns by Fire.....	146 A		2	1	2	1	1	2	1	2		
Accidental Drowning.....	148			1		5	2	1				
Inhalation of Noxious Gases (Suicide excepted).....	150		1					3	1	1		
Other Accidental Poisoning.....	151			1								
Other External Violence.....	152											
Cerebro-spinal Meningitis.....	161											

Total deaths, 679. Death-rate, 14.96.
 NOTE.—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 included in it, the death-rate is not a criterion of health conditions.

AGE PERIODS.							SEX.		COLOR.	NATIVITY.							SOCIAL CONDITION.							
Fifty to fifty-five.	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.	Male.	Female.	Color of decedent white unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
3	2	4	5	1	2	2	14	11	5	21	1		1							1	9			
4	9	10	9	5	5	1	35	18	10	43			3							34	8	8	11	
			1				2			2										1	1		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			
							2			1										1	1			
							1			1										1	1			
							28	20	12	48												48		
							4			4												4		
	1	1	1	4	2	2	4	6	1	6	1		3								5	1	4	
							8	1		6		1	1								5	2	2	
							2			2											1	1		
							1			1											1	1		
	2	2	2	2	2		17	6	5	19			1	1						1	9	10	4	
							1	1		1											1	1		
	1						10		1	6		2									1	9	4	
							6		2	6									2		1	4		
							1		1	1											2	1		
							2		2	2											1	3		
							1		1	1											1	1		

TABLE 9.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909.

DEATHS IN BAYONNE.		AGE PERIODS.											
		Under one month.	Under one year.				Over one year.						
		One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.		Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.		
						Twenty-five to thirty.	Thirty to thirty-five.						
Typhoid Fever.....	1							1					
Measles.....	5		3										
Scarlet Fever.....	6		3	1									
Whooping Cough.....	7												
Diphtheria and Croup.....	8		1	10	3								
Pyæmia and Septicæmia.....	14		1	1									
Tuberculosis. {	A Of the Lungs.....	22	B										
				C									
					D								
						E							
Syphilis.....	24	2	1										
Cancer. {	Of the Mouth.....	25	A										
				B									
					C								
						D							
Diabetes.....	28												
Exophthalmic Goitre.....	29												
Alcoholism (Acute or Chronic).....	34												
Lead Poisoning.....	35												
Encephalitis.....	38												
Simple Meningitis.....	39		2	4	1								
Cerebral Hemorrhage and Congestion.....	42		1				2	1	5				
Softening of the Brain.....	43												
General Paralysis.....	45												
Other Forms of Insanity.....	46												
Epilepsy.....	47												
Convulsions of Infants.....	49	4	10	4									
Other Diseases of the Nervous System.....	52	C	1										
Endocarditis.....	56			1	3	3	1	3	1	2			
Organic Diseases of the Heart.....	57												
Diseases of Arteries, Atheroma, Aneurism, etc.	59												
Hemorrhage.....	65												
Diseases of the Larynx and Thyroid Body.....	68			2									
Acute Bronchitis.....	69	4	1										
Chronic Bronchitis.....	70												
Broncho-Pneumonia.....	71	4	16	11	1								
Pneumonia.....	72	1	17	15	1	2	5	3	6	5			
Pleurisy.....	73			1									
Congestion and Apoplexy of Lungs.....	74	2											
Asthma.....	76												
Other Diseases of the Respiratory System.....	77	B											
Ulcer of Stomach.....	80												
Other Diseases of Stomach (Cancer excepted).....	81												
Infantile Diarrhœa, Athrepsia.....	82	11	58	16									
Diarrhœa and Enteritis.....	83				3								
Hernia and Intestinal Obstructions.....	86												
Cirrhosis of the Liver.....	90												
Other Diseases of the Liver.....	92												
Inflammatory Peritonitis (Non-Puerperal).....	93												
Appendicitis.....	95												
Acute Nephritis.....	96	1						1	2				
Bright's Disease.....	97												
Diseases of the Bladder.....	102												
Uterine Tumors (Non-Cancerous).....	111												
Other Diseases of the Female Genital Organs, Bleeding (Females).....	114	A											
Puerperal Albuminuria and Eclampsia.....	121												
Erysipelas.....	125		1										
Anthrax Carbuncle.....	127												

	AGE PERIODS.							SEX.	COLOR.	NATIVITY.											SOCIAL CONDITION.								
	Fifty to fifty-five.	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.			Male.	Female.	Color of decedent white unless designated by mark.												Married.	Single.	Widowed.	Not stated.		
													United States.															Other foreign.	Not stated.
													England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.									
							1	1		1	1									1				1	1				
							1	1		1	1													1	1				
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							1	1		1	1													1	1				
							1	1		1	1													1	1				
							1	1		1	1													1	1				

TABLE 13.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN BURLINGTON CITY.

	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.
Typhoid Fever.....	1									1	1	
Diphtheria and Croup.....	3		1									
Tuberculosis of the Lungs.....	22			1	1	1	1	2	2	2	2	1
Cancer. { Of the Stomach and Liver.....	25	E										
{ Of the Female Genital Organs.....												
{ Of the Breast.....												
Diabetes.....	25							1				
Addison's Disease.....	30		1									
Cerebral Hemorrhage and Congestion.....	42											
Softening of the Brain.....	43											
Epilepsy.....	47	1										
Endocarditis.....	56	4							1	1		
Organic Diseases of the Heart.....	57											
Acute Bronchitis.....	69	1										
Broncho-Pneumonia.....	71	1	1	1								
Pneumonia.....	72	1	2	3				1				
Other Diseases of the Respiratory System.....	77	B								1		
Ulcer of the Stomach.....	80		1									
Other Diseases of Stomach (Cancer excepted).....	81		1	1								
Infantile Diarrhoea, Athrepsia.....	82	3	12	1								
Diarrhoea and Enteritis.....	83					1						
Acute Yellow Atrophy of the Liver.....	88											
Cirrhosis of the Liver.....	90											
Other Diseases of the Liver.....	92											
Acute Nephritis.....	96											1
Bright's Disease.....	97											1
Diseases of the Bladder.....	102											
Puerperal Septicæmia.....	119	A				1						
Congenital Debility, Icterus and Sclerema.....	138		7	1								
Senile Debility.....	141											
Other Accidental Injuries.....	145		1	1								
Other External Violence.....	152		1									

Total deaths, 134. Death-rate, 15.66.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909.

	AGE PERIODS.						SEX.	COLOR.	NATIVITY.								SOCIAL CONDITION.									
	Fifty to fifty-five.	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.			Not stated.	Male.	Female.	Color of accident. white unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
							3	1			3											2		1		
			1				3	2		3	11											5		3		3
		2					1	1			1											1				
				1			1	1			2											1				
					1		1	1			1											1				1
							1	1			1											1				
							1	1			1											2		9		1
							1	1			4	1										2		1		5
							1	1			1											1				
							1	1			1											1				
							1	1			4											1		3		1
							1	1			13											8		6		1
							1	1			2											1		1		1
							1	1			2											1		1		
							1	1			2											1		1		
							1	1			9											16		1		1
							1	1			1											1		1		
							1	1			1											1		1		
							1	1			2											1		1		
							1	1			2											2		2		
							1	1			3											3		6		1
							1	1			1											1		1		
							1	1			1											1		1		
							1	1			1											1		1		
							1	1			1											1		1		
							1	1			1											1		1		
							1	1			1											1		1		
							1	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 14.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES,
THE YEAR ENDING

DEATHS IN CAMDEN.	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.
Infantile Diarrhoea, Athrepsia.....	32	7	69	12								
Diarrhoea and Enteritis.....	33					1	2			2		
Dysentery.....	34											
Hernia and Intestinal Obstructions.....	36	1		1						1		
Other Diseases of the Intestines.....	37 A			1								1
Cirrhosis of the Liver.....	90								1	1		1
Other Diseases of the Liver.....	92			1								
Inflammatory Peritonitis (Non-Puerperal).....	93								1	1		
Appendicitis.....	95			2	1	1						1
Acute Nephritis.....	96	1	2									
Bright's Disease.....	97			2	1	1			4	5	2	2
Diseases of the Bladder.....	102								6	4		9
Other Diseases of the Uterus.....	112											
Other Diseases of the Female Genital Organs.....	114 C					1						1
Accidents of Pregnancy.....	116					2	2					
Other Accidents of Labor.....	118					1	2			1		
Puerperal Septicemia.....	119 A					2	1					
Puerperal Albuminuria and Eclampsia.....	121					1	1			1		
Gangrene.....	126				2							
Anthrax Carbuncle.....	127					1						
Other Diseases of the Skin and Adnexa.....	129 F											
Other Diseases of Bones.....	132		1								1	
Congenital Debility, Icterus and Sclerema.....	138 68	31	3									
Infantile Inanition, Want of Care.....	139 10	11										
Senile Debility.....	141											
Suicide { By Poison.....	A						1			1		
or At-tempt at { By Strangulation.....	C									1		
Suicide. { By Cutting Instruments.....	E	142										2
{ By Drowning.....	F						1			1		
{ By Precipitation from Height.....	G									1		
Other Accidental Injuries.....	145	5			7	2	5	3	5	4	5	6
Burns by Fire.....	146 A			2	3	1						1
Sunstroke and Freezing.....	147	1										1
Accidental Drowning.....	148			1	3	2	1		2			1
Inanition of Adults.....	149 B											
Inhalation of Noxious Gases (Suicide excepted).....	150											
Other Accidental Poisoning.....	151		1						2	1		1
Other External Violence.....	152	2										
Dropsy.....	155											
Abdominal Tumor.....	158						1					
Other Tumors.....	159											1
Cerebro-spinal Meningitis.....	161			1								

Total deaths, 1,490. Death-rate, 16.57.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR
DECEMBER 31, 1909—(Continued).

AGE PERIODS.	SEX.	COLOR.	NATIVITY.										SOCIAL CONDITION.																
			United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.												
Fifty to fifty-five.																													
Fifty-five to sixty.																													
Sixty to seventy.																													
Seventy to eighty.																													
Eighty to ninety.																													
Over ninety.																													
Not stated.																													
Male.	56	32																											
Female.	10	10																											
Color of decedent white unless designated by mark.			8																										
United States.				87																									
England.				13																									
France.							3																						
Germany.																													
Ireland.																													
Italy.																													
Scotland.																													
Hungary.																													
Sweden.																													
Other foreign.																													
Not stated.																													
Married.																									88				
Single.																								5					
Widowed.																								3			6		1
Not stated.																								1					

TABLE 20.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN GLOUCESTER CITY.	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.
	Typhoid Fever.....	1					1					
Scurvy.....	3	1										
Whooping Cough.....	1	2	1									
Diphtheria and Croup.....	8	1	1	1								
Tuberculosis. { Of the Lungs..... } 22 { A	1	1		1	1	1	3	3	2	2		
{ Of the Meninges..... } B				1								
Cancer. { Of the Stomach and Liver..... } 25 { B												
{ Of the Female Genital Organs..... } D								1				
Simple Meningitis.....	39	1	1									
Cerebral Hemorrhage and Congestion.....	42							1				
Paralysis Without Indicated Cause.....	44											
General Paralysis.....	45											
Convulsions of Infants.....	49	5	1									
Endocarditis.....	56											
Organic Diseases of the Heart.....	57				1			1	1	1		
Diseases of Arteries, Atheroma, Aneurism, etc.....	59											
Acute Bronchitis.....	69	2										
Broncho-Pneumonia.....	71	1	2	1								
Pneumonia.....	72	1	5	7	1	1		1			1	
Congestion and Apoplexy of Lungs.....	74									1		
Asthma.....	76											
Other Diseases of the Respiratory System.....	77	B										
Other Diseases of Stomach (Cancer excepted).....	81	1	4		1	1		1				
Infantile Diarrhoea, Athrepsia.....	82	1	9	3								
Diarrhoea and Enteritis.....	83						2	1				
Dysentery.....	84			1								
Other Diseases of the Intestines.....	87	A	1									
Cirrhosis of the Liver.....	90								1			
Acute Nephritis.....	96			1								
Bright's Disease.....	97					1				1		2
Other Diseases of the Kidneys and Adnexa.....	100											
Other Diseases of Bones.....	132			1								
Congenital Debility, Icterus and Sclerema.....	138	2	2	1								
Infantile Inanition, Want of Care.....	139	4	1									
Senile Debility.....	141											
Suicide or Attempt at Suicide, by Firearms.....	142	D						1				
Other Accidental Injuries.....	145				1	1	3					
Accidental Drowning.....	148			1								
Other External Violence.....	152									1		
Cerebro-spinal Meningitis.....	161		1									

Total deaths, 162. Death-rate, 17.95.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909.

AGE PERIODS.							SEX.		COLOR.	NATIVITY.								SOCIAL CONDITION.						
Fifty to fifty-five.	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.	Male.	Female.	Color of decedent white unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
1	1						1	2	2	2											1	1	1	
							2	1	1	1													1	
							1	1	1	1													2	
1	1	1					10	7	7	13	1										9	6	2	
								1	1	1												1		
								1	1	1												1		
								2	2	2												2		
								2	6	4	3											3	1	5
								2	2	2	1											4		
								3	1	1	1											6		
								5	5	1	1											4	1	
								1	1	1	1											1		
								2	2	2	2											2	4	4
								9	14	19	2	2										5	15	3
								1	1	1	1											1	1	
								1	1	1	1											2		
								4	4	8												2	6	
								3	3	13												13		
								1	1	1	1											1		
								2	2	2	1											1		
								1	1	1	1											1		
								2	2	3	1											2	1	
								7	7	13	4	4										5	1	
								1	1	1	1											1		
								1	1	1	1											1		
								2	2	3	3											1		
								1	1	1	1											1		
								5	5	11	4	4										5	5	
								3	3	4	4											5		
								1	1	1	1											1		
								1	1	1	1											1		
								3	3	3	3											2	1	
								1	1	1	1											1		

TABLE 23.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES. THE YEAR ENDING

DEATHS IN HOBOKEN.

Table with columns for AGE PERIODS (Under one month to Forty-five to fifty) and rows for various diseases such as Typhoid Fever, Scurvy, Measles, Tuberculosis, Cancer, Rheumatism, Diabetes, etc.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909.

Table with columns for AGE PERIODS, SEX, COLOR, NATIVITY (United States, England, France, etc.), and SOCIAL CONDITION (Married, Single, Widowed, Not stated). Rows correspond to the same diseases as in the first table.

TABLE 24.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN IRVINGTON.	AGE PERIODS.												
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.	
Typhoid Fever.....	1												
Measles.....	5		1										
Diphtheria and Croup.....	3		1	3									
Tuberculosis. { Of the Lungs.....	22	A	1		1	2	1	4	1	1	1	1	
{ Of the Meninges.....													B
{ Of Other Organs.....													E
Syphilis.....	24												
Cancer. { Of the Stomach and Liver.....	25	C	1						1				
{ Of the Intestines and Rectum.....													B
{ Of the Female Genital Organs.....													D
{ Of the Breast.....													E
Diabetes.....	28												
Anemia Chlorosis.....	32												
Cerebral Hemorrhage and Congestion.....	42								1	1			
Paralysis Without Indicated Cause.....	44												
General Paralysis.....	45												
Convulsions of Infants.....	49												
Endocarditis.....	56	2											
Organic Diseases of the Heart.....	57												
Acute Bronchitis.....	69	1	1									1	
Broncho-Pneumonia.....	71	1	1										
Pneumonia.....	72	2	2										
Congestion and Apoplexy of Lungs.....	74												
Other Diseases of the Respiratory System.....	77	B				1							
Ulcer of Stomach.....	80												
Other Diseases of the Stomach (Cancer excepted).....	81	1	1	1									
Infantile Diarrhea, Athrepsia.....	82	5											
Hernia and Intestinal Obstructions.....	86			1									
Cirrhosis of the Liver.....	90												
Bright's Disease.....	97									1	1	2	
Vesical Calculi.....	101												
Phlegmon. Acute Abscess.....	128	1									1		
Congenital Debility, Icterus and Sclerema.....	138												
Infantile Inanition, Want of Care.....	139	5	4										
Senile Debility.....	141												
Suicide or Attempt { By Poison.....	142	A							1				
at Suicide. { By Asphyxia.....													B
Dislocations.....	144	B											
Other Accidental Injuries.....	145			1									

Total deaths, 127. Death-rate, 14.56.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909.

AGE PERIODS.						SEX.	COLOR.	NATIVITY.										SOCIAL CONDITION.							
Fifty to fifty-five.	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.			Not stated.	Male.	Female.	Color of decedent white unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
							1																1		
							2																1		
							11	4														9	5	1	
	1	2	1				1															1			
							1															1			
							1	1														1			
							1	1														1			
							1	2														2			
							1	1														1			
							1	1														1			
							2	2														2			
							3	6														5	1	4	
							1	1														1			
							1	1														1			
							3	1														2			
							2	2														1			
							3	3														2			
							3	3														1			
							4	5														1			
							4	5														1			
							2	2														2			
							2	2														1			
							1	1														1			
							2	2														2			
							2	2														1			
							1	1														1			
							1	1														1			
							1	1														1			

TABLE 25.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN JERSEY CITY.	AGE PERIODS.									
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.		
Other Diseases of the Respiratory System.....	77	B	1	1	1	1	1	1	2	3
Diseases of the Pharynx.....	1	A	1	1	1	1	1	1	1	1
Diseases of the Esophagus.....	79	B	1	1	1	1	1	1	1	1
Ulcer of Stomach.....	80	B	1	1	1	1	1	1	1	1
Other Diseases of Stomach (Cancer excepted).....	81	B	8	22	10	3	1	1	1	2
Infantile Diarrhoea, Athrepsia.....	82	B	20	247	65	5	1	1	1	1
Diarrhoea and Enteritis.....	83	B	1	1	1	1	1	1	1	1
Dysentery.....	84	B	1	1	1	1	1	1	1	1
Hernia and Intestinal Obstructions.....	86	B	2	4	1	1	1	1	1	1
Other Diseases of the Intestines.....	87	A	1	1	1	1	1	1	1	1
Cirrhosis of the Liver.....	90	B	1	1	1	1	1	1	1	1
Biliary Calculi.....	91	B	1	1	1	1	1	1	1	1
Other Diseases of the Liver.....	92	B	1	1	1	1	1	1	1	1
Inflammatory Peritonitis (Non-Puerperal).....	93	B	1	1	1	1	1	1	1	1
Appendicitis.....	95	B	1	1	1	1	1	1	1	1
Acute Nephritis.....	96	B	2	5	4	3	2	2	1	1
Bright's Disease.....	97	B	2	9	8	2	4	8	9	13
Other Diseases of the Kidneys and Adnexa.....	100	B	2	9	8	2	4	8	9	13
Vesical Calculi.....	101	B	1	1	1	1	1	1	1	1
Diseases of the Bladder.....	102	B	1	1	1	1	1	1	1	1
Diseases of the Prostate.....	104	B	1	1	1	1	1	1	1	1
Diseases of the Testicle and its Envelopes, Orchitis.....	105	B	1	1	1	1	1	1	1	1
Other Diseases of the Male Genital Organs.....	106	B	1	1	1	1	1	1	1	1
Abscess of the Pelvis.....	107	B	1	1	1	1	1	1	1	1
Uterine Hemorrhage (Non-Puerperal).....	110	B	1	1	1	1	1	1	1	1
Uterine Tumors (Non-Cancerous).....	111	B	1	1	1	1	1	1	1	1
Other Diseases of the Uterus.....	112	B	1	1	1	1	1	1	1	1
Ovarian Cysts and Other Ovarian Tumors.....	113	B	1	1	1	1	1	1	1	1
Other Diseases of the Female Genital Organs.....	114	C	1	1	1	1	1	1	1	1
Accidents of Pregnancy.....	116	C	1	1	1	1	1	1	1	1
Other Accidents of Labor.....	118	C	1	1	1	1	1	1	1	1
Puerperal Septicæmia.....	119	A	1	1	1	1	1	1	1	1
Puerperal Albuminuria and Eclampsia.....	121	A	1	1	1	1	1	1	1	1
Erysipelas.....	125	B	1	1	1	1	1	1	1	1
Gangrene.....	126	B	1	1	1	1	1	1	1	1
Phlegmon, Acute Abscess.....	128	B	1	1	1	1	1	1	1	1
Other Diseases of Skin and Adnexa (Cancer excepted).....	129	F	1	1	1	1	1	1	1	1
Other Diseases of Bones.....	132	B	1	1	1	1	1	1	1	1
Malformations.....	137	B	1	1	1	1	1	1	1	1
Congenital Debility, Icterus and Sclerema.....	138	B	1	1	1	1	1	1	1	1
Infantile Inanition, Want of Care.....	139	B	22	105	12	1	1	1	1	1
Other Diseases Peculiar to Infancy.....	140	B	22	105	12	1	1	1	1	1
Senile Debility.....	141	B	1	1	1	1	1	1	1	1
By Poison.....	141	A	1	1	1	1	1	1	1	1
By Asphyxia.....	141	B	1	1	1	1	1	1	1	1
By Strangulation.....	141	C	1	1	1	1	1	1	1	1
By Firearms.....	141	D	1	1	1	1	1	1	1	1
By Drowning.....	141	F	1	1	1	1	1	1	1	1
By Precipitation from Height, Others.....	141	G	1	1	1	1	1	1	1	1
Fractures.....	143	B	1	1	1	1	1	1	1	1
Other Accidental Injuries.....	145	B	10	9	3	13	23	22	18	9
Burns by Fire.....	146	A	3	11	4	3	1	1	1	1
Sunstroke and Freezing.....	147	B	1	1	1	1	1	1	1	1
Accidental Drowning.....	148	B	1	1	1	1	1	1	1	1
Overwork.....	149	A	1	1	1	1	1	1	1	1
Inhalation of Noxious Gases (Suicide excepted).....	150	B	1	1	1	1	1	1	1	1
Other Accidental Poisoning.....	151	B	1	1	1	1	1	1	1	1
Other External Violence.....	152	B	1	1	1	1	1	1	1	1
Unknown or Not Specified Diseases.....	160	B	4	13	17	2	1	1	1	1
Cerebro-spinal Meningitis.....	161	B	13	17	2	1	1	1	1	1

Total deaths, 4,404. Death-rate, 17.36.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909—(Continued).

AGE PERIODS.	SEX.	COLOR.	NATIVITY.													SOCIAL CONDITION.			
			United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.		
Fifty to fifty-five.	Male.	White unless designated by mark.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Fifty to sixty.	Female.	White unless designated by mark.	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2
Sixty to seventy.	Male.	White unless designated by mark.	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
Sixty to seventy.	Female.	White unless designated by mark.	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
Seventy to eighty.	Male.	White unless designated by mark.	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
Seventy to eighty.	Female.	White unless designated by mark.	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
Eighty to ninety.	Male.	White unless designated by mark.	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
Eighty to ninety.	Female.	White unless designated by mark.	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8	8
Over ninety.	Male.	White unless designated by mark.	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
Over ninety.	Female.	White unless designated by mark.	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10

TABLE 29.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES,
THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR
DECEMBER 31, 1909.

DEATHS IN MILLVILLE.

	AGE PERIODS.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																									
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
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Diphtheria and Croup.....	8												Other Epidemic Diseases.....	13 D		1	3									Tuberculosis. {	22	A	1	3	3	5	2	1	1	1	1	1	Of the Lungs.....														Of the Peritoneum.....	Of Other Organs.....	Cancer. {														25	A										1	Of the Mouth.....	Of the Stomach and Liver.....	Of the Female Genital Organs, Others.....	Diabetes.....	28												Cerebral Hemorrhage and Congestion.....	42												Softening of the Brain.....	43											1	Paralysis Without Indicated Cause.....	44												General Paralysis.....	45												Tetanus.....	50												Other Diseases of the Nervous System.....	52 C												Endocarditis.....	56												Organic Diseases of the Heart.....	57				1	1							Diseases of the Larynx and Thyroid Body.....	63			1									Acute Bronchitis.....	69		1										Chronic Bronchitis.....	70												Broncho-Pneumonia.....	71		1										Pneumonia.....	72		2	3	1								Congestion and Apoplexy of Lungs.....	74									1			Asthma.....	76												Other Diseases of the Respiratory System.....	77 B												Ulcer of Stomach.....	80												Other Diseases of Stomach (Cancer excepted).....	81		1										Infantile Diarrhea, Athrepsia.....	82		15	1									Diarrhea and Enteritis.....	83												Hernia and Intestinal Obstructions.....	86												Cirrhosis of the Liver.....	90												Other Diseases of the Liver.....	92											1	Inflammatory Peritonitis (Non-Puerperal).....	93			1									Appendicitis.....	95					1							Acute Nephritis.....	96											1	Bright's Disease.....	97												Congenital Debility, Icterus and Sclerema.....	138	9	5	2	1								Infantile Inanition, Want of Care.....	139		3										Senile Debility.....	141												Suicide or Attempt at Suicide, By Poison.....	142 A												Other Accidental Injuries.....	145											1	Other Accidental Poisoning.....	151		1										Total deaths, 151. Death-rate, 11.68.												
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AGE PERIODS.	SEX.	COLOR.	NATIVITY.											SOCIAL CONDITION.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
			Fifty to fifty-five.	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.	Male.	Female.	Color of decedent white unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																						
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TABLE 32.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909.

DEATHS IN NEWARK.	AGE PERIODS.										
	Under one month.	Under one year.		Five to ten.		Twenty to twenty-five.		Thirty to thirty-five.		Forty to forty-five.	
		One to five.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Thirty to thirty-five.	Forty to forty-five.	Forty-five to fifty.			
Typhoid Fever.....	1	3	4	3	6	5	2	6	4		
Smallpox.....	4	15	23	1	3	4	3	6	5		
Measles.....	3	33	45	12	6	2	1	2	2		
Scarlet Fever.....	6	13	13	7	3	1	1	2	2		
Whooping Cough.....	1	16	13	2	1	1	1	1	1		
Diphtheria and Croup.....	2	9	55	23	1	1	1	1	1		
Influenza.....	9	1	3	7	1	1	1	1	1		
Pyæmia and Septicæmia.....	14	1	1	1	1	1	1	1	1		
Rabies.....	17	3	8	1	1	1	1	1	1		
Tuberculosis. {	22	A	B	C	D	E	F	G	H	I	
Of the Lungs.....											
Of the Meninges.....											
Of the Peritoneum.....											
Of Other Organs.....											
General.....											
Syphilis.....	24	3	3	1	1	1	1	1	1		
Cancer. {	25	A	B	C	D	E	F	G	H	I	
Of the Mouth.....											
Of the Stomach and Liver.....											
Of the Intestines and Rectum.....											
Of the Female Genital Organs.....											
Of the Breast.....											
Of the Skin.....											
Others.....											
Rheumatism.....	26	1	1	1	1	1	1	1	1		
Gout.....	27	1	1	1	1	1	1	1	1		
Diabetes.....	28	1	1	1	1	1	1	1	1		
Exophthalmic Goitre.....	29	1	1	1	1	1	1	1	1		
Leukemia.....	31	1	1	1	1	1	1	1	1		
Anæmia Chlorosis.....	32	1	1	1	1	1	1	1	1		
Other General Diseases.....	33	1	1	1	1	1	1	1	1		
Alcoholism (Acute or Chronic).....	34	1	1	1	1	1	1	1	1		
Lead Poisoning.....	35	1	1	1	1	1	1	1	1		
Encephalitis.....	38	1	1	1	1	1	1	1	1		
Simple Meningitis.....	39	3	18	26	4	5	2	1	1	2	
Progressive Locomotor Ataxia.....	40	1	1	1	1	1	1	1	1		
Cerebral Hemorrhage and Congestion.....	42	2	3	3	4	1	2	1	4	8	
Softening of the Brain.....	43	1	1	1	1	1	1	1	1	1	
Paralysis Without Indicated Cause.....	44	1	1	1	1	1	1	1	1	1	
General Paralysis.....	45	1	1	1	1	1	1	1	1	1	
Other Forms of Insanity.....	46	1	1	1	1	1	1	1	1	1	
Epilepsy.....	47	1	1	1	1	1	1	1	1	1	
Convulsions of Infants.....	49	24	19	8	1	1	1	1	1	1	
Tetanus.....	50	2	1	1	1	1	1	1	1	1	
Other Diseases of the Nervous System.....	52	C	2	1	1	1	1	1	1	1	
Diseases of the Ears.....	54	1	1	1	1	1	1	1	1	1	
Pericarditis.....	55	1	1	1	1	1	1	1	1	1	
Endocarditis.....	56	3	2	2	5	10	10	10	14	21	
Organic Diseases of the Heart.....	57	9	3	5	4	8	7	13	7	17	
Angina Pectoris.....	58	1	1	1	1	1	1	1	1	1	
Diseases of Arteries, Atheroma, Aneurism, etc.....	59	1	1	1	1	1	1	1	1	1	
Varices, Varicose Ulcers, Hemorrhoids.....	61	1	1	1	1	1	1	1	1	1	
Phlebitis and Other Diseases of the Veins.....	62	1	1	1	1	1	1	1	1	1	
Other Diseases of the Lymphatic System.....	64	1	1	1	1	1	1	1	1	1	
Hemorrhage.....	65	1	1	1	1	1	1	1	1	1	
Other Diseases of the Circulatory System.....	66	1	1	1	1	1	1	1	1	1	
Diseases of the Nasal Fosse.....	67	1	1	1	1	1	1	1	1	1	
Diseases of the Larynx and Thyroid Body.....	68	1	1	1	1	1	1	1	1	1	
Acute Bronchitis.....	69	7	26	11	1	1	1	1	1	1	
Chronic Bronchitis.....	70	1	1	1	1	1	1	1	1	1	
Broncho-Pneumonia.....	71	5	62	123	8	2	2	2	2	5	
Pneumonia.....	72	13	72	98	10	3	3	6	6	26	
Pleurisy.....	73	1	1	5	3	1	1	1	1	2	
Congestion and Apoplexy of Lungs.....	74	2	1	1	1	1	1	1	1	1	
Asthma.....	76	1	1	1	1	1	1	1	1	1	

AGE PERIODS.	SEX.	COLOR.	NATIVITY.										SOCIAL CONDITION.			
			Color of decedent white unless designated by mark.										Married.	Single.	Widowed.	Not stated.
			United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.				
Fifty to fifty-five.	18	22	1	31	2	2	2	1	1	1	2	16	20	4		
Fifty-five to sixty.	1	1	1	1	1	1	1	1	1	1	1	3	1			
Sixty to seventy.	19	19	1	37	1	1	1	1	1	1	1	3	38			
Seventy to eighty.	31	40	1	67	1	1	1	1	1	1	1	1	66			
Eighty to ninety.	12	18	1	29	1	1	1	1	1	1	1	1	29			
Over ninety.	47	52	1	99	1	1	1	1	1	1	1	1	6	2		
Not stated.	3	6	2	7	1	1	1	1	1	1	1	1	1			
Male.	41	209	40	404	14	1	52	66	25	2	16	4	278	75	80	
Female.	57	39	13	82	4	1	4	1	1	1	1	1	19	3	3	
Color of decedent white unless designated by mark.	18	22	1	31	2	2	2	1	1	1	2	16	20	4		
United States.	13	39	4	13	1	1	1	1	1	1	1	1	11	1		
England.	1	1	1	1	1	1	1	1	1	1	1	1	1			
France.	1	1	1	1	1	1	1	1	1	1	1	1	1			
Germany.	1	1	1	1	1	1	1	1	1	1	1	1	1			
Ireland.	1	1	1	1	1	1	1	1	1	1	1	1	1			
Italy.	1	1	1	1	1	1	1	1	1	1	1	1	1			
Scotland.	1	1	1	1	1	1	1	1	1	1	1	1	1			
Hungary.	1	1	1	1	1	1	1	1	1	1	1	1	1			
Sweden.	1	1	1	1	1	1	1	1	1	1	1	1	1			
Other foreign.	1	1	1	1	1	1	1	1	1	1	1	1	1			
Not stated.	1	1	1	1	1	1	1	1	1	1	1	1	1			
Married.	16	19	2	28	1	1	1	1	1	1	1	1	1	1	1	
Single.	20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
Widowed.	4															
Not stated.																

TABLE 32.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909—(Continued).

DEATHS IN NEWARK.

	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.
Other Diseases of the Respiratory System.....	77	B	1	1	2	3	1	1	3	2	4	
Diseases of the Pharynx.....	4	A		1	2							
Diseases of the Esophagus.....	1	B		1	1							
Ulcer of Stomach.....	80	B		1	1							
Other Diseases of Stomach (Cancer excepted).....	81	B	9	52	6	1	1	1	1	1	2	
Infantile Diarrhœa, Athrepsia.....	82	B	29	286	75	4	4	1	1	1	2	
Diarrhœa and Enteritis.....	83	B			2							
Dysentery.....	84	B		4	3							
Hernia and Intestinal Obstructions.....	86	B	3	2	4	1	1	1	2	2	4	
Other Diseases of the Intestines.....	87	A		1	1	1	1	1	1	1	1	
Cirrhosis of the Liver.....	90	B	2	1	1	1	1	1	5	4	7	5
Other Diseases of the Liver.....	92	B		1	1	1	1	1	1	1	1	
Inflammatory Peritonitis (Non-Puerperal).....	93	B	1	1	1	1	1	1	1	1	1	
Appendicitis.....	95	B		1	1	1	1	1	1	1	1	
Acute Nephritis.....	96	B	1	1	1	1	1	1	1	1	1	
Bright's Disease.....	97	B	1	7	5	2	2	10	13	12	23	26
Perinephritis and Perinephritic Abscess.....	98	B	1									
Other Diseases of the Kidneys and Adnexa.....	100	B										
Vesical Calculi.....	102	B										
Diseases of the Bladder.....	103	B	1									
Diseases of the Urethra, Stricture, Abscess, etc.....	104	B										
Diseases of the Prostate.....	105	B										
Diseases of the Testicle and its Envelopes, Orchitis.....	106	B	1									
Other Diseases of the Male Genital Organs.....	107	B										
Abscess of the Pelvis.....	109	B										
Metritis.....	111	B										
Uterine Tumors (Non-Cancerous).....	112	B										
Other Diseases of the Uterus.....	113	B										
Ovarian Cysts and Other Ovarian Tumors.....	114	B										
Other Diseases of the Female Genital Organs.....	116	B										
Accidents of Pregnancy.....	118	B										
Other Accidents of Labor.....	119	B										
Puerperal Septicæmia.....	121	B										
Puerperal Albuminuria and Eclampsia.....	125	B										
Erysipelas.....	126	B	1	3								
Gangrene.....	127	B										
Anthrax Carbuncle.....	128	B	1	1								
Phlegmon, Acute Abscess.....	129	B	1	2	1	1						
Other Diseases of the Skin and Adnexa.....	130	B										
Potts' Disease.....	132	B										
Other Diseases of Bones.....	137	B	1	1	2	2						
Malformations.....	138	B	220	77	11							
Congenital Debility, Icterus and Sclerema.....	139	B	43	12								
Infantile Inanition, Want of Care.....	141	B										
Senile Debility.....	142	B										
Suicide or Attempt at Suicide.....	145	B										
By Poison.....	146	B										
By Asphyxia.....	147	B										
By Strangulation.....	148	B										
By Firearms.....	149	B										
By Cutting Instruments.....	150	B										
By Drowning.....	151	B										
By Precipitation from Height.....	152	B										
Other Accidental Injuries.....	151	B										
Burns by Fire.....	152	B										
Sunstroke and Freezing.....	148	B										
Accidental Drowning.....	149	B										
Overwork.....	150	B										
Inhalation of Noxious Gases (Suicide excepted).....	151	B										
Other Accidental Poisoning.....	152	B										
Other External Violence.....	159	B										
Other Tumors.....	160	B										
Unknown or Not Specified Diseases.....	161	B										
Cerebro-spinal Meningitis.....	161	B	1	11	12	7	4	1	1	1	2	2

Total deaths, 5,516. Death-rate, 17.62.

	AGE PERIODS.							SEX.	COLOR.	NATIVITY.									SOCIAL CONDITION.						
	Fifty to fifty-five.	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.			Male.	Female.	Color of decedent while unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
	2	1	13	7	3			29	22		19	3		7	7	2	1	1		5		19	13	12	
				1				4	3		5											1	5	1	
								12	10		15	1										11	6	5	
								13	31		72	1		2	1	1	2					7	65	4	
								130	164		178	348		19	3							344	8	19	1
								19	31		19	3		8	1	10						16	8	19	
								5	7		10	1		2								11	8	3	
								16	17		22	4	2	1	1							11	15	7	
								3	3		4	4		1	1							40	2	1	
								54	14		25	2	2	24	4	5						3	12	16	
								11	10		15	1	1	4	4							9	5	4	
								9	9		11	1	1	1	1	1	1	1	1	1	2	10	8	3	
								18	21		28	3	1	5	10	2	3	3	3	1	5	17	20	2	
								23	38		32	3	1	5	10	2	3	3	3	2	2	33	15	13	
								181	156		183	16		60	47	7	7	7	7	14	1	154	80	103	
								1			1											1			
								2	1		2											2			
								1	1		1											1			
								9	4		8	1		1	2							8	3	2	
								1	1		7	1		1								1			
								9			1											6		3	
								1			1											1			
								1			1											1			
								1			1											1			
								1			1											1			
								1			1											1			
								2	2		2											2			
								23	23		17	5	2	2	1	2		1				6	1		
								20	20		17	5	2	2	1	2		1				2	1		
								13	4		17	7	1	1	2	2		1				9	1		
								4	3		6	6	1	2	2							3	4	1	
								3	2		4	3	2	2	2							1			
								3	3		3	3	1	1	2							2			
								7	7		9	2	2	2	1							1			
								3	3		3	3	3	1	1							2			
								3	3		3	3	3	3	3							2			</

TABLE 33.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN NEW BRUNSWICK.	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.
	Typhoid Fever.....	1										
Scurvy.....	3	1										
Measles.....	5	1	1									
Scarlet Fever.....	6	1	1									
Whooping Cough.....	7	2	2									
Diphtheria and Croup.....	8	6	6									
Influenza.....	9	1										
Pyæmia and Septicæmia.....	14											
Tuberculosis.....	22											
Of the Lungs.....	A	2	2									
Of the Meninges.....	B	2	2									
Of the Peritoneum.....	C	3	1									
Of Other Organs.....	E											
General.....	F											
Syphilis.....	24	2	1									
Cancer.....	25											
Of the Mouth.....	A											
Of the Stomach and Liver.....	B											
Of the Intestines and Rectum.....	C											
Of the Breast.....	E											
Others.....	G											
Rheumatism.....	26											
Diabetes.....	28											
Anæmia Chlorosis.....	32											
Alcoholism (Acute or Chronic).....	34											
Simple Meningitis.....	39											
Progressive Locomotor Ataxia.....	40											
Cerebral Hemorrhage and Congestion.....	42	2										
Paralysis Without Indicated Cause.....	44											
General Paralysis.....	45											
Convulsions of Infants.....	49											
Tetanus.....	50	1	1	3								
Endocarditis.....	56											
Organic Diseases of the Heart.....	57											
Angina Pectoris.....	58											
Diseases of Arteries, Atheroma, Aneurism, etc.....	59											
Hemorrhage.....	65											
Other Diseases of the Circulatory System.....	66											
Diseases of the Larynx and Thyroid Body.....	68											
Acute Bronchitis.....	69											
Broncho-Pneumonia.....	71											
Pneumonia.....	72	2	6	2	1							
Congestion and Apoplexy of Lungs.....	74	3	5	1	2							
Other Diseases of the Respiratory System.....	77											
Diseases of the Mouth and Adnexa.....	78											
Ulcer of Stomach.....	80	1	1									
Other Diseases of Stomach (Cancer excepted).....	81											
Infantile Diarrhœa, Athrepsia.....	82	2	3									
Diarrhœa and Enteritis.....	83	2	49	12								
Dysentery.....	84											
Hernia and Intestinal Obstructions.....	86											
Cirrhosis of the Liver.....	90											
Other Diseases of the Liver.....	92											
Inflammatory Peritonitis (Non-Puerperal).....	93											
Appendicitis.....	95											
Acute Nephritis.....	96											
Bright's Disease.....	97											
Other Diseases of the Kidneys and Adnexa.....	100											
Diseases of the Bladder.....	102											
Diseases of the Prostate.....	104											
Ovarian Cysts and Other Ovarian Tumors.....	113											

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909.

AGE PERIODS.	SEX.	COLOR.	NATIVITY.										SOCIAL CONDITION.				
			Color of decedent white unless designated by mark.										Married.	Single.	Widowed.	Not stated.	
			United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.					Not stated.
Fifty to fifty-five.	Male.	Female.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
Fifty-five to sixty.	3	2	3											2	2	2	1
Sixty to seventy.	1	1	1											1	1	1	
Seventy to eighty.	1	1	1											1	1	1	
Eighty to ninety.	1	1	1											1	1	1	
Over ninety.	1	1	1											1	1	1	
Not stated.	1	1	1											1	1	1	
Male.	16	20	7	23			2	2	1					1	1	1	
Female.	4	1	1	5			1	1	1					1	1	1	
Color of decedent white unless designated by mark.	1	1	1	1			1	1	1					1	1	1	
United States.	16	20	7	23			2	2	1					1	1	1	
England.	4	1	1	5			1	1	1					1	1	1	
France.	1	1	1	1										1	1	1	
Germany.	1	1	1	1										1	1	1	
Ireland.	1	1	1	1										1	1	1	
Italy.	1	1	1	1										1	1	1	
Scotland.	1	1	1	1										1	1	1	
Hungary.	1	1	1	1										1	1	1	
Sweden.	1	1	1	1										1	1	1	
Other foreign.	1	1	1	1										1	1	1	
Not stated.	1	1	1	1										1	1	1	
Married.	16	20	7	23			2	2	1					1	1	1	
Single.	4	1	1	5			1	1	1					1	1	1	
Widowed.	1	1	1	1										1	1	1	
Not stated.	1	1	1	1										1	1	1	

TABLE 35.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES.
THE YEAR ENDING

DEATHS IN ORANGE.	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.
Puerperal Albuminuria and Eclampsia.....	121											
Erysipelas.....	125											
Gangrene.....	126	1										
Other Diseases of Bones.....	132											
Malformations.....	137	1		1								
Congenital Debility, Icterus and Sclerema.....	138	2	7	1								
Infantile Inanition, Want of Care.....	139	2										
Senile Debility.....	141											
Suicide or (By Poison.....	142	A										
Attempt at (By Firearms.....			D				1	1				
Suicide (By Cutting Instruments.....				E								
Other Accidental Injuries.....	145									2		
Burns by Fire.....	146	A	1	1	1	2	1	1	1	1		1
Other External Violence.....	152		1	1			1					
Other Tumors.....	159							1				1
Cerebro-spinal Meningitis.....	161			1			1					

Total deaths, 447. Death-rate, 16.16.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR
DECEMBER 31, 1909—(Continued).

AGE PERIODS.						SEX.	COLOR.	NATIVITY.										SOCIAL CONDITION.						
Fifty to fifty-five.	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.			Not stated.	Male.	Female.	Color of decedent white unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
							1	1		1											1			
							1	1		1													1	
			2				1	1		1													2	
							1	1		1												1		
							21	12	5	33													33	
	1		1				1	1	1	2												1		
							1	1	1	1												1		
							1	1	1	2												1		
							3	3		1												3		
							7	7	1	7												7		
	1						3	3	1	4												6		
							2	2	1	1												1		
							1	1		1												1		
	1						2	2		2												1		

TABLE 36.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES,
THE YEAR ENDING

DEATHS IN PASSAIC CITY.	AGE PERIODS.										
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.
Vesical Calculi.....											
Diseases of the Bladder.....											
Other Diseases of the Uterus.....											
Accidents of Pregnancy.....											
Puerperal Septicæmia.....											
Puerperal Albuminuria and Eclampsia.....											
Other Accidents of Pregnancy, Sudden Death.....											
Erysipelas.....		2									
Gangrene.....											
Anthrax Carbuncle.....											
Phlegmon, Acute Abscess.....											
Other Diseases of the Skin and Adnexa.....											
Other Diseases of Bones.....											
Congenital Debility, Icterus and Sclerema.....											
Infantile Inanition, Want of Care.....											
Senile Debility.....											
Suicide or Attempt at Suicide.....											
Other Accidental Injuries.....											
Burns by Fire.....											
Sunstroke and Freezing.....											
Accidental Drowning.....											
Inhalation of Noxious Gases (Suicide excepted).....											
Other External Violence.....											
Other Tumors.....											
Cerebro-spinal Meningitis.....											

Total deaths, 783. Death-rate, 17.06.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR
DECEMBER 31, 1909—(Continued).

AGE PERIODS.							SEX.		COLOR.	NATIVITY.								SOCIAL CONDITION.							
Fifty to fifty-five.	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.	Male.	Female.	Color of decedent white unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.	
1																									
					1		1																		
					1																				

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TABLE 40.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES,
THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR
DECEMBER 31, 1909.

DEATHS IN PLAINFIELD.

	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.
Typhoid Fever.....	1											
Scurvy.....	3											
Measles.....	5		1									
Whooping Cough.....	7		1									
Diphtheria and Croup.....	4		4									
Tuberculosis. { Of the Lungs.....	1		1									
{ Of the Meninges.....	1		1		1	3						
{ Of Other Organs.....	22		1		1	3		3	6		3	
Syphilis.....	1		1									
Cancer. { Of the Mouth.....	24	1	1						1			
{ Of the Stomach and Liver.....	1							1	3			
{ Of the Intestines and Rectum.....	25								1			
{ Of the Female Genital Organs.....	1											
{ Of the Breast.....	1								1			
Rheumatism.....	26								1			
Diabetes.....	25								1			
Leukemia.....	31					1	1		1			
Alcoholism (Acute or Chronic).....	34								1			
Simple Meningitis.....	39											
Cerebral Hemorrhage and Congestion.....	42		1			1						
Paralysis Without Indicated Cause.....	44								1			1
General Paralysis.....	45											
Other Forms of Insanity.....	46											
Convulsions of Infants.....	49											
Tetanus.....	50	4										
Other Diseases of the Nervous System.....	52		1		1							
Endocarditis.....	56								1			
Organic Diseases of the Heart.....	57		1	1		1	1					
Angina Pectoris.....	58										2	
Diseases of Arteries, Atheroma, Aneurism, etc.....	59											
Embolism.....	60											
Hemorrhage.....	65								1			
Acute Bronchitis.....	69				1							
Chronic Bronchitis.....	70		1									
Broncho-Pneumonia.....	71											
Pneumonia.....	72		1	1								
Pleurisy.....	73	1	3	1	1		1	1	3		2	
Congestion and Apoplexy of Lungs.....	74											
Asthma.....	76											
Other Diseases of the Respiratory System.....	77											
Ulcer of Stomach.....	80											
Other Diseases of Stomach (Cancer excepted).....	81											
Infantile Diarrhoea, Athrepsia.....	82		2	1								
Diarrhoea and Enteritis.....	83	1	5	6								
Dysentery.....	84											
Hernia and Intestinal Obstructions.....	86		1						1			
Cirrhosis of the Liver.....	90				1							
Other Diseases of the Liver.....	92											
Inflammatory Peritonitis (Non-Puerperal).....	93											
Appendicitis.....	95			1							1	
Acute Nephritis.....	96										1	
Bright's Disease.....	97										1	
Diseases of the Bladder.....	102											
Diseases of the Prostate.....	104											
Other Diseases of the Female Genital Organs.....	114											
Accidents of Pregnancy.....	116											
Puerperal Septicemia.....	119								1			
Puerperal Albuminuria and Eclampsia.....	121											
Erysipelas.....	125											

	AGE PERIODS.							SEX.	COLOR.	NATIVITY.								SOCIAL CONDITION.																																																																																																										
	Fifty to fifty-five.	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.			Male.	Female.	Color of decedent white unless designated by mark.	United States.								Married.	Single.	Widowed.	Not stated.																																																																																																				
													England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.					Other foreign.	Not stated.																																																																																																		
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125

TABLE 41.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES.
THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR
DECEMBER 31, 1909.

	AGE PERIODS.								
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty-five.	Twenty-five to thirty.	Thirty to forty.	Forty to fifty.
Whooping Cough.....	7								
Diphtheria and Croup.....	8								
Tuberculosis of the Lungs.....	23	A							
Of the Stomach and Liver.....	B								
Of the Intestines and Rectum.....	C								
Of the Female Genital Organs.....	D								
Others.....	E								
Alcoholism (Acute or Chronic).....	34								
Cerebral Hemorrhage and Congestion.....	42								
General Paralysis.....	46								
Other Forms of Insanity.....	55								
Pericarditis.....	56								
Endocarditis.....	57								
Organic Diseases of the Heart.....	69								
Acute Bronchitis.....	71								
Broncho-Pneumonia.....	72								
Pneumonia.....	73								
Other Diseases of Stomach (Cancer excepted).....	81								
Infantile Diarrhoea, Athrepsia.....	83								
Diarrhoea and Enteritis.....	86								
Hernia and Intestinal Obstructions.....	90								
Cirrhosis of the Liver.....	96								
Acute Nephritis.....	97								
Bright's Disease.....	104								
Diseases of the Prostate.....	126								
Gangrene.....	132								
Other Diseases of Bones.....	137								
Malformations.....	138								
Congenital Debility, Icterus and Sclerosis.....	141								
Senile Debility.....	141								
Other Accidental Injuries.....	145								

Total deaths, 61. Death-rate, 7.89.

	AGE PERIODS.				SEX.	COLOR.	NATIVITY.								SOCIAL CONDITION.											
	Fifty to fifty-five.	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.			Over ninety.	Not stated.	Male.	Female.	Color of Accented white unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
Whooping Cough.....																										
Diphtheria and Croup.....																										
Tuberculosis of the Lungs.....																										
Of the Stomach and Liver.....																										
Of the Intestines and Rectum.....																										
Of the Female Genital Organs.....																										
Others.....																										
Alcoholism (Acute or Chronic).....																										
Cerebral Hemorrhage and Congestion.....																										
General Paralysis.....																										
Other Forms of Insanity.....																										
Pericarditis.....																										
Endocarditis.....																										
Organic Diseases of the Heart.....																										
Acute Bronchitis.....																										
Broncho-Pneumonia.....																										
Pneumonia.....																										
Other Diseases of Stomach (Cancer excepted).....																										
Infantile Diarrhoea, Athrepsia.....																										
Diarrhoea and Enteritis.....																										
Hernia and Intestinal Obstructions.....																										
Cirrhosis of the Liver.....																										
Acute Nephritis.....																										
Bright's Disease.....																										
Diseases of the Prostate.....																										
Gangrene.....																										
Other Diseases of Bones.....																										
Malformations.....																										
Congenital Debility, Icterus and Sclerosis.....																										
Senile Debility.....																										
Other Accidental Injuries.....																										

TABLE 47.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN SUMMIT.

Table with columns for AGE PERIODS (Under one month, Under one year, One to five, Five to ten, Ten to fifteen, Fifteen to twenty, Twenty to twenty-five, Twenty-five to thirty, Thirty to thirty-five, Thirty-five to forty, Forty to forty-five, Forty-five to fifty) and rows for various diseases such as Whooping Cough, Pyæmia and Septicæmia, Tuberculosis, Syphilis, Cancer of the Stomach and Liver, etc., ending with a total of 97 deaths.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909.

Table with columns for AGE PERIODS (Fifty to fifty-five, Fifty-five to sixty, Sixty to seventy, Seventy to eighty, Eighty to ninety, Over ninety, Not stated), SEX (Male, Female), COLOR (Color of decedent white unless designated by mark), NATIVITY (United States, England, France, Germany, Ireland, Italy, Scotland, Hungary, Sweden, Other foreign, Not stated), and SOCIAL CONDITION (Married, Single, Widowed, Not stated).

Total deaths, 97. Death-rate, 12.01.

TABLE 48.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN TOWN OF UNION.	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.
Other Accidental Injuries.....												
Burns by Fire.....				2	1							
Sunstroke and Freezing.....							1	1				
Inhalation of Noxious Gases (Suicide excepted).....							1	1				
Other External Violence.....									1			
Other Tumors.....										1		
Total deaths, 277.												

Death-rate, 15.01.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909—(Continued).

AGE PERIODS.	SEX.	COLOR.	NATIVITY.								SOCIAL CONDITION.							
			United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.	
Fifty to fifty-five.																		
Fifty-five to sixty.																		
Sixty to seventy.																		
Seventy to eighty.																		
Eighty to ninety.																		
Over ninety.																		
Not stated.																		
Male.	14																	
Female.	2																	
Color of decedent white unless designated by mark.																		
United States.			9	1														
England.																		
France.																		
Germany.																		
Ireland.																		
Italy.																		
Scotland.																		
Hungary.																		
Sweden.																		
Other foreign.																		
Not stated.																		
Married.															5			
Single.																9		
Widowed.																	4	
Not stated.																		2

TABLE 49.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909.

Table with columns: DEATHS IN TRENTON, AGE PERIODS, and various disease categories. Rows include Typhoid Fever, Smallpox, Measles, Tuberculosis, Syphilis, Cancer, and many others, with counts for different age groups.

Table with columns: AGE PERIODS, SEX, COLOR, NATIVITY, SOCIAL CONDITION, and various disease categories. Rows include counts for different age groups, sexes (Male/Female), colors, and nativities, categorized by social condition.

TABLE 49.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES, THE YEAR ENDING

DEATHS IN TRENTON.	AGE PERIODS.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																								
	Other Diseases of the Intestines.....	87	A											Cirrhosis of the Liver.....	90		1										Other Diseases of the Liver.....	92							1		1		1	Inflammatory Peritonitis (Non-Puerperal)	93												Appendicitis.....	95												Acute Nephritis.....	96												Bright's Disease.....	97												Other Diseases of the Kidneys and Adnexa.....	100												Vesical Calculi.....	101												Diseases of the Bladder.....	102												Diseases of the Urethra, Stricture, Abscess, etc.	103	B											Diseases of the Prostate.....	104												Diseases of the Testicle and its Envelopes, Orchitis	105												Other Diseases of the Male Genital Organs.....	106												Uterine Tumors (Non-Cancerous).....	111												Ovarian Cysts and Other Ovarian Tumors.....	113												Accidents of Pregnancy.....	116												Other Accidents of Labor.....	118												Puerperal Septicæmia.....	119	A											Puerperal Albuminuria and Eclampsia.....	121												Erysipelas.....	125												Gangrene.....	126												Phlegmon. Acute Abscess.....	128												Other Diseases of the Skin and Adnexa.....	129	F											Other Diseases of Bones.....	132												Malformations.....	137												Congenital Debility, Icterus and Sclerema.....	138												Infantile Inanition, Want of Care.....	139												Senile Debility.....	141												Suicide (By Poison.....	142	A	A										or At. By Asphyxia.....	B	By Strangulation.....	C	By Firearms.....	D	By Cutting Instruments.....	E	Other Accidental Injuries.....	145	Burns by Fire.....	146	A											Sunstroke and Freezing.....	147												Accidental Drowning.....	148												Inhalation of Noxious Gases (Suicide excepted).....	150												Other Accidental Poisoning.....	151												Other External Violence.....	152												Other Tumors.....	159												Unknown or Not Specified Diseases.....	160												Cerebro-spinal Meningitis.....	161										
Cirrhosis of the Liver.....	90		1										Other Diseases of the Liver.....	92							1		1		1	Inflammatory Peritonitis (Non-Puerperal)	93												Appendicitis.....	95												Acute Nephritis.....	96												Bright's Disease.....	97												Other Diseases of the Kidneys and Adnexa.....	100												Vesical Calculi.....	101												Diseases of the Bladder.....	102												Diseases of the Urethra, Stricture, Abscess, etc.	103	B											Diseases of the Prostate.....	104												Diseases of the Testicle and its Envelopes, Orchitis	105												Other Diseases of the Male Genital Organs.....	106												Uterine Tumors (Non-Cancerous).....	111												Ovarian Cysts and Other Ovarian Tumors.....	113												Accidents of Pregnancy.....	116												Other Accidents of Labor.....	118												Puerperal Septicæmia.....	119	A											Puerperal Albuminuria and Eclampsia.....	121												Erysipelas.....	125												Gangrene.....	126												Phlegmon. Acute Abscess.....	128												Other Diseases of the Skin and Adnexa.....	129	F											Other Diseases of Bones.....	132												Malformations.....	137												Congenital Debility, Icterus and Sclerema.....	138												Infantile Inanition, Want of Care.....	139												Senile Debility.....	141												Suicide (By Poison.....	142	A	A										or At. By Asphyxia.....	B													By Strangulation.....	C	By Firearms.....	D	By Cutting Instruments.....	E	Other Accidental Injuries.....	145	Burns by Fire.....	146	A											Sunstroke and Freezing.....	147												Accidental Drowning.....	148												Inhalation of Noxious Gases (Suicide excepted).....	150												Other Accidental Poisoning.....	151												Other External Violence.....	152												Other Tumors.....	159												Unknown or Not Specified Diseases.....	160												Cerebro-spinal Meningitis.....	161												
Other Diseases of the Liver.....	92							1		1		1	Inflammatory Peritonitis (Non-Puerperal)	93												Appendicitis.....	95												Acute Nephritis.....	96												Bright's Disease.....	97												Other Diseases of the Kidneys and Adnexa.....	100												Vesical Calculi.....	101												Diseases of the Bladder.....	102												Diseases of the Urethra, Stricture, Abscess, etc.	103	B											Diseases of the Prostate.....	104												Diseases of the Testicle and its Envelopes, Orchitis	105												Other Diseases of the Male Genital Organs.....	106												Uterine Tumors (Non-Cancerous).....	111												Ovarian Cysts and Other Ovarian Tumors.....	113												Accidents of Pregnancy.....	116												Other Accidents of Labor.....	118												Puerperal Septicæmia.....	119	A											Puerperal Albuminuria and Eclampsia.....	121												Erysipelas.....	125												Gangrene.....	126												Phlegmon. Acute Abscess.....	128												Other Diseases of the Skin and Adnexa.....	129	F											Other Diseases of Bones.....	132												Malformations.....	137												Congenital Debility, Icterus and Sclerema.....	138												Infantile Inanition, Want of Care.....	139												Senile Debility.....	141												Suicide (By Poison.....	142	A	A										or At. By Asphyxia.....													B	By Strangulation.....													C	By Firearms.....	D	By Cutting Instruments.....	E	Other Accidental Injuries.....	145	Burns by Fire.....	146	A											Sunstroke and Freezing.....	147												Accidental Drowning.....	148												Inhalation of Noxious Gases (Suicide excepted).....	150												Other Accidental Poisoning.....	151												Other External Violence.....	152												Other Tumors.....	159												Unknown or Not Specified Diseases.....	160												Cerebro-spinal Meningitis.....	161													
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Total deaths, 1,661. Death-rate, 17.88.

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR DECEMBER 31, 1909—(Continued).

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TABLE 51.—TABULATION OF DEATHS FROM THE CLASSIFIED DISEASES,
THE YEAR ENDING

DEATHS IN WEST HOBOKEN.	AGE PERIODS.											
	Under one month.	Under one year.	One to five.	Five to ten.	Ten to fifteen.	Fifteen to twenty.	Twenty to twenty-five.	Twenty-five to thirty.	Thirty to thirty-five.	Thirty-five to forty.	Forty to forty-five.	Forty-five to fifty.
Suicide or (By Poison.....												
Attempt at (By Asphyxia.....												
Suicide. (By Strangulation.....							1					1
Other Accidental Injuries.....												1
Burns by Fire.....			2									
Sunstroke and Freezing.....												
Inhalation of Noxious Gases (Suicide excepted).....												1
Other External Violence.....												
Abdominal Tumor.....								1				
Cerebro-spinal Meningitis.....										1		
Total deaths, 420. Death-rate, 12.40.		2	2	1						1		

IN THE STATISTICAL DIVISION OF THE STATE OF NEW JERSEY, FOR
DECEMBER 31, 1909—(Continued).

AGE PERIODS.						SEX.	COLOR.	NATIVITY.							SOCIAL CONDITION.									
Fifty to fifty-five.	Fifty-five to sixty.	Sixty to seventy.	Seventy to eighty.	Eighty to ninety.	Over ninety.	Not stated.	Male.	Female.	Color of decedent, white unless designated by mark.	United States.	England.	France.	Germany.	Ireland.	Italy.	Scotland.	Hungary.	Sweden.	Other foreign.	Not stated.	Married.	Single.	Widowed.	Not stated.
1		1					1	2					1	2					1		2	1		
1							1	2					2						1		1			1
		1					1	1					1						1		1	1		
							1	1					1						1		1			1
							1	1					1						1		1			1
							2	4					1						1		2	2		1

List of Licensed Health Officers and Sanitary Inspectors.

Following is a list of the persons who have successfully passed the examinations provided for in the act approved April 8th, 1903:

HEALTH OFFICERS.

†Budd H. Obert.....	Asbury Park, N. J.
†Hiram Williams, M.D.....	Passaic, N. J.
Alex. Marcy, Jr., M.D.....	Riverton, N. J.
†Wm. S. Green, M.D.....	Paterson, N. J.
Walter Taylor, M.D.....	Jersey City, N. J.
Maria M. Vinton, M.D.....	East Orange, N. J.
†Edward Guion, M.D.....	Atlantic City, N. J.
†Fred W. Sell, M.D.....	Rahway, N. J.
Howard L. Baumgartner.....	Asbury Park, N. J.
Lewis L. Sharp, M.D.....	Palmyra, N. J.
†Ferdinand N. Sauer, M.D.....	Jersey City, N. J.
†George T. Tracy, M.D.....	Beverly, N. J.
†Chester H. Wells.....	Montclair, N. J.
†Duncan W. Blake, Jr., M.D.....	Gloucester City, N. J.
Samuel D. Mayhew, M.D.....	Bridgeton, N. J.
†John O'Brien, Jr.....	Montclair, N. J.
†James A. Exton, M.D.....	Arlington, N. J.
Frank H. Streightoff.....	Montclair, N. J.
G. W. Fithian, M.D.....	Perth Amboy, N. J.
†Henry MacDonald.....	Newark, N. J.
†Leon R. Thurlow.....	Plainfield, N. J.
†Edward B. Rogers, M.D.....	Collingswood, N. J.
†J. I. Hoverder, M.D.....	Atco, N. J.
W. U. Kurtz, M.D.....	Asbury Park, N. J.
John K. Adams, M.D.....	Orange, N. J.
William W. Brooke, M.D.....	Bayonne, N. J.
†Thomas J. Duffield.....	Asbury Park, N. J.
Henry D. Abbott, M.D.....	Bayonne, N. J.
Eugene H. Sullivan.....	Orange, N. J.
†J. Alex. Browne, M.D.....	Paterson, N. J.
Perkins Boynton.....	Little Falls, N. J.

† In the service of the local board of health.

‡ Deceased.

Ellsmore Stites, M.D.	Bridgeton, N. J.
† Marcus W. Newcomb, M.D.	Burlington, N. J.
Charles P. Eaton	Jersey City, N. J.
† V. M. D. Marcy, M.D.	Cape May, N. J.
† Milton L. Somers, M.D.	Atlantic City, N. J.
† Harry H. Petit, M.D.	Ridgewood, N. J.
† John T. Connelly	Bayonne, N. J.
† Charles J. Larkey	Bayonne, N. J.
† T. Lee Adams	Ocean City, N. J.
† R. H. Parsons, M.D.	Mount Holly, N. J.
Jay E. Kilpatrick	Montclair, N. J.
William Schluer	Orange, N. J.
William G. Schaufler, M.D.	Lakewood, N. J.
† William H. Shipp, M.D.	Bordentown, N. J.
Morris W. Clouse, M.D.	Kearny, N. J.
† Joseph J. Craven, M.D.	Jersey City, N. J.
† Selskar M. Gunn	Orange, N. J.
Joseph Payne, M.D.	Midland Park, N. J.
† Jay G. Foose	Montclair, N. J.
John J. Broderick, M.D.	Jersey City, N. J.
Henry H. Brinkerhoff, M.D.	Jersey City, N. J.
† George W. Lawrence, M.D.	Lakewood, N. J.
† James J. Hagan	Jersey City, N. J.
† Charles S. Mills, M.D.	Riverton, N. J.
† Joseph Wantoch, M.D.	Carteret, N. J.
† William H. Iszard, M.D.	Camden, N. J.
Ralph O. Clock, M.D.	Burlington, N. J.
E. Irving Cronk, M.D.	New Brunswick, N. J.
John L. Lund, M.D.	Perth Amboy, N. J.
† Charles McNabb	Bound Brook, N. J.
J. C. Loper, M.D.	Bridgeton, N. J.
Henry C. James, M.D.	Mays Landing, N. J.
A. M. Heron, M.D.	Lakewood, N. J.
George H. Taylor, M.D.	Maplewood, N. J.
L. F. Meloney, M.D.	Clifton, N. J.
I. N. Griscom, M.D.	Ocean City, N. J.
James L. Ollif	Plainfield, N. J.
† Harriet O. Mattison	Plainfield, N. J.
† Lester Hamblet	Asbury Park, N. J.
† John H. Winslow, M.D.	Vineland, N. J.
Grant P. Curtis, M.D.	Town of Union, N. J.
† Robert N. Hoyt	Summit, N. J.
† J. Scott MacNutt	Orange, N. J.
William D. Sayre, M.D.	Red Bank, N. J.

† In the service of the local board of health.

‡ Deceased.

PLUMBING INSPECTORS.

† Henry B. Francis	Camden, N. J.
Joseph Sonnenberg	Irvington, N. J.
Conrad Deuchler	Newark, N. J.
Charles M. Whelan	Trenton, N. J.
† William F. Brode	Atlantic City, N. J.
† Thomas D. Clark	Woodbury, N. J.
Edward J. Kelly	Jersey City, N. J.
Thomas F. Harris	Orange, N. J.
† G. H. Soult	Ridgewood, N. J.
Henry A. W. Smith	Ocean City, N. J.
Hugh F. Parle	Jersey City, N. J.
R. LeRoy Skillman	Newark, N. J.
Andrew McGookin, Jr.	Newark, N. J.
Frederick W. Nichols	Newark, N. J.
Luke J. Devine	Elizabeth, N. J.
James Barnard	Trenton, N. J.
Frank H. Fitzgeorge	Trenton, N. J.
George F. Shafer	Hackensack, N. J.
Charles F. West	Gloucester City, N. J.
Bernard B. Reiley	New Brunswick, N. J.
P. W. Borrows	Ridgefield Park, N. J.
Arthur G. Reeves	Cape May City, N. J.
James H. Kiernan	Jersey City, N. J.
Edward A. Sullivan	Newark, N. J.
Gustave A. Albiez	Newark, N. J.
William F. Specht, Jr.	Atlantic City, N. J.
Jacob Kull	Newark, N. J.
Eugene Lau	Newark, N. J.
Peter A. Degnan	Newark, N. J.
David Entwistle	Jersey City, N. J.
Tunis Looi	Lodi, N. J.
James A. Marnell	Hoboken, N. J.
Rudolph Riemenschneider	Town of Union, N. J.
W. J. Large	Vineland, N. J.
Charles Steller	Town of Union, N. J.
Martin D. Karl	Garfield, N. J.
Adam J. Hammer	Elizabeth, N. J.
Leavett F. Kelley	Newark, N. J.
W. George Lambert	Riverside, N. J.
Martin V. Driscoll	Jersey City, N. J.
Herbert J. Mason	Vineland, N. J.
Charles F. Shaw	Collingswood, N. J.
William F. Ziegler	West Hoboken, N. J.
Archibald A. Kafer, Jr.	Bordentown, N. J.
Edward A. Dugan	Gloucester City, N. J.

† In the service of the local board of health.

‡ Deceased.

SANITARY INSPECTORS OF FIRST CLASS.

†Fred W. Hering.....	Jersey City, N. J.
†George W. Gilmore.....	Newark, N. J.
†Fred C. Robertson, M.D.....	Jersey City, N. J.
†John T. McClure.....	Harrison, N. J.
†John G. Taylor.....	Dover, N. J.
Charles E. Bellows.....	Bridgeton, N. J.
†Albert E. Geissler.....	Kearny, N. J.
Thomas Ainge.....	Lansing, Mich.
Charles S. Voorhis.....	Palmyra, N. J.
†Lewis E. Boutillier.....	Newark, N. J.
†Joseph C. Saile.....	Bloomfield, N. J.
†Casper Benz.....	Newark, N. J.
†Robert W. Meeker.....	Plainfield, N. J.
†John K. Bennett, M.D.....	Gloucester City, N. J.
William H. Addis.....	Plainfield, N. J.
William W. Heberton, M.D.....	South Orange, N. J.
Eric Ordell.....	Newark, N. J.
John Greaves.....	Jersey City, N. J.
†John E. Rowe, D.V.S.....	Summit, N. J.
George N. Smith.....	Newark, N. J.
†Frank Dencklan.....	Plainfield, N. J.
J. H. C. Hunter.....	Dover, N. J.
Chauncey V. Bunnell.....	Jersey City, N. J.
†Charles F. Conrad.....	Newark, N. J.
Percy W. Sipp.....	Newark, N. J.
†H. S. Winterhalter.....	Bayonne, N. J.
Jay E. Kilpatrick.....	Montclair, N. J.
W. J. E. Seder.....	Newark, N. J.
†Alonzo Brower.....	Freehold, N. J.
†Frederick E. Wilson.....	Bayonne, N. J.
David R. Thompson.....	Delaware City, Del.
†Jay G. Foose.....	Montclair, N. J.
†William H. Lowe, D.V.S.....	Paterson, N. J.
Charles W. Harveys, M.D.....	Ridgewood, N. J.
Joseph C. Bitler, M.D.....	Hammonton, N. J.
†Lynford E. Tuttle, M.D.V.....	Bernardsville, N. J.
James L. Ollif.....	Plainfield, N. J.
J. J. Reason, M.D.....	Carteret, N. J.
†Alfred C. Benedict, M.D.....	South Orange, N. J.
†John H. Winslow, M.D.....	Vineland, N. J.
†Harry R. Ingalls.....	Asbury Park, N. J.
Edward F. Flynn.....	Newark, N. J.
†Elvia Scott.....	South Orange, N. J.
Harris Day, M.D.....	Chester, N. J.
A. I. Goehrig.....	Trenton, N. J.
Harry E. Moffett.....	Newark, N. J.
Irwin C. Dakin.....	Newark, N. J.
William Gleuck, Jr.....	Newark, N. J.

† In the service of the local board of health.

‡ Deceased.

Fred S. Ball, M.D.....	Lakewood, N. J.
†Felix McGee.....	Millburn, N. J.
Charles E. Divine.....	Newark, N. J.
†Charles McNabb.....	Bound Brook, N. J.
James J. Waters.....	Newark, N. J.
†John L. Lund, M.D.....	Perth Amboy, N. J.
Edward Mulvaney, M.D.....	Jersey City, N. J.
John J. Magnef, M.D.....	Jersey City, N. J.
Edward J. Devitt.....	Jersey City, N. J.
†J. L. Ebbels.....	Montclair, N. J.
H. G. Eakin.....	Union Hill, N. J.
Joseph R. Bartlett.....	Atlantic City, N. J.
Frank V. Wilkinson.....	Newark, N. J.
Edwin E. Taber.....	Long Branch, N. J.
†John A. Manson.....	Dover, N. J.
†Lester J. Hamblet.....	Asbury Park, N. J.
Clarence A. Lamont.....	Asbury Park, N. J.
Alex. M. Heron, M.D.....	Lakewood, N. J.
Abram A. Lydecker, M.D.....	Haledon, N. J.
Howard H. Huffert.....	Newark, N. J.
†Sylvester Utter, M.D.....	Paterson, N. J.
F. Wm. Stahuber.....	Trenton, N. J.
William Morris.....	Roselle Park, N. J.
John W. Garey.....	Atlantic City, N. J.
†James P. McNair.....	Paterson, N. J.
Thomas J. Steele.....	Jersey City, N. J.
Walter B. Delaney.....	Jersey City, N. J.
John C. Harnett.....	Jersey City, N. J.
Henry A. Bonyng, M.D.....	Ridgewood, N. J.
C. H. W. Van Sciver.....	Burlington, N. J.
†Frank S. Harris.....	Salem, N. J.
Stanley S. Williams.....	Newark, N. J.
Patrick J. Brogan.....	Newark, N. J.
Samuel Bachman.....	Newark, N. J.
†Sadie H. Layton.....	Asbury Park, N. J.
†Frank A. Frederick.....	West Hoboken, N. J.
Andrew Carney, Jr.....	North Plainfield, N. J.
†John J. Belbey.....	Morristown, N. J.
Gustavus E. Freideman.....	Newark, N. J.
†Ralph L. Huttenloch.....	Montclair, N. J.
William McKeon.....	Paterson, N. J.
†H. W. Hartman, M.D.....	Keyport, N. J.
†John T. McClure, Jr.....	Harrison, N. J.
Adolph O. Elsassner.....	Newark, N. J.
John Q. Larkin.....	Jersey City, N. J.

† In the service of the local board of health.

‡ Deceased

SANITARY INSPECTORS OF SECOND CLASS.

†Charles Cunningham, M.D.....	Hammoncton, N. J.
†Franklin P. Vanlier.....	Woodstown, N. J.
†Joseph J. Clickenger.....	Irvington, N. J.
†J. C. Shinn, M.D.....	Jamesburg, N. J.

SANITARY INSPECTORS OF THIRD CLASS.

David Jamieson	Gloucester City, N. J.
†Robert A. Hirner.....	Woodbridge, N. J.
Robert Dickson	Fair Haven, N. J.
T. Nelson Lillagore.....	Ocean Grove, N. J.
William B. Smith.....	Belleville, N. J.

MEAT INSPECTORS.

†G. F. Harker, D.V.S.....	Trenton, N. J.
†Richard W. Hewitt, D.V.S.....	Camden, N. J.
Willet H. Cooper, D.V.S.....	Trenton, N. J.
†Albert T. Sellers, D.V.S.....	Camden, N. J.

† In the service of the local board of health.

‡ Deceased.

List of Sanitary Districts

With Names and Addresses of Officers and Members.

CITIES.

Asbury Park, Monmouth county; population 4,526. Members and officers—Theodore H. Beringer, President; David W. Sexton, Henry Mitchell, M.D., Asher S. Burton, Joseph H. Bryan, M.D., Harry C. Millar, George Turner, B. H. Obert, Clerk, Registrar and Health Officer; H. R. Ingalls and Lester J. Hamblet, Inspectors.

Atlantic City, Atlantic county; population 37,593. Members and officers—Elwood S. Johnson, President; Alfred W. Baily, M.D., Lewis Glenn, William S. Laumaster, Harry J. Mulock, William B. Dill, Secretary; John J. Mahoney, Registrar; Edward Guion, M.D., Health Officer; Harry C. Beck, Benjamin Sooy, Charles McDowell, John W. Garey and Thomas Clement, Inspectors; W. F. Brode and William F. Specht, Jr., Plumbing Inspectors.

***Bayonne, Hudson county;** population 42,262. Members and officers—

Belvidere, Warren county; population 1,869. Members and officers—Frank P. Leffert, M.D., President; Samuel J. Hixon, George Widenor, William Widenor, George H. Weaver, Clerk and Inspector.

Beverly, Burlington county; population 2,258. Members and officers—P. P. Hains, President; Geo. A. Smith, Berten Kiple, J. D. Fish, Wm. B. Jester, Chas. J. Parsons, Clerk and Registrar; Geo. T. Tracy, M.D., Inspector.

Bordentown, Burlington county; population 4,073. Members and officers—S. E. Burr, President; S. R. Magee, J. W. Higgins, E. H. Thompson, D. R. Brown, Wm. M. Kester, Clerk and Registrar; A. P. Thorn and Wm. H. Shipp, M.D., Inspectors.

Bridgeton, Cumberland county; population 13,624. Members and officers—Oscar E. Kellum, President; Sydney E. Williams, Fred S. Conner, Frank S. McKee, Jr., Jacob C. Jones, W. H. Ballinger, John H. Moore, Secretary; J. C. Loper, M.D., Inspector.

Burlington, Burlington county; population 8,038. Members and officers—Franklin S. Carter, President; Neal D. Keeler, M. W. Newcomb, M.D., William R. Schuyler, George W. Shinn, Thomas S. Mooney, Clerk and Registrar; C. H. W. Van Sciver, Inspector.

Camden, Camden county; population 82,912. Members and officers—H. H. Davis, M.D., President; R. H. Gaskill, Wm. S. Kelchner, M.D., M. K. Mines, M.D., M. F. Middleton, M.D., E. Wilmer Collins, S. G. Bushey, M.D., Eugene B. Roberts, Clerk; Wm. D. Brown, Registrar;

*No report received.

John F. Leavitt, Henry B. Francis, Jos. A. Starr, Wm. H. Iszard, M.D., G. H. Robinson and L. P. Munion, Inspectors.

Cape May, Cape May county; population 3,006. Members and officers—A. L. Leach, M.D., President; Geo. L. Lovett, Rob't S. Hand, Wm. R. Sheppard, Wm. Porter, Clerk and Registrar; V. M. D. Marcy, M.D., Health Officer; A. G. Reeves, Plumbing Inspector.

Dover, Morris county; population 6,353. Members and officers—Arthur P. VanGelder, President; Arthur W. Condict, M.D., William G. Hummel, Wm. H. Tonking, Clerk; J. H. C. Hunter, Registrar; John G. Taylor, Inspector.

East Orange, Essex county; population 25,175. Members and officers—Roger H. Butterworth, President; Frank B. Lane, M.D., Ralph H. Hunt, M.D., Dewitt Cook, Jr., Harvey Mott, Wm. T. Bowman, Clerk and Inspector; Lincoln E. Rowley, Registrar.

Egg Harbor, Atlantic county; population 2,280. Members and officers—August A. Breder, President; Henry G. Regensburg, J. U. Elmer, M.D., Henry Otto, Wm. Morgenweck, Jr., Clerk and Registrar.

Elizabeth, Union county; population 60,509. Members and officers—John W. Whelan, President; J. L. Bauer, Charles Brown, Edw. W. Connell, T. E. Dolan, M.D., J. S. Green, M.D., S. M. Williams, John F. Kenah, Clerk and Registrar; L. J. Richards, P. J. Connell and Henry Toole, Inspectors.

Englewood, Bergen county; population 7,922. Members and officers—George B. Best, President; T. William Lydecker, Edward Koster, C. F. Bradner, M.D., Gilliam D. Bogert, Clerk; Robert Jamieson, Registrar; John A. Manson, Inspector.

Gloucester City, Camden county; population 8,055. Members and officers—Oliver J. Stetser, President; John Redfield, John Beaton, Thomas McNulty, J. F. Blandy, Samuel Shuster, A. D. Koeman, Secretary; John J. Mannon, Registrar; John K. Bennett and Edward A. Dugan, Inspectors.

Hackensack, Bergen county; population 11,098. Members and officers—E. B. Walden, President; J. H. De Motts, E. K. Conrad, M.D., H. C. Humphrey, M.D., Jos. C. Lincoln, Alfred W. Lawton, Coleman Gray, Secretary; William P. Ellery, Registrar; F. S. Hallett, M.D., Health Officer; Robert Ballagh, Inspector.

***Hoboken, Hudson county;** population 65,468. Members and officers—Joseph Tucker, Clerk and Registrar.

Jersey City, Hudson county; population 232,699. Members and officers—John J. Broderick, M.D., President; Chas. E. Putnam, M.D., Henry E. Woelfle, M.D., Frederick A. Finn, M.D., Henry H. Brinkerhoff, M.D., Henry Mack, M.D., John Flesey, George Hendrickson, Joseph A. Sprouls, Everett Gray, James J. Hagan, Secretary and Health Officer; Joseph A. Carlin, Registrar; Joseph Craven, M.D., Edward Mulvaney, M.D., John J. Magner, M.D., and John Harnett, Superintendents of Bureaus; Edward Devitt, John Q. Larkin and Thomas Steele, Inspectors.

Lambertville, Hunterdon county; population 5,016. Members and officers—Edward W. Closson, M.D., President; William R. Bowne, Harry K. Kramer, James Moonan, Oliver C. Holcombe, James H. Reynolds, Clerk and Registrar; John L. Coryell and Charles S. Closson, M.D., Inspectors.

*No report received.

Long Branch, Monmouth county; population 12,183. Members and officers—Joseph T. Welch, M.D., President; John L. Price, A. E. Nelson, Harry Fleet, A. P. Paul, P. A. Hull, E. B. Blaisdell, Secretary and Registrar; James Milmore and George W. Northam, Inspectors.

Millville, Cumberland county; population 11,884. Members and officers—John W. Wade, M.D., President; H. G. Miller, M.D., George H. Thorpe, James R. Headley, L. H. Hogate, Clerk and Registrar; J. D. Brandriff and Frank Bullock, Inspectors.

Montclair, Essex county; population 16,370. Members and officers—M. N. Baker, President; Richard P. Francis, M.D., Levi W. Halsey, M.D., Seward Davis, John N. Holton, Secretary; Chester H. Wells, Registrar and Health Officer; John L. Ebbels and Ralph L. Huttenloch, Inspectors.

Morristown, Morris county; population 12,146. Members and officers—Isaac R. Pierson, President; Francis H. Glazebrook, M.D., John D. Collins, John R. Burr, Clifford Mills, M.D., Clerk and Registrar; Robert S. Van Dyke, Inspector.

Newark, Essex county; population 283,289. Members and officers—H. C. H. Herold, M.D., President; Theodore W. Corwin, M.D., J. T. Wrightson, M.D.; J. W. Dobbins, Charles W. Baker, George L. Warren, Timothy F. Foyle, Frank B. Meeker, James A. Rowe, Henry C. Vance, David D. Chandler, Secretary and Health Officer.

New Brunswick, Middlesex county; population 23,133. Members and officers—F. B. Kilmer, President; Dr. Francis C. Van Dyck, Arthur L. Smith, M.D., George B. Rule, Elmer J. McMurtry, Secretary and Registrar; E. I. Cronk, M.D., Health Officer, and Wm. Van Deusen, Inspector.

Orange, Essex county; population 26,101. Members and officers—G. H. Richards, M.D., President; D. W. Poor, M.D., Ludlow B. Clark, John T. Davis, James Kane, L. M. Sanders, O. S. Williams, William B. Palmer, Clerk; J. Scott MacNutt, Registrar and Health Officer; Richard Savage and William A. Webber, Inspectors.

Passaic, Passaic county; population 37,837. Members and officers—Frank H. Field, President; C. F. H. Johnson, Wm. L. Lyall, Geo. H. Michels, Anton L. Pettersen, Mason R. Strong, Gerard J. Van Schott, M.D., Virginia Hand, Clerk; George F. Gear, Registrar; Nelson Elliott, Health Officer; Frank Kievitt, J. Payne Lowe, John N. Ryan and Jacob Cooper, Inspectors.

Paterson, Passaic county; population 111,529. Members and officers—Franklin Van Winkle, President; James F. Briody, M.D., J. Alex. Browne, M.D., John L. Leal, M.D., James J. Maher, Francis H. Todd, M.D., James P. McNair, Clerk; Chas. S. Gall, Registrar; James Fitzpatrick, William S. Green, M.D., William H. MacDonald, William McKeon and Wm. Herbert Brown, D.V.S., Inspectors.

Perth Amboy, Middlesex county; population 25,895. Members and officers—Justus Kaletsch, President; C. C. Sibley, P. N. Kennedy, Henry J. Hughes, Thomas F. Burke, Stephen Schultz, Robert W. Macon, Wilbur La Roe, Clerk and Registrar; John L. Lund, M.D., Health Officer; Samuel T. Frost and John H. Kerr, Inspectors.

Phillipsburg, Warren county; population 13,325. Members and officers—Joseph Pfeiffer, President; Alma Williston, M.D., P. Frank Hagerly, Francis Coyne, Michael T. Lynch, Daniel Ziegler, Frank Kneidler, Clerk and Registrar; Howard R. Carey, Inspector.

Plainfield, Union county; population 18,468. Members and officers—B. Van D. Hedges, M.D., President; F. W. Dunn, Chas H. Dunham, Wm. C. Kinney, T. S. Davis, M.D., Secretary; Miss H. O. Mattison, Registrar; L. R. Thurlow, Health Officer; John O'Brien, Jr., C. A. Lamont and Wm. Addis, Sr., Inspectors.

Rahway, Union county; population 8,649. Members and officers—Joseph G. Smith, President; Wm. H. Randolph, Moses Ritter, John T. Brickell, W. E. Cladek, M.D., Chas. H. Lambert, Clerk and Registrar; Fred W. Sell, M.D., Health Officer; Fred J. Mix, Inspector.

Salem, Salem county; population 6,443. Members and officers—R. M. A. Davis, M.D., President; Charles Markley, L. H. Hummel, M.D., A. D. Mitchell, Frank Grier, Warren T. Sparks, Clerk; Frank S. Harris, Registrar and Inspector.

Summit, Union county; population 6,845. Members and officers—W. H. Lawrence, Jr., M.D., President; James G. Ovens, T. H. Rockwell, M.D., Parker W. Page, M. J. Kenny, J. Edw. Rowe, M.D., Secretary, Registrar and Health Officer; Robert N. Hoyt, Sanitary Inspector; T. J. Scott, Plumbing Inspector.

***Trenton, Mercer county;** population 84,187. Members and officers—Thomas B. Holmes, Secretary and Registrar.

***Woodbury, Gloucester county;** population 4,560. Members and officers—Arthur Starr, Clerk.

BOROUGHES.

Allendale, Bergen county; population 762. Members and officers—W. E. Carver, President; M. A. Couch, J. M. Hamilton, J. W. Rudolph, Chas. D. Sturges, Clerk.

Allenhurst, Monmouth county; population 247. Members and officers—James M. Ralston, President; Geo. D. Morrow, T. C. Cottrell, Ira E. Whyte, H. W. Danby, G. B. Cade, Clerk and Registrar; James G. Havens, Inspector.

Allentown, Monmouth county; population 653. Members and officers—H. Emley, M.D., President; H. P. Johnson, M.D., Charles Spaulding, H. M. Anderson, M.D., Secretary; Wm. R. Forsyth, Registrar and Inspector.

Alpine, Bergen county; population 448. Members and officers—W. S. Opdyke, President; Douglass Green, Closter; John H. Conklin, Sylvanus Van Valen, L. H. Tavernier, Clerk and Registrar.

Andover, Sussex county; population 427. Members and officers—J. H. Clark, M.D., President; S. S. Wills, H. E. Wilson, Clerk; S. H. Willson, Registrar.

Atlantic Highlands, Monmouth county; population 1,480. Members and officers—B. E. Failing, M.D., President; Lewis B. Morris, Edward Oakes, Jos. Trunen, Frank W. Reiter, W. T. Franklin, Clerk and Registrar; John R. Snediker, Inspector.

Audubon, Camden county; population 525. Members and officers—Frederick Wiechard, President; John Yardley, James Caskey, Robert Morrell, Harry Mackintosh, Howard Callingham, Clerk and Registrar.

***Avalon, Cape May county;** population 86. Members and officers—Charles B. Kates, Clerk and Registrar.

*No report received.

Avon, Monmouth county; population 328. Members and officers—Alexander Mullen, President; Frank Soifield, Frank Bodine, H. M. Dolan, Clerk and Registrar; E. Stanton, Inspector.

***Barnegat City, Ocean county;** population 78. Members and officers—J. C. Woodmansee, Clerk.

***Bay Head, Ocean county;** population 278. Members and officers—Julius Foster, Assessor.

Beach Haven, Ocean county; population 301. Members and officers—Charles W. Beck, President; Herbert Willis, M.D., John T. Fox, Thomas E. Gifford, Thomas A. Gavin, Clerk, Registrar and Inspector.

Belmar, Monmouth county; population, 1,089. Members and officers—Harry E. Snow, M.D., President; William M. Bergen, Wallace G. Hooper, Wilmer H. Hoffman, Isband Dunfee, J. Edward Lawrence, Chas. O. Hudnut, Clerk and Registrar; Alfred J. Wildman, Inspector.

Bergenfield, Bergen county; population 1,095. Members and officers—Levi L. Holmes, President; W. Banta Van Saun, William B. May, Mervyn Pratt, John J. Huyler, Secretary and Registrar.

***Bloomsbury, Hunterdon county;** population —. Members and officers—W. A. Rutt, Secretary.

Bogota, Bergen county; population 522. Members and officers—A. B. Bogert, President; John McNaughton, Henry Wehrnaker, Frank R. Wesley, E. H. Stedman, John F. Hill, Clerk; H. P. Ross, Registrar; Rob't Ballagh, Plumbing Inspector, Hackensack.

Bound Brook, Somerset county; population 3,389. Members and officers—J. T. Robinson, M.D., President; C. R. P. Fisher, M.D., George Stryker, W. S. Negus, Secretary; Charles McNabb, Registrar and Inspector.

***Bradley Beach, Monmouth county;** population 1,037. Members and officers—C. F. Burney, Clerk and Registrar.

Branchville, Sussex county; population 591. Members and officers—Edward A. Ayers, M.D., President; H. E. Riddel, M.D., E. B. Whitney, H. O. Beemer, E. A. Shay, Secretary and Registrar.

***Brigantine, Atlantic county;** population 95. Members and officers—E. R. Smith, Registrar.

***Butler, Morris county;** population 2,188. Members and officers—Samuel K. Owen, Secretary.

Caldwell, Essex county; population 1,670. Members and officers—William H. Van Wart, President; William W. Wright, Edwin E. Bond, M.D., E. J. Chapin, Isaac E. Baldwin, Clerk; John J. Van Order, Registrar; C. H. Wells, Inspector, Montclair.

Cape May Point, Cape May county; population —. Members and officers—Ammon Wright, President; Chas. Mackley, T. Hazzard, Albert Schellinger, Frank R. Bowne, Clerk and Registrar; V. M. D. Marcy, M.D., Inspector.

Carlstadt, Bergen county; population 3,100. Members and officers—Otto Landwehr, President; Chas. Lonz, John Whitehead, Ernest F. Sickenberger, M.D., Rudolph Rayner, Clerk and Registrar; Harry Link, Inspector.

Chatham, Morris county; population 1,554. Members and officers—Joseph E. Pollard, M.D., President; Walter V. Sayre, H. C. McBraier, Walter A. Jaquith, M.D., David H. Crawford, Clerk and Registrar; John J. McCormack, Inspector.

*No report received.

Chesilhurst, Camden county; population 258. Members and officers—John Graham, President; Harry Horton, Luther H. Wilson, Louis Salmon, Bernard Weigand, J. T. Humphries, Clerk and Registrar; A. L. Curado, Inspector.

***Clayton, Gloucester county;** population 1,864. Members and officers—C. F. Fisler, M.D., Registrar.

Cliffside Park, Bergen county; population 2,128. Members and officers—E. C. Hellstern, M.D., President, Hudson Heights; J. J. Cohn, Grantwood; J. M. Scott, Grantwood; D. P. Woods, Grantwood; O. R. McElwain, Clerk and Registrar, Cliffside.

Clinton, Hunterdon county; population 830. Members and officers—H. S. Leatherman, President; Wm. Knight, J. S. Mulligan, Wm. Carpenter, Geo. A. Hart, Clerk and Registrar.

***Closter, Bergen county;** population 1,272. Members and officers—Alfred Anderson, Secretary and Registrar.

Collingswood, Camden county; population 2,588. Members and officers—Henry Bennett, President; Henry Bemer, C. W. Bachelor, H. L. Bealy, Chas. Kloss, Jr., A. B. Gribbon, C. C. Powell, Clerk and Registrar; E. S. Sheldon, M.D., E. B. Rogers, M.D., and E. S. Simpson, Inspectors.

Cresskill, Bergen county; population 505. Members and officers—Cornelius A. Lewis, President; Paul O. E. Ruhl, Philip F. Nestel, John Ferdon, Secretary; George Y. Allaire, Registrar; J. B. W. Lansing, M.D., Inspector, Tenafly.

***Deal, Monmouth county;** population 164. Members and officers—Frederick C. Weber, Clerk.

Delford, Bergen county; population 841. Members and officers—R. W. Cooper, President, New Milford; J. J. Van Wagoner, Oradell; W. E. Williams, Oradell; Geo. F. Moore, Clerk, Oradell; H. A. Bingham, Registrar, Oradell; S. A. Vandewater, M.D., Inspector, Oradell.

Demarest, Bergen county; population 480. Members and officers—M. J. Bogert, President; John Purcell, W. J. Mosier, George V. Morton, A. Machold, Clerk and Registrar.

Dumont, Bergen county; population 913. Members and officers—R. D. Van Buskirk, President; Peter E. Moore, Frank Hill, Clerk and Registrar; J. E. Pratt, M.D., Inspector.

Dunellen, Middlesex county; population 1,517. Members and officers—Edw. Pennock, President; L. T. Churchhill, Thos. H. Platt, Jr., Thomas J. Hogan, Clerk; C. A. Corriell, Sr., Registrar; C. Wesley Blaine, Inspector.

***East Newark, Hudson county;** population 2,828. Members and officers—John A. O'Donnell, Secretary.

East Rutherford, Bergen county; population 3,165. Members and officers—George Sanders, President; Wm. T. Seeger, Oscar Fortenbach, Martin Messman, Henry J. Harms, Secretary and Registrar; W. E. Ogden, M.D., Health Officer; Frank Hollerbach, Inspector.

Edgewater, Bergen county; population 1,392. Members and officers—George W. Allison, President and Inspector; John E. Mulligan, Edward M. Fitzgerald, Arthur J. Carleton, Clerk and Registrar.

Elmer, Salem county; population 1,219. Members and officers—J. V. Conover, M.D., President; Isaac B. Reeve, Joseph Leigh, Charles H. Morris, P. Mason Fox, Clerk; Hiram Van Meter, Registrar.

*No report received.

Emerson, Bergen county; population ——. Members and officers—F. Adolph Maul, President; August Block, Diedrich Wulff, James Hartmann, Harry I. Angell, Registrar.

Englewood Cliffs, Bergen county; population 266. Members and officers—Wm. Wuersch, President; August Herrmann, Daniel Westerveit, Arnold M. Probst, Emil Vyborny, Registrar; Jos. Huger, M.D., Inspector, Fort Lee.

Englishtown, Monmouth county; population 416. Members and officers—Sam'l B. Ely, President; A. T. Vandoren, S. S. Johnson, Clerk; Richard Petty, Inspector.

Essex Fells, Essex county; population 393. Members and officers—C. G. White, President; W. F. Oakes, C. E. Leach, Jas. Sprigg, D. M. Wootton, Clerk and Registrar; Peter Kent, Inspector.

Fairview, Bergen county; population 1,693. Members and officers—Geo. Ellenbeck, President, Cliffside; J. S. Tracy, Fairview; Wm. G. Wingerath, Fairview; Owen O'Conner, Cliffside; G. A. Hellstern, Clerk and Registrar, Fairview.

Fanwood, Union county; population 445. Members and officers—F. W. Westcott, M.D., President; A. D. Beeken, C. R. Vincent, Philip Nieder, S. W. McAneny, Secretary and Registrar.

Farmingdale, Monmouth county; population 399. Members and officers—Wm. R. Kinmouth, M.D., President and Inspector; Jacob Lutz, Levi W. Farry, Frank P. Van Note, Clerk and Registrar.

Fieldsboro, Burlington county; population 451. Members and officers—Robert Bignel, President; Jas. Hesley, Reuben Parker, Walter Griffith, W. H. Erickson, Clerk; Geo. W. Carman, Registrar.

***Flemington, Hunterdon county;** population ——. Members and officers—John H. Shrope, Secretary.

Florham Park, Morris county; population 803. Members and officers—C. H. Genung, President; Larue Ten Eyck, Frank Budd, L. C. Brown, Clerk; Van Sant Tunis, Registrar; N. A. Felch, Inspector.

Folsom, Atlantic county; population ——. Members and officers—Jacob Plazer, Jr., President; Henry Roller, Jacob O. Roller, Joe Linback, Louis Schulze, Registrar.

Fort Lee, Bergen county; population 3,433. Members and officers—R. Burton Opitz, M.D., President, Palisade; David E. King, Coytesville; Peter Saitta, Fort Lee; Samuel J. Corker, Fort Lee; Jerome Sardi, Fort Lee; Rob't H. Morrow, Clerk and Registrar, Coytesville; Max Wyler, M.D., Inspector, Fort Lee.

***Frenchtown, Hunterdon county;** population 975. Members and officers—Chas. B. Salter, Clerk.

Garfield, Bergen county; population 5,092. Members and officers—Miles C. Whitehead, President; Ernest B. Dahnert, Max Walters, Richard J. O'Brien, Louis Heinzman, Clerk and Registrar; Oepke Bonnema, M. D. Karl and John H. Bakelaar, Inspectors.

Garwood, Union county; population 564. Members and officers—B. M. Gallaway, President; J. M. Colwell, Chas. Schoenwisner, H. S. Manning, Clerk and Registrar; Wm. Auger, Inspector.

***Glen Ridge, Essex county;** population 2,062. Members and officers—H. K. Benson, Secretary.

*No report received.

Glen Rock, Bergen county; population 778. Members and officers—C. M. Viel, President; R. E. Bassett, W. Griffiths, A. C. Belknap, P. H. Stun, J. B. Christopher, Clerk and Registrar; C. W. Harreys, M.D., Inspector, Ridgewood.

Haddonfield, Camden county; population 3,466. Members and officers—Charles H. Hillman, President; Alfred J. Shuster, Stanley Rusk, Herbert Shivers, Wm. H. Harrison, Clerk and Registrar; Edw. F. Magill, Inspector.

Haddon Heights, Camden county; population 654. Members and officers—Geo. W. Waters, M.D., President; John Reeves, Wm. M. Pollock, Clerk; E. N. C. Davis, Registrar, E. R. Jenks, Inspector.

*Haledon, Passaic county; population —. Members and officers—Edward Pries, Clerk and Registrar.

Hampton, Hunterdon county; population —. Members and officers—W. Frank Fritts, President; James Splane, Robert C. Thompson, Thomas J. Raber, Clerk and Registrar; Theo. B. Fulper, M.D., Inspector.

Harrington Park, Bergen county; population 283. Members and officers—A. E. Taylor, President; Carl P. Johnson, Gustav Osterberg, Aubrey Ruggles, Clerk and Registrar; C. A. Richardson, M.D., Inspector, Closter.

Hasbrouck Heights, Bergen county; population 1,650. Members and officers—H. B. Vannote, President; John G. Martin, S. V. Morris, M.D., E. L. Tenny, W. J. Schweickert, Clerk and Registrar.

Haworth, Bergen county; population 400. Members and officers—Chas. Bruning, President; A. Martinot, E. T. Hendrickson, M. Dieck, A. W. Ward, M.D., Henry F. Copeland, Clerk and Registrar.

Hawthorne, Passaic county; population 2,570. Members and officers—Paul A. Wieland, President; Bruce Beveridge, F. D. Garrison, W. E. Thompson, J. G. Whittaker, Clerk; W. E. Thompson, Registrar; S. Utter, M.D., Inspector, Paterson.

Helmetta, Middlesex county; population 575. Members and officers—James Deming, President; Clinton M. Clemons, John Hysore, Andrew York, Rob't J. Franklin, Clerk; Edward M. Clemons, Registrar; J. C. Shinn, M.D., Inspector, Jamesburg.

High Bridge, Hunterdon county; population 1,382. Members and officers—P. H. Murray, President; Samuel Tait, E. D. Trimmer, John L. Phillips, Clerk; P. H. Murray, Registrar; W. C. Alpaugh, M.D., Inspector.

Highland Park, Middlesex county; population 714. Members and officers—A. P. Daire, President; Peter Senker, A. W. Mueller, C. Malmross, Sr., Wm. H. Holman, Clerk and Registrar; I. V. Cronk, M. D., and T. G. Lucas, Inspectors.

Highlands, Monmouth county; population 1,275. Members and officers—Demerest T. Herbert, President; Fletcher Haggaman, Harry Sculthroe, Samuel Strauss, William Guy, Calvin Parker, Clerk and Registrar; William Lane, Inspector; John L. Opfermann, M.D., Inspector.

*Hightstown, Mercer county; population 2,093. Members and officers—A. V. Pierson, Clerk.

*Hohokus, Bergen county; population —. Members and officers—John De Vore, Secretary.

*No report received.

*Holly Beach, Cape May county; population 1,327. Members and officers—Forest B. Long, Clerk and Registrar.

Hopatcong, Sussex county; population 125. Members and officers—Lewis S. Pilcher, M.D., President; John Aldred, Edward Epstean, Thos. B. Atterbury, Theo. A. K. Gessler, Clerk and Registrar; Harold D. Moore, Inspector; all of Landing.

Hopewell, Mercer county; population 984. Members and officers—Rob't P. Miller, M.D., President; John H. Merz, Jos. B. Hill, Wm. H. Hart, Robert Zulauf, Clerk and Registrar.

*Island Heights, Ocean county.

*Jamesburg, Middlesex county; population —.

Kenilworth, Union county; population —. Members and officers—Frank J. Hiller, President; Ernest W. Dellar, E. F. Stevens, C. C. Wilbur, Wm. E. C. Antrobus, Clerk.

Lavalette, Ocean county; population 22. Members and officers—William R. Taylor, President and Secretary; N. Joseph Englebert, Joseph Patterson.

Leonia, Bergen county; population 1,041. Members and officers—Henry R. Goesser, President; Fred'k Ellerbrook, Chas. W. Mooney, Arthur D. Bogert, J. T. Wyckoff, H. M. Thompson, Clerk and Registrar.

Linden, Union county; population 403. Members and officers—H. B. Hardenburg, President; Wm. McDonagh, Philetus Smith, H. L. Browning, Jr., John F. Watson, J. L. Neubauer, Samuel Gourley, Jr., Clarence H. Smith, Clerk and Registrar; Wm. H. Donaldson, Inspector.

*Linwood, Atlantic county; population 503. Members and officers—James Farish, Secretary and Registrar.

Little Ferry, Bergen county; population 1,772. Members and officers—Thomas Stiger, President; William H. Sall, Adam Holz, Louis Brauer, August Heckel, Louis Brauer, Clerk and Registrar; Adam Holz, Inspector.

Lodi, Bergen county; population 2,793. Members and officers—Ernest L. Rumsey, President; John W. Lane, August R. Hunter, Peter De Vries, Jacob Van Hook, Clerk and Registrar; Henry H. Brevoort, M.D., Inspector; Tunis Looy, Plumbing Inspector.

*Longport, Atlantic county; population 133. Members and officers—E. Fullerton Cook, Clerk and Registrar.

Madison, Morris county; population 4,115. Members and officers—Alfred G. Evens, President; Edward P. Holden, F. H. Seward, M.D., J. J. C. Humbert, W. H. Barton, S. Fred Burnet, Clerk, Registrar and Inspector.

Manasquan, Monmouth county; population 1,636. Members and officers—R. B. Campbell, William Thorp, Alonzo Mount, Robert Marks, Registrar; R. B. Campbell, Inspector.

*Margate City, Atlantic county; population —. Members and officers—Anthony Gertzen, Jr., President.

Matawan, Monmouth county; population 1,479. Members and officers—Wm. Hardwick, President; A. J. Jackson, M.D., Isaac T. Rue, George W. Parker, John F. Lisk, Bart Tice, Wm. Rodgers, Clerk, Registrar and Inspector.

*No report received.

Maywood, Bergen county; population 687. Members and officers—Henry Heck, President; Gustav Berroyer, John M. Masters, Frederick Schwere, John W. Larbig, G. A. Trealore, G. M. Fetzer, Clerk and Registrar.

*Mendham, Morris county; population —. Members and officers.

Merchantville, Camden county; population 1,632. Members and officers—J. E. Yankirk, J. V. Garrison, A. A. Moser, Joseph Lawrence, M.D., W. B. Stewart, Clerk and Registrar, Wm. Lindeman, Inspector.

*Metuchen, Middlesex county; population 1,907. Members and officers—H. Gross, M.D., Secretary.

Midland Park, Bergen county; population 1,617. Members and officers—C. P. Morgan, President; J. M. Blauvelt, Chas. B. Williams, Chas. R. Mastin, William Ryans, Clerk and Registrar, Wortendyke; Joseph Payne, M.D., Inspector.

Millstone, Somerset county; population 156. Members and officers—S. O. B. Taylor, M.D., President and Inspector; James H. Hagaman, William C. Kitchen, William P. Bainbridge, William H. Polhemus, Clerk; E. M. Davis, Registrar.

Milltown, Middlesex county; population 1,210. Members and officers—Wm. Kuhlthian, President; Chas. Richter, John Dow, Adam Wagner, J. Milton Brindle, Clerk; N. Nes Forney, M.D., Inspector.

*Monmouth Beach, Monmouth county; population —.

Montvale, Bergen county; population 502. Members and officers—J. E. Thier, President; Daniel Atkins, Rudolph Ludwig, G. L. Ansel, Pearl River; John B. Hering, Clerk and Registrar.

Mount Arlington, Morris county; population 250. Members and officers—Richard J. Chaplin, President; Freeman H. Tappan, Frank L. Schafer, Phillip S. Dyer, C. D. Gordon, M.D., James Levie, Clerk.

Mountainside, Union county; population 314. Members and officers—Thomas J. Kitts, President; Alfred E. Pearsall, Aaron B. Hegeman, Robert Laing, Clerk and Registrar, August Schwartz, Inspector.

Mount Tabor, Morris county; population —. Members and officers—Frederick Schille, President; Geo. W. Earle, Jos. H. Barritt, R. A. Lawless, H. A. Chamberlain, Clerk.

National Park, Gloucester county; population 160. Members and officers—Pennington B. Milligan, President; Oscar H. Duer, Adam Tuttle, Ruth Clement, M.D., Wm. E. Beers, Clerk and Registrar.

*Neptune City, Monmouth county; population 808. Members and officers—J. H. Leming, Clerk and Registrar, Avon.

*Netcong, Morris county; population 1,024. Members and officers—Chas. W. Eaton, Secretary.

New Providence, Union county; population 754. Members and officers—Edward T. Nelson, President; Albert E. Jackson, Frederick Wirsching, Reuben Young, West Summit; William Woodruff, Clerk and Registrar.

*North Arlington, Bergen county; population —. Members and officers—H. C. Bayliss, Registrar.

North Caldwell, Essex county; population 483. Members and officers—William Kussmaul, President; Ralph C. Bach, William Little, Carl Fischer, Sherman Paddock, Clerk; Frank H. Baldwin, Registrar; all of Caldwell R. F. D.

*No report received.

Northfield City, Atlantic county; population 688. Members and officers—William G. Oxley, President; Joseph Lake, Eugene Somers, T. L. McConnell, Smith's Landing; E. C. Duberson, Clerk and Registrar.

North Haledon, Passaic county; population 697. Members and officers—William Clowes, President; William Ellis, Charles Ellis, Edward Watson, Joseph Graham, Thomas F. Lord, Emil Miller, James H. Clowes, Clerk and Registrar; A. A. Lydecker, M.D., Inspector, Haledon.

North Plainfield, Somerset county; population 5,616. Members and officers—J. O. Osgood, President; A. E. Kenny, A. E. Giddes, C. H. Rugg, A. H. Dundon, M.D., Clerk and Registrar; J. L. Oliff, Inspector.

*North Spring Lake, Monmouth county; population —. Members and officers—F. M. Hunt, Registrar, Spring Lake Beach.

North Wildwood, Cape May county; population —. Members and officers—Chas. G. Glenn, Secretary, Ottens P. O.

Norwood, Bergen county; population 432. Members and officers—Henry Elling, President, J. S. Wood, Andrew Portz, William Harra, John Gates, Jr., Clerk and Registrar.

Nutley, Essex county; population 4,556. Members and officers—J. L. Miller, President; R. W. Booth, E. P. Montague, Wm. De Vansey, Geo. Hawksworth, Clerk and Registrar; E. E. Farth, Inspector.

Oakland, Bergen county; population 586. Members and officers—Bernard Troxler, President; S. B. Cunningham, C. H. Sheffield, Allen S. Page, Secretary; R. E. W. Hamilton, Inspector.

Oaklyn, Camden county; population 454. Members and officers—John F. Johnson, President; Frank Ashdale, William Link, George Bossler, Richard Early, Emil C. Hessert, Clerk and Registrar.

*Ocean City, Cape May county; population 1,835. Members and officers—T. Lee Adams, Clerk, Registrar and Health Officer.

Ocean Grove, Monmouth county; population —. Members and officers. A. E. Ballard, President; Henry Wheeler, W. H. Wardell, E. N. Cole, H. B. Alday, M.D., Secretary; J. H. Alday, Inspector.

Old Tappan, Bergen county; population 280. Members and officers—Jacob Z. Bogert, President; James J. O'Connor, Wm. Blauvelt, C. R. Gifford, Charles De Wolf, Clerk and Registrar, Westwood, R. F. D. No. 1.

Palisades Park, Bergen county; population 911. Members and officers—Samuel Bryant, President; J. S. Van Dyke, M.D., Eben Valentine, Rollo Steenland, Wm. Sehner, W. G. Stevens, Secretary and Registrar.

Park Ridge, Bergen county; population 1,189. Members and officers—H. C. Neer, M.D., President; J. A. Moenig, M.D., H. Strohsahl, M. J. Verbyst, Thos. G. Forbes, Clerk and Registrar; W. D. Woodley, Inspector.

Paulsboro, Gloucester county; population 2,269. Members and officers—William Gainer, President; John Carter, George West, Rufus Murray, Jacob Ballinger, Clerk and Registrar; R. H. Reeves, Inspector.

Pemberton, Burlington county; population 821. Members and officers—A. J. Morris, President; J. G. Montgomery, J. Newton Clevenger, Jos. O. Jones, John B. Nutt, J. J. Brander, Clerk and Registrar.

Pennington, Mercer county; population 768. Members and officers—P. A. Caughell, President; Geo. W. Scarborough, Geo. W. Snook, Henry L. Laning, Clerk; Frank A. Blackwell, Inspector.

*Pennsgrove, Salem county; population 2,062. Members and officers—C. P. Lummis, M.D., Secretary.

*No report received.

*Pitman Grove, Gloucester county; population —. Members and officers—Harry Rulon, Clerk.

Pleasantville, Atlantic county; population 2,824. Members and officers—H. C. Thomas, President; C. M. Shewell, G. W. Braun, John Stephenson, Wilbur Reed, Thomas F. Crawford, Clerk and Registrar.

Point Pleasant, Ocean county; population 977. Members and officers—Chas W. Dampman, President; Joseph Elberson, Jr., Jas. E. Harvey, Clerk and Registrar; Harry C. Shoemaker, Jr., Inspector.

*Pompton Lakes, Passaic county; population 1,013. Members and officers—Horace L. Wells, Secretary and Registrar.

*Port Republic City, Atlantic county; population 451. Members and officers—John W. Barton, Secretary.

*Princeton, Mercer county; population 6,029. Members and officers—W. B. Howe, Clerk.

Prospect Park, Passaic county; population 1,911. Members and officers—Jacob Doele, President; Alfred McAuley, John Crawford, George Boer, Lambertus Tonio, Clerk and Registrar; A. A. Lydecker, M.D., Inspector.

*Ramsey, Bergen county; population —. Members and officers—Daniel S. Wanamaker, Secretary.

Raritan, Somerset county; population 3,944. Members and officers—B. F. Seaman, M.D., President; Wm. Wahlton, John Fathy, J. J. Bourke, Clerk and Registrar; George A. West, Inspector.

Ridgefield, Bergen county; population 745. Members and officers—Jas. J. Conor, President; John Banta, W. Proctor, W. S. Watson, Rob't K. Dyas, Clerk and Registrar; John Banta, Inspector.

*Riverside, Bergen county; population 670. Members and officers—W. E. Martin, Clerk, River Edge.

Riverton, Burlington county; population 1,557. Members and officers—H. P. Wyman, M.D., President; Charles A. Wright, E. C. Stoughton, P. Boysen, M.D., John J. Reese, Clerk; Charles G. Davis, Registrar; Charles S. Mills, M.D., Inspector.

*Rockaway, Morris county; population 1,585. Members and officers—John H. Miller, Borough Clerk.

Rocky Hill, Somerset county; population 479. Members and officers—Wm. N. Stults, President; H. H. Mount, A. E. Haines, M. Reeve, M.D., C. R. Baldwin, Clerk and Registrar.

Roosevelt, Middlesex county; population —. Members and officers—Thomas Devereux, President; John Alban, John W. Peck, R. Joseph Murphy, Clerk; Cornelius C. Sheridan, Registrar; Joseph Wantoch, M.D., Inspector.

Roselle, Union county; population 2,142. Members and officers—John I. Howe, President; A. A. Pope, H. C. Pierson, M.D., G. W. Strickland, M.D., C. P. Higgins, E. S. Waller, J. D. Cooper, Clerk and Registrar; Wm. Morris, Inspector.

Roselle Park, Union county; population 2,236. Members and officers—S. W. Kingsland, President; H. M. Bangert, G. W. Dennick, Louis Eberle, Wm. Morris, Clerk, Registrar and Inspector.

*Rumson, Monmouth county; population —. Members and officers—Wm. Bruce, Secretary, Oceanic.

*No report received.

Rutherford, Bergen county; population 5,218. Members and officers—Chas. Calhoun, M.D., President; Chas. R. Hunt, Geo. F. Schermerhorn, F. W. Fleming, F. F. Fritts, F. M. Buckles, Clerk and Member; Geo. K. Thomas, Inspector.

Saddle River, Bergen county; population 474. Members and officers—Robert T. Wilson, President; R. A. Adams, Hohokus; John G. Ackerman, J. W. Woodruff, James L. Ackerman, Clerk; A. Van Nostrand, Inspector, Westwood.

Seabright, Monmouth county; population 1,166. Members and officers—Chauncy Slattin, President; L. J. Fitcher, Clarence Walling, J. P. Armstrong, Clerk and Registrar; C. H. Megill, Inspector.

Sea Isle City, Cape May county; population 432. Members and officers—James F. Eustace, President; Thos. Mitchell, Howard G. Stimus, M.D., John M. Ross, Clerk; A. S. Steelman, Registrar.

Seaside Park, Ocean county; population 92. Members and officers—Chas. S. Harker, President; Chas. B. Coles, L. J. Stone, Henry Clayton, G. H. Thatcher, Clerk and Registrar.

Secaucus, Hudson county; population 3,191. Members and officers—George Fox, President; Henry Glendmeyer, Andrew Horning, Lewis G. Asmussen, Henry Leib, Frank E. Van Dyne, Clerk.

Somers Point, Atlantic county; population 431. Members and officers—William Himebach, President; Lewis Mason, David Robinson, Wm. Thompson, T. George Middleton, Clerk and Registrar.

Somerville, Somerset county; population 4,782. Members and officers—Aaron L. Stillwell, M.D., President; Thomas H. Flynn, M.D., John B. Osbourn, William V. Steele, William R. Sutphen, Clerk and Registrar; George D. Totten, Inspector.

South Amboy, Middlesex county; population 6,258. Members and officers—E. J. O'Connor, President; Chas. S. Buckelew, A. J. Miller, Wm. Woodward, Jr., F. E. DeGraw, Clerk; Wm. Nagle, Jr., Registrar; Wm. Parisen, Inspector.

*South Bound Brook, Somerset county; population —. Members and officers—James P. Armstrong, Clerk and Registrar.

*South Cape May, Cape May county; population 5. Members and officers—James Ritchie, Mayor.

South River, Middlesex county; population 3,585. Members and officers—P. W. Radcliffe, President; Charles Anderson, Asher W. Bissett, Jesse Selover, Clerk and Inspector; J. Conover Bowne, Registrar.

*Spotswood, Middlesex county; population —.

Spring Lake, Monmouth county; population 1,039. Members and officers—S. K. Ringert, President; E. Remsen, J. G. Newman, D. H. Hills, Clerk and Registrar; E. Remsen, Inspector; all of Spring Lake Beach.

Stanhope, Sussex county; population 887. Members and officers—W. K. Salmon, President; John Wills, L. K. Wood, Robert S. Slaght, J. J. Shaw, Clerk and Inspector.

Stockton, Hunterdon county; population 588. Members and officers—Horace M. Reading, President; Peter A. Shepherd, Godfrey C. Stout, Charles A. Smith, John S. Wilson, Clerk; Philip E. Rockafellow, Registrar.

Sussex, Sussex county; population 1,318. Members and officers—H. D. Van Gaasbeek, M.D., President; John L. McCoy, M.D., S. F. Quince, H. E. Wells, Clerk and Registrar; Moses Green, Inspector.

*No report received.

Swedesboro, Gloucester county; population 1,484. Members and officers—J. H. Halsey, M.D., President; Charles Lecroy, John G. Costello, W. H. Rieger, Clerk and Registrar; T. B. Turner, M.D., Inspector.

Tenafly, Bergen county; population 2,142. Members and officers—J. J. Haring, President; R. Delehanty, Herman Hensel, J. M. MacKellar, M.D., Clerk; J. B. W. Lansing, M.D., Registrar and Inspector.

Totowa, Passaic county; population 738. Members and officers—J. Rauppi, President; J. Boyle, Eugene Luttinger, Wm. Atkins, J. Hartfield, Assessor.

*Tuckerton, Ocean county; population 1,332. Members and officers—J. F. Mathis, Secretary.

Upper Saddle River, Bergen county; population 324. Members and officers—James D. Carlough, President; Edgar M. Terhune, August Weiss, Carl Ephsen, Henry zabriskie, Clerk and Registrar; all of Allendale, R. F. D.

*Ventnor City, Atlantic county; population 116. Members and officers—James G. Scull, Secretary.

Verona, Essex county; population —. Members and officers—W. Pitt Rich, President; W. J. Whittaker, Wm. A. Schneider, Judson W. Parker, Louis C. Miller, Clerk; Chas. S. Simonson, Registrar; Chester H. Wells, Inspector.

Vineland, Cumberland county; population 4,593. Members and officers—W. F. Gilder, President; J. C. Barretta, W. P. Turner, F. Koetz, Geo. W. Lamb, Clerk and Registrar; J. H. Winslow, M.D., Health Officer; W. H. Blake and W. J. Large, Inspectors.

*Wallington, Bergen county; population 2,475. Members and officers—James Brennan, Secretary and Registrar.

Washington, Warren county; population 3,431. Members and officers—F. P. McKinstry, M.D., President; Chas. M. Williams, M.D., F. J. La Riew, M.D., Daniel Wyckoff, Henry Johnston, J. Martin Kase, A. J. Craft, Secretary and Registrar; Geo. C. Losey, Inspector.

Wenonah, Gloucester county; population 569. Members and officers—William C. Cattell, President; John Colbert, George L. Dilks, Hamilton S. Turner, Jesse W. English, Clerk and Registrar; Joseph S. Chew, Inspector.

West Caldwell, Essex county; population 490. Members and officers—George M. Canfield, President; Marcus S. Crane, Joseph Beach, Frederick H. Baldwin, Theodore M. Gray, Clerk; E. E. Peck, M.D., Inspector.

West Cape May, Cape May county; population 902. Members and officers—W. H. Smith, President; Jacob Smallwood, Daniel E. Stevens, Henry H. Eldredge, F. R. Hughes, M.D., Clerk; Theo. W. Reeves, Registrar.

*West Long Branch, Monmouth county; population —. Members and officers—A. D. Van Note, Clerk.

Westwood, Bergen county; population 1,044. Members and officers—G. M. Ottignon, President; Otto Pollister, G. W. Scott, B. D. Stone, J. J. Blauvelt, T. P. Kidd, N. Cleveland, Clerk and Registrar.

*Wharton, Morris county; population 2,285. Members and officers—Fred Rogers, Clerk.

*No report received.

Wildwood, Cape May county; population 500. Members and officers—Henry Coombs, President; H. H. Tomlin, M.D., John Daggan, Curtis T. Baker, Otto C. Koeneke, Clerk and Registrar; Harry C. Hender, Inspector.

*Wildwood Crest, Cape May county; population —.

Woodbine, Cape May county; population 1,850. Members and officers—R. Zellemeier, President; Barnet Breslow, M. L. Greenberg, Nathan Lipschus, Joseph Jaffe, M.D., S. H. Goldberg, Clerk and Registrar; J. P. Bertram, M.D., Inspector.

Woodcliff, Bergen county; population 477. Members and officers—William English, President, Woodcliff Lake; John H. Wortendyke, Woodcliff Lake; Augustus Cleveland, Woodcliff Lake; David H. Tice, Allendale; Peter E. Van Riper, Allendale; G. J. Wortendyke, Clerk and Registrar, Allendale, R. F. D. No. 2.

Wood Lynne, Camden county; population 388. Members and officers—E. M. Deckman, President; Claude N. Davis, C. P. Gordon, Christian Dupont, Secretary and Registrar; J. M. Albert, Inspector.

Wood Ridge, Bergen county; population 721. Members and officers—Malachai J. Kenny, President; Julius Doerfingler, Seymore B. Ames, John O'Brien, Joseph F. Beck, Clerk and Registrar.

Woodstown, Salem county; population 1,500. Members and officers—I. B. Coles, President; H. V. Foster, Wm. Coleman, R. E. Corson, E. P. McGeorge, M.D., Wm. B. Foster, Clerk and Registrar; F. P. Vanlier, Inspector.

TOWNS.

Absecon, Atlantic county; population 616. Members and officers—Lewis G. Bonfield, President; A. J. Craven, Henry Alexander, Samuel Johnson, Clerk and Registrar; C. C. Allen, Inspector.

Bloomfield, Essex county; population 11,668. Members and officers—James J. Thompson, President; Wm. Ritscher, Seymour P. Gilbert, John Moore, M.D., Jacob Wolfe, M.D., Joseph C. Saile, M.D., Clerk, Registrar and Inspector.

*Boonton, Morris county; population 3,935. Members and officers—Frank N. Banta, Clerk and Registrar.

Freehold, Monmouth county; population 3,064. Members and officers—E. D. Clayton, President; Harvey S. Brown, M.D., Alonzo White, S. L. Bennett, W. A. Barkalow, C. V. Du Bois, Alonzo Brower, Clerk, Registrar and Inspector.

Guttenberg, Hudson county; population 4,563. Members and officers—Philip Martin, President; Joseph Hurley, Max Rosivatch, Wm. Baudendistel, August C. Brunckhorst, W. G. Langenhop, Clerk.

Hackettstown, Warren county; population 2,594. Members and officers—Frank M. Cook, President; A. C. Van Syckle, M.D., J. W. Curtis, James Tamblin, Jesse Smith, Thomas Nolan, A. G. Boettiger, Clerk and Registrar; R. G. Clark, Inspector.

Hammonton, Atlantic county; population 4,334. Members and officers—John A. Hoyle, President; John Walther, Clayton R. Scullen, R. G. Scudder, R. H. Sharpe, J. C. Bitler, M.D., Clerk and Registrar; Chas. Cunningham, M.D., Inspector.

*No report received.

Harrison, Hudson county; population 12,824. Members and officers—John T. Malone, President; Henry Allers, M.D., Nathaniel Comey, Joseph Lynch, Lawrence S. Fagan, Clerk and Registrar; John T. McClure, Inspector.

Irvington, Essex county; population 7,180. Members and officers—Jonah Hardgrove, President; Hugo Winkler, Julius Bartosch, Benjamin F. Camp, W. Gardner, Edwin Berry, Clerk; Joseph K. Clickenger, Inspector.

Kearny, Hudson county; population 13,601. Members and officers—Nevin Kennedy, President; Wm. P. Anderson, Chas. Schiller, Frank Odendahl, A. O. Borneman, John B. Thomson, Clerk; Rob't O. England, Registrar; Albert E. Geissler, Inspector.

Keypoint, Monmouth county; population 3,385. Members and officers—Gustave Maurer, President; S. Frank Mason, D. Edgar Roberts, M.D., William Degroff, Abram Huylar, Charles F. Tuthill, Clerk and Registrar; H. W. Harlman, M.D., Inspector.

Red Bank, Monmouth county; population 6,263. Members and officers—James McCaffrey, President; Biddle H. Garrison, M.D., Nicholas J. Wilson, Wm. P. Frey, Howard S. Higginson, Clerk and Registrar; Elwood Minugh, Inspector.

Town of Union, Hudson county; population 17,005. Members and officers—Charles F. Ruh, President; Chas. Steller, John Weil, Fred Zapp, Emil Maisner, M.D., Ervin Seitz, Richard Specker, Clerk; Grant P. Curtis, M.D., Inspector.

Westfield, Union county; population 5,265. Members and officers—Joseph B. Harrison, M.D., President; George Laird, M.D., George L. Delatour, Homer H. Butler, C. W. Harden, Clerk and Registrar; Andrew Carney, Jr., Inspector, North Plainfield.

West Hoboken, Hudson county; population 29,082. Members and officers—Henry Burstyn, President; Adolph O. Weisenburg, Luis Mene-gant, Albert Kielberg, Wm. Ziegler, Clerk and Plumbing Inspector; Frank A. Frederick, Sanitary Inspector.

West New York, Hudson county; population 7,196. Members and officers—F. A. Crawley, President; Jos. Lindner, F. Schneider, Harry Kuhlke, Clerk; Rudolf Kunze, Inspector.

West Orange, Essex county; population 7,872. Members and officers—John B. Lander, President; Joseph Flemming, Carl E. Stanton, Henry Femdt, Ditton Schroll, Jr., Clerk and Registrar; James M. Mayher, M.D., and Sam'l A. Muta, M.D., Inspectors.

VILLAGES.

Ridgefield Park, Bergen county; population —. Members and officers—John H. Ficken, President; E. J. Benson, Jos. Fletcher, Otto Rhamstrom, John Vetter, Howard B. Ficken, Clerk; Wm. H. Hunter, Registrar; C. A. Knox, M.D., and George F. Shafer, Inspectors.

Ridgewood, Bergen county; population 3,980. Members and officers—Edward T. White, President; Wm. L. Vroom, M.D., Cornelius A. De Mund, M.D., Wm. H. Moore, John T. Hanks, M.D., Clarence C. Demarest, Clerk; J. Blauvelt Hopper, Registrar; Geo. H. Soult, Inspector.

South Orange, Essex county; population 4,932. Members and officers—Mefford Runyon, M.D., President; Richard D. Freeman, M.D., Francis Spier, J. Budd Smith, Oscar Schoenherr, Edwin S. Allen, Secretary; A. C. Benedict, Registrar and Inspector.

TOWNSHIPS.

Acquackanonk, Passaic county; population 7,187. Members and officers—Richard Berry, President and Registrar, Clifton; Geo. F. Schmidt, Clifton; Eugene F. Piaget, Great Notch; Henry Frederick, Delawanna; Frederick Wusterbarth, Lake View; Frank Wilkinson, Clifton; Edo M. Yereance, Clerk, Clifton; Jas. F. Sutton, Inspector, Clifton.

Alexandria, Hunterdon county; population 1,007. Members and officers—Wm. V. Bloom, President, Little York; Walboro Martin, Mt. Pleasant; Jos. Hoff, Everittstown; John C. Wilson, Clerk, Everittstown; F. S. Grim, Inspector, Baptiststown.

Allamuchy, Warren county; population 571. Members and officers—Frank A. Heyder, President; Allamuchy; John A. Wilson, Jr., Allamuchy; Jerry Hendershot, Allamuchy; Benj. A. Hendershot, Clerk, Allamuchy; George A. Jilson, Registrar, Allamuchy; L. C. Osmun, M.D., Inspector, Hackettstown.

Alloway, Salem county; population 1,562. Members and officers—J. S. Watson, President, Yorktown; Jos. Garton, Cohansey; Chas. Timberman, Alloway; Warren L. Ewen, M.D., Alloway; William E. Simkins, Clerk and Registrar, Elmer, R. F. D.

*Andover, Sussex county; population 478. Members and officers—Wm. Iliff, Clerk, Lafayette.

*Atlantic, Monmouth county; population 1,355. Members and officers—J. H. Johnes, Clerk, Vanderberg.

*Bass River, Burlington county; population 728. Members and officers—Jos. B. Lamson, Clerk, New Gretna.

Bedminster, Somerset county; population 2,246. Members and officers—Charles Tiger, President, Peapack; Charles Wood, Pottersville; George E. Crater, Pottersville; M. C. Smalley, M.D., Gladstone; J. B. Beikman, M.D., Bedminster; C. R. Kay, M.D., Gladstone; John Bodine, Registrar, Gladstone.

Belleville, Essex county; population 7,632. Members and officers—H. B. Vail, M.D., President; C. L. Dennison, Geo. W. Stainiar, E. W. Bechtold, Frank Cadiz, Harry M. Fallows, Edward E. Mathes, Clerk; Eugene M. Gavey, Registrar; W. Brand Smith, Inspector.

Berkeley, Ocean county; population 558. Members and officers—Charles W. Ward, President, Bayville; William Britton, Jr., Bayville; Stout R. Johnson, Toms River; Marcus B. Allen, Clerk, Bayville; Devine Butler, Registrar, Bayville; R. L. Disbrow, M.D., Inspector, Toms River.

Berlin, Camden county; population —. Members and officers—Jesse C. S. Heiss, Sr., President, Berlin; J. F. Henderson, Berlin; Samuel Adams, West Berlin; H. F. Ottiger, Clerk and Registrar, Berlin; F. O. Stern, Inspector, Berlin.

Bernards, Somerset county; population 4,514. Members and officers—H. R. Kunhardt, President, Bernardsville; Vanclève Meeker, Bernardsville; John M. Holmes, Basking Ridge; James Bathgate, Jr., Bask-

ing Ridge; G. B. Schley, Jr., Far Hills; J. E. Bucto, Clerk and Registrar, Bernardsville; Josiah Meigh, M.D., Inspector, Bernardsville.

*Bethlehem, Hunterdon county; population 1,594. Members and officers—G. C. Lott, Clerk, Junction.

Beverly, Burlington county; population 2,181. Members and officers—George D. McIlvaine, President, Beverly; Frank H. Story, Delanco; Harry K. Cramp, Beverly; Jos. B. Carter, Clerk and Registrar, Delanco; H. K. Weiler, M.D., Inspector, Delanco.

Blairstown, Warren county; population 1,537. Members and officers—Theodore Daws, President, Blairstown; Isaiah Lance, Vail; Emmet J. Huff, Blairstown; Jos. A. Dugan, Clerk and Registrar, Vail; H. O. Carhart, M.D., Inspector, Blairstown.

Boonton, Morris county; population 343. Members and officers—Andrew Kincaid, Emmons Decker, Frank Bott, Edmund H. Stickle, Clerk and Registrar; all of Boonton, R. F. D. No. 2.

Bordentown, Burlington county; population 534. Members and officers—C. Mendanhal, M.D., President, Bordentown; Samuel Johnson, Bordentown; Harrison Chambers, Yardville; Hugh Le Jambre, M.D., Clerk and Inspector, Bordentown; Alexis Le Jambre, Registrar, Bordentown.

*Branchburg, Somerset county; population 979. Members and officers—Augustus McCullough, Registrar, North Branch Station.

*Brick, Ocean county; population 2,112. Members and officers—J. H. Harvey, Secretary and Registrar, Point Pleasant.

Bridgewater, Somerset county; population 962. Members and officers—Chas. F. Smith, President, Raritan; J. Albert Schneider, Martinville; Tunis Mulliner, Raritan; John Slattery, Clerk and Registrar, Raritan; Dr. Seaman, Inspector.

Buena Vista, Atlantic county; population 2,624. Members and officers—Alfred Pennock, Sr., President and Registrar, Vineland; Harry Brown, Newtonville; Frank Barsuglia, Vineland; Louis F. Canepa, Vineland; Douglas Reed, Clerk, Newfield.

Burlington, Burlington county; population 1,012. Members and officers—Harry H. Mattson, President; Ellis Parker, Frederick Shedaker, Thos. B. Gandy, Clerk, Registrar and Inspector; all of Burlington.

Byram, Sussex county; population 426. Members and officers—Jessie L. Rolesen, President, Andover; Hiram Stone, Andover; A. S. Cassidy, Waterloo; John N. Woolston, Clerk, Stanhope.

Caldwell, Essex county; population 644. Members and officers—Henry Myers, President; Edwin Sisco, Austin M. Speer, Edwin E. Peck, M.D., Theodore Vincent, Clerk, Caldwell.

Centre, Camden county; population 2,651. Members and officers—Herbert K. Dobbs, President, Mt. Ephraim; Sewall H. Hodges, Lawnside; Frank M. Lapierre, Magnolia; Leslie C. Lyon, M.D., Magnolia; John H. Jackson, Clerk and Registrar, Magnolia.

Chatham, Morris county; population 629. Members and officers—E. W. Blazier, President, Green Village; Louis A. Noe, Madison; Charles A. Johnson, Chatham; J. Herbert Bebout, Clerk and Registrar, Chatham.

Chester, Burlington county; population 4,849. Members and officers—William B. Lippincott, President, Moorestown; Samuel C. Roberts, Moorestown; Edward H. Cutter, Maple Shade; Charles H. Dudley

*No report received.

Moorestown; Thomas Gehring, Moorestown; George W. Heaton, Clerk and Registrar, Moorestown; F. G. Shroud, M.D., Inspector, Moorestown.

Chester, Morris county; population 1,378. Members and officers—John Rourk, President; Wm. S. Howell, Elias Wack, Abraham Tiger, Clerk and Registrar; Harris Day, M.D., Inspector; all of Chester.

Chesterfield, Burlington county; population 1,141. Members and officers—Chas. M. Bunting, President, Crosswicks; Edward M. Ridgway, Crosswicks; Chas. E. Wallace, Chesterfield; Wm. Wallace, Clerk and Registrar, Crosswicks.

Cinnaminson, Burlington county; population 1,064. Members and officers—Clayton Conrow, President, Cinnaminson; Benj. Lippincott, Cinnaminson; Jno. Schmierer, Cinnaminson; Thos. E. Steele, Secretary and Registrar, Palmyra; J. D. Janney, M.D., Inspector, Cinnaminson.

Clark, Union county; population 387. Members and officers—Benjamin King, President; Wm. J. Thompson, Isaac Terhune, Wm. J. Thompson, Clerk; all of Rahway.

Clementon, Camden county; population 2,257. Members and officers—Geo. Summerfield, President, Clementon; Jacob Lippincott, Kirkwood; Frederick H. Tomlinson, Laurel Springs; Geo. W. Evans, Clerk and Registrar, Lindenwold; Frank B. Cook, M.D., Inspector, Laurel Springs.

Clinton, Hunterdon county; population 2,026. Members and officers—Austin Cramer, President, Annandale; John Shurts, Lebanon; David F. McCathrine, Annandale; Bergen B. Berkaw, Secretary and Registrar, Annandale; H. H. Miller, M.D., Inspector, Lebanon.

Commercial, Cumberland county; population 2,476. Members and officers—L. F. Shropshire, President, Port Norris; C. W. Hand, Port Norris; Claude Bateman, Mauricetown; E. B. Bradford, Port Norris; Walter C. Riffin, Registrar, Port Norris.

Cranbury, Middlesex county; population 1,465. Members and officers—Walter Scott, President; Joseph C. Chamberlin, W. J. Stults, A. M. Davison, Clerk and Registrar; all of Cranbury, R. F. D.

Cranford, Union county; population 3,600. Members and officers—John W. Heins, President; James Z. Smith, Walter Scholes, Isaac V. S. Hillier, S. R. Droescher, Alfred H. Miller, Clerk; F. R. Swackhamer, Registrar; J. L. Vail, M.D., Inspector; all of Cranford.

*Deerfield, Cumberland county; population 3,212. Members and officers—H. L. Cooper, M.D., Clerk, Deerfield.

Delaware, Camden county; population 1,470. Members and officers—Wm. Graff, President and Registrar, Haddonfield; Wm. T. Lippincott, Moorestown; Jos. Hinchman, Jr., Merchantville; J. W. Matlack, Haddonfield; W. B. Jennings, M.D., Clerk and Inspector, Haddonfield.

Delaware, Hunterdon county; population 1,926. Members and officers—Nelson Lambert, President, Sergeantsville; Geo. H. Higgins, Sergeantsville; J. H. Case, Rosemont; David L. Holcombe, Clerk, Lambertville; G. N. Best, M.D., Inspector, Rosemont.

Delran, Burlington county; population 1,340. Members and officers—Edw. Haines, President, Riverside; A. P. Bright, Bridgeboro; Samuel Caldwell, Riverside; George Friday, Clerk and Registrar, Riverside.

*Dennis, Cape May county; population 1,777. Members and officers—I. S. Townsend, Clerk and Registrar, Clermont.

*No report received.

Deptford, Gloucester county; population 2,233. Members and officers—John Mayhew, President, Woodbury Heights; Benjamin Hains, Westville; Oscar Stern, Sewell; Carroll C. Headley, Clerk and Inspector, Westville.

Dover, Ocean county; population 2,869. Members and officers—E. C. Disbrow, M.D., President and Inspector; Anthony A. Dunham, Jacob A. Irons, J. C. McClenahan, John A. Ernst, Clerk; Lucian Garvatt, Registrar; all of Toms River.

Downe, Cumberland county; population 1,664. Members and officers—A. B. Campbell, President, Newport; John Gaskill, Newport; A. P. Hickox, Dividing Creek; Sheppard Campbell, Clerk, Newport; Geo. E. James, M.D., Inspector, Newport.

Eagleswood, Ocean county; population 534. Members and officers—O. C. Cranmer, President, West Creek; John A. Shinn, West Creek; Jonathan Cox, West Creek; Phillip R. Sprague, Clerk, West Creek; Chas. H. Conover, M.D., Inspector, Tuckerton.

Eastampton, Burlington county; population 587. Members and officers—H. E. Lippincott, President, Smithville; Isaac Brown, Mt. Holly; Wm. McGee, Smithville; Chas. F. Holzbaur, Clerk and Registrar, Smithville; Dr. Van Derveer, Inspector, Mt. Holly.

East Amwell, Hunterdon county; population 1,256. Members and officers—John J. Holcombe, President, Ringoes; George Hartpence, Ringoes; D. S. Lowe, Ringoes; John J. Horn, Clerk and Registrar, Hopewell; P. C. Young, M.D., Inspector, Ringoes.

***East Brunswick, Middlesex county;** population, 2,025. Members and officers—Henry Warnsdorfer, Clerk and Registrar, New Brunswick, R. F. D. No. 3.

East Greenwich, Gloucester county; population 1,299. Members and officers—W. H. Borden, President, Mickleton; W. Dauson, Mickleton; W. Cook, Mt. Royal; J. C. Dauson, Clerk, Mickleton.

East Windsor, Mercer county; population 863. Members and officers—H. R. Applegate, President, Hightstown; E. R. Pickering, Hightstown; F. Updike, Hightstown; S. L. Mount, Clerk and Registrar, Etra; C. M. Franklyn, M.D., Inspector, Hightstown.

Eatontown, Monmouth county; population 2,874. Members and officers—S. S. Stout, President, Eatontown; F. S. Higginson, Eatontown; H. W. Conrow, Oceanport; D. S. Morris, Clerk, Eatontown; A. L. Cowles, Registrar, Oceanport; Benjamin Eldredge, Inspector, Oceanport.

Egg Harbor, Atlantic county; population 1,468. Members and officers—R. Harry Steele, President, Idlewood; Charles Vincent, Bargaintown; John H. Smith, Scullville; Wm. Hauenstein, Clerk and Registrar, Pleasantville; Ernest Zille, M.D., Inspector, Scullville.

Elk, Gloucester county; population 938. Members and officers—William Hamilton, President, Aura; Thomas Hann, Ewan; Richard Gant, Monroeville; Samuel L. Seran, Clerk, Aura.

Eisnboro, Salem county; population 398. Members and officers—J. L. Smith, President; Samuel Morgan, Edward C. Parkell, Franklin T. Ayares, Clerk; Wm. Griscom, Inspector.

Evesham, Burlington county; population 1,356. Members and officers—Harvey D. Lippincott, President, Marlton; William Dumphrey, Marlton; Allan Jones, Moorestown; Benjamin K. Brick, M.D., Clerk, Marlton; William F. Powell, Registrar, Marlton.

***Ewing, Mercer county;** population 1,560. Members and officers—Wm. H. Cadwallader, Clerk and Registrar, Trenton, R. F. D. No. 1.

Fairfield, Cumberland county; population 1,625. Members and officers—James B. Mulford, President and Registrar; Geo. B. Williams, Jos. M. Meyers, Ed. W. Trenchard, Harry E. Lore, Chas. H. Nichols, Clerk; all of Fairton.

Fanwood, Union county; population 1,341. Members and officers—Ira G. Walker, President, Scotch Plains; Henry C. Meyer, Scotch Plains; Winfield S. Terry, Plainfield; George H. Johnston, Clerk and Assessor, Scotch Plains; F. W. Wescott, M.D., Inspector, Fanwood.

Florence, Burlington county; population 1,967. Members and officers—Lewis Gray, President; Chester Emmons, Harry Aikens, Charles B. Green, Clerk; Byron Carty, Registrar; David Baird, Jr., M.D., Inspector; all of Florence.

***Frankford, Sussex county;** population 998. Members and officers—Daniel Dalrymple, Registrar, Papakating.

Franklin, Bergen county; population 1,566. Members and officers—Albert G. Smith, President, Wyckoff; John N. Louis, Campgaw; Daniel Van Houten, Wyckoff; Daniel Snyder, Clerk and Registrar, Midland Park; W. F. Keating, M.D., Inspector, Wyckoff.

Franklin, Gloucester county; population 2,197. Members and officers—A. B. Richman, President, Malaga; John L. Down, Newfield; Thomas Down, Franklinville; Wilson T. Jones, Clerk; Chas. H. Lincoln, Registrar, Newfield.

Franklin, Hunterdon county; population 1,105. Members and officers—E. H. Deats, President, Pittstown; John W. Rinehart, Sidney; John W. Snyder, Frenchtown; Elwood Nixon, Clerk, Quakertown; Q. E. Snyder, M.D., Inspector, Quakertown.

Franklin, Somerset county; population 3,577. Members and officers—J. Cooper, M.D., President, East Millstone; Wm. A. Cortulen, Princeton; W. Voorhees, Middlebush; Elias Baker, New Brunswick; Cornelius Cadmus, Jr., Clerk and Registrar, New Brunswick, R. F. D. No. 6.

Franklin, Warren county; population 1,309. Members and officers—A. S. Hixon, President, Broadway; Harvey F. Cole, Broadway; James H. Shipman, Asbury; E. H. Moore, M.D., Asbury; Charles H. Hoagland, Clerk, Asbury.

Fredon, Sussex county; population 462. Members and officers—Frank Lanterman, President, Newton; Peter E. Garris, Newton; A. C. Snook, Newton; Joseph E. Huff, Clerk and Registrar, Newton, R. F. D. No. 1; E. W. Landes, Inspector, Stillwater.

Freehold, Monmouth county; population 2,474. Members and officers—Robert N. Senter, President; Millard F. Conover, John H. Shepherd, William A. Thompson, Thomas E. Jeffries, R. V. Lawrence, Clerk and Registrar; Harry W. Ingling, Inspector; all of Freehold.

Frelinghuysen, Warren county; population, 728. Members and officers—Wm. Durling, Jr., President, Johnsonburg; A. L. Cook, Marksboro; James Toomath, Newton; John E. Bowman, Clerk, Blairstown, R. F. D. No. 1.

Galloway, Atlantic county; population 1,876. Members and officers—C. B. Somers, President, Oceanville; Harry A. Wickes, Egg Harbor City; Cornelius Leeds, Smithville; Chas. F. Stucker, Secretary and Registrar, Egg Harbor City.

Glassboro, Gloucester county; population 2,607. Members and officers—Robert Meade, President; Geo. Keebler, Josiah Shute, J. T. Abbott, Registrar; William Martin, Inspector; all of Glassboro.

Gloucester, Camden county; population 2,300. Members and officers—Samuel S. Batten, Sr., President, Blackwood; Charles Fell, Laurel Springs; Clarence Blackwood, Sicklerville; Albert E. Batten, Clerk and Registrar, Blackwood; J. Anson Smith, M.D., Inspector, Blackwood.

Green, Sussex county; population 500. Members and officers—D. H. Longcor, President, Newton; E. E. Cooper, Tranquility; S. S. Coleman, Tranquility; I. L. Labar, Clerk and Registrar, Tranquility; J. C. Clark, M.D., Inspector, Andover.

Greenwich, Cumberland county; population 1,122. Members and officers—George L. Watson, President, Greenwich; Isaac D. Brown, Bridgeton; John N. Fithian, Greenwich; J. W. Butler, Clerk and Registrar, Greenwich; S. M. Snyder, M.D., Inspector, Greenwich.

Greenwich, Gloucester county; population 754. Members and officers—Frank Featherer, President, Gibbstown; Leopold Feger, Gibbstown; John Warner, Gibbstown; Jacob M. Allen, Clerk and Registrar, Gibbstown; Robert Reeves, Inspector, Paulsboro.

Greenwich, Warren county; population 854. Members and officers—John H. Cyphers, President, Stewartsville; Jacob R. Rush, Stewartsville; P. K. Shipman, Stewartsville; F. W. Curtis, M.D., Stewartsville; William Sherrer, Clerk, Bloomsbury.

Haddon, Camden county; population 1,009. Members and officers—Alfred M. Matthews, President, Westmont; Albert J. Cline, Westmont; Harry E. Locke, Westmont; James St. C. Williams, Clerk and Registrar, Westmont; Ed. B. Rogers, Inspector, Collingswood.

Hamilton, Atlantic county; population 2,021. Members and officers—Charles Stewart, President; Chas. D. Makepeace, Harrison Wilson, Thompson G. Hoover, Clerk; Harry Jenkins, Registrar; Henry C. James, Health Officer; all of Mays Landing.

Hamilton, Mercer county; population 5,150. Members and officers—Edwin B. Woodward, M.D., President, Yardville; Charles A. Comp, Yardville; Henry Davis, Hamilton Square; Thaddeus L. Mallam, Trenton; Wm. T. Robbins, Clerk, Hamilton Square; Harry M. Rogers, Registrar, Hamilton Square; James N. Reed, Inspector, Homedell.

Hampton, Sussex county; population 623. Members and officers—J. A. Sigler, President, Halsey; J. R. Ackerson, Halsey; Isaac Williams, Baleville; J. W. Thompson, Clerk, Blair.

Hanover, Morris county; population 5,294. Members and officers—Harrison D. Mead, President, Hanover; Wm. T. Webb, Parsippany; Judd Condict, Parsippany; Edward J. Connelly, Whippany; R. V. D. Totten, M.D., Morris Plains; Wm. A. Polhemus, Clerk, Whippany; Wm. B. Davis, Registrar, Morris Plains.

Hardwick, Warren county; population 370. Members and officers—I. J. Konkle, President, Blairstown; D. R. Newman, Blairstown; Hiram France, Blairstown; M. C. Hill, Clerk, Marksboro; H. O. Carhart, Inspector, Blairstown.

Hardyston, Sussex county; population 3,434. Members and officers—Wm. Stephens, President, Franklin Furnace; Reeve Harden, Hamburg; Jas. McCue, Stockholm; Smith Simpson, Clerk and Registrar, Hamburg; J. G. Coleman, M.D., Inspector, Hamburg.

*Harmony, Warren county; population 1,086. Members and officers—Freeman Schuler, Registrar, Phillipsburg, R. F. D. No. 2.

Harrington, Bergen county; population 521. Members and officers—L. B. Sneed, President, Northvale; J. S. Muzzio, Chas. T. Sernino, Northvale; Arnold Kober, Registrar, Northvale; Chas. R. Richardson, M.D., Inspector.

Harrison, Gloucester county; population 1,624. Members and officers—Samuel T. Stratton, President, Ewan; W. Nelson Justice, Richwood; Isaac S. White, Mullica Hill; S. F. Ashcraft, M.D., Mullica Hill; Eli Heritage, Registrar, Richwood.

Hillsboro, Somerset county; population 2,247. Members and officers—J. V. D. Brokaw, President, Belle Mead; Wm. N. Staats, Millstone; John V. M. Sutphen, Three Bridges; W. H. Merrell, M.D., Clerk, Somerville; Harry Van Nuys, Inspector, Millstone.

Hillsdale, Bergen county; population 945. Members and officers—C. S. Van Wagonen, President; Franklin J. Myers, Albert Mohnking, George R. Stegmann, Clerk; John W. Kinnmouth, Registrar; all of Hillsdale.

Hohokus, Bergen county; population 3,107. Members and officers—Albert Winter, President, Mahwah; Charles D. Vanderbeck, Ramsey; Jacob C. Straut, Suffern, N. Y.; James Devine, Jr., Clerk and Registrar, Mahwah; Sylvester Demarest, M.D., Inspector, Suffern, N. Y.

Holland, Hunterdon county; population 1,528. Members and officers—Geo. M. Baker, President, Milford; Wm. Keown, Milford; Alfred Riley, Milford; Harry Van Syckle, Clerk and Registrar, Mt. Pleasant; A. A. Heil, M.D., Inspector, Milford.

Holmdel, Monmouth county; population 1,221. Members and officers—Wesley Mason, President, Keyport; Jonathan I. Holmes, J. O. Lambertson, V. D. Kenney, Clerk, Holmdel; C. A. Palmer, M.D., Inspector, Holmdel.

Hope, Warren county; population 1,025. Members and officers—Geo. A. Henry, President, Great Meadows; I. B. Hopkins, Great Meadows; Clark Wilson, Hope; C. S. Bartow, Clerk and Registrar, Great Meadows; Walter Storm, M.D., Inspector, Hope.

Hopewell, Cumberland county; population 1,840. Members and officers—D. D. Davis, President, Shiloh; E. G. Hyars, Bridgeton; E. D. Perry, Bridgeton; C. E. Bowen, Clerk, Shiloh.

Hopewell, Mercer county; population 3,209. Members and officers—David S. Hill, President, Mount Rose; Joseph R. Burroughs, Pennington; Isaac B. Scudder, Titusville; William M. Radcliffe, M.D., Pennington; Chas. H. Hart, Clerk and Registrar, Titusville.

Howell, Monmouth county; population 2,585. Members and officers—Benjamin M. Cooper, President, Lakewood; Robert H. Morris, Adelphia; Charles E. Ferry, Farmingdale; James H. Butcher, Clerk and Registrar, Freehold, R. F. D. No. 2; Wm. P. Havens, Inspector, Farmingdale.

*Hudson county; population 449,879. Members and officers—C. J. Rooney, Clerk, Jersey City.

Independence, Warren county; population 835. Members and officers—W. H. McCormick, President, Vienna; W. K. Teel, Vienna; A. B. Leigh, Great Meadows; E. Cox, Vienna; F. W. Haggerty, Clerk, Vienna.

*Jackson, Ocean county; population 1,534. Members and officers—Geo. C. Hankins, Clerk, Vanhiseville.

Jefferson, Morris county; population 1,259. Members and officers—Moses B. Spencer, President, Lake Hopatcong; William P. Davenport, Stockholm; Daniel R. Davenport, Oak Ridge; Charles Chamberlain, Clerk and Registrar, Wharton, R. F. D.; Joseph P. Riggs, M.D., Inspector, Oak Ridge.

*Kingwood, Hunterdon county; population 1,188. Members and officers—Samuel J. Snyder, Registrar, Frenchtown.

Knowlton, Warren county; population 1,222. Members and officers—Mahlon M. Kinney, President, Delaware; Oscar Smith, Hainesburg; Harry Quig, Delaware; Milton De Witt, Registrar, Columbia.

Lacey, Ocean county; population 653. Members and officers—G. E. Wallace, President and Inspector; A. H. Grant, Geo. W. Frazee, Wm. R. Holmes, B. F. Mathews, Clerk and Registrar; all of Forked River.

Lafayette, Sussex county; population 619. Members and officers—Raymond Snyder, President; John D. Ackerson, Wm. S. Vought, R. D. Snook, Clerk; all of Lafayette.

*Lakewood, Ocean county; population 4,265. Members and officers—H. J. Terwilliger, Secretary and Health Officer, Lakewood.

Landis, Cumberland county; population 5,351. Members and officers—Jacob Simonson, President, Vineland; Joseph W. Holt, Millville; Thomas Fox, Willow Grove; Louis Raffo, Vineland; Alexander Huston, Vineland; Robert E. Chalmers, Clerk and Registrar, Vineland; Chas. M. Gray, M.D., and Waldo F. Sawyer, M.D., Inspectors, Vineland.

Lawrence, Cumberland county; population 1,730. Members and officers—Ernest L. Mulford, President; David W. Sheppard, Chas. S. Stevens, Louis M. Hogbin, Clerk; F. B. Sheppard, Registrar; T. M. Bateman, M.D., Inspector; all of Cedarville.

Lawrence, Mercer county; population 2,043. Members and officers—Morgan B. Vanhise, President, Trenton; John E. Gordon, Princeton; Jasper Maple, Princeton; Frank Pierson, Registrar, Lawrenceville; E. K. Fee, M.D., Inspector, Lawrenceville.

Lebanon, Hunterdon county; population 1,983. Members and officers—Peter C. Castner, President, Changewater; J. Frank Lance, Port Murray; James F. Smith, Changewater; Geo. H. Castner, Clerk and Registrar, Califon, R. F. D. No. 1.

Linden, Union county; population 1,096. Members and officers—John P. Winans, President, Linden; John E. Tucker, Linden; George W. Bauer, Elizabeth; Frank B. Stimson, Clerk and Registrar, Linden; William T. Day, Inspector, Linden.

*Little Egg Harbor, Ocean county; population 517. Members and officers—Norwood Parker, Parkertown.

Little Falls, Passaic county; population 3,079. Members and officers—Fred Henri, President; Eugene Shori, Wm. H. Van Ness, Wm. H. Youngs, M.D., Wm. M. Zelfiff, Clerk and Registrar; all of Little Falls.

Livingston, Essex county; population 1,407. Members and officers—F. M. Hoffman, President, Livingston; S. B. Winans, Livingston; Gottlieb Ochs, Chatham; E. El Burnet, Clerk and Registrar, Chatham; D. J. Edwards, Inspector, Chatham.

Lodi, Bergen county; population 1,061. Members and officers—Charles Kinzly, President, Little Ferry; Frank Switz, Little Ferry; John Turick, Hackensack; Julius Pries, Clerk and Registrar, Woodridge.

*No report received.

Logan, Gloucester county; population 1,528. Members and officers—John H. Shoemaker, President, Repaupo; Wm. F. Justice, Bridgeport; Wilbur Beckett, Swedesboro; S. B. Platt, Clerk, Bridgeport.

*Long Beach, Ocean county; population 73. Members and officers—Chas. E. Sherborne, Clerk, Long Beach.

*Lopatcong, Warren county; population 695. Members and officers—Frank Cline, Registrar, Shimers.

Lower, Cape May county; population 1,336. Members and officers—John C. Elliott, President, Cold Spring; J. D. Hoffman, Fishing Creek; Wm. L. Garretson, Erma; Joseph P. Mackissic, Clerk and Registrar, Cape May City; Wilson A. Lake, Inspector, Erma.

Lower Alloways Creek, Salem county; population 1,220. Members and officers—Lewis F. Smith, President, Hancock's Bridge; Thomas S. Nixon, Canton; Albert M. Carll, Harmersville; F. B. Harris, M.D., Canton; Edward Hancock, Clerk and Inspector, Hancock's Bridge.

Lower Penns Neck, Salem county; population 1,327. Members and officers—Hance Jaquett, Sr., President, Pennsville; Charles Bright, Sr., David Dixon, Salem; Ellsworth L. Irelan, Clerk and Registrar, Pennsville.

Lumberton, Burlington county; population 1,683. Members and officers—Wm. A. Jones, President, Lumberton; Jacob C. Walters, Hainesport; A. Engle Haines, Medford; Wm. C. Parry, M.D., Hainesport; E. C. Davis, Clerk, Registrar and Inspector, Lumberton.

Madison, Middlesex county; population 1,582. Members and officers—Frank P. Lamberton, President, Cliffwood; Ambrose Green, Old Bridge; D. H. Brown, Old Bridge; I. C. Crandall, M.D., Old Bridge; James Fountain, Clerk, Old Bridge; Edward Barker, Inspector, Matawan.

Manalapan, Monmouth county; population 1,392. Members and officers—Edward Hendrickson, President, Englishtown; J. C. Sutphen, Tennent; Wm. C. Hartshorne, Freehold; Asher T. Applegate, M.D., Englishtown; Garret B. Conover, Clerk, Englishtown; W. Denise Herbert, Registrar, Englishtown.

Manchester, Ocean county; population 785. Members and officers—E. F. Larrabee, President, Lakehurst; S. C. Rhoads, Lakehurst; Peter Christofferson, Whittings; Harold Pittis, M.D., Clerk, Lakehurst; Amos Bozarth, Registrar, Lakehurst.

*Mannington, Salem county; population 1,652. Members and officers—Jonathan P. Grier, Clerk and Registrar, Salem.

Mansfield, Burlington county; population 1,493. Members and officers—John B. Townsend, President, Columbus; Frank B. Haines, Columbus; Wm. R. Sharpe, Columbus; Joseph H. Armstrong, Clerk and Registrar, Columbus; A. H. Patterson, M.D., Inspector, Georgetown.

*Mansfield, Warren county; population 1,234. Members and officers—Jacob Beatty, Clerk, Port Murray.

Mantua, Gloucester county; population 1,471. Members and officers—A. R. Workman, President, Sewell; John Kincard, Sewell; J. Mason Tomlin, Sewell; Wm. S. Hurff, Registrar, Sewell; E. Z. Hillegas, M.D., Inspector, Mantua.

*Marlboro, Monmouth county; population 1,664. Members and officers—J. D. Ely, M.D., Clerk and Inspector, Marlboro.

*No report received.

Matawan, Monmouth county; population 1,365. Members and officers—J. D. Ivins, President, Cliffwood; Michael Halleran, Matawan; L. H. Stemler, Matawan; Daniel Martin, Clerk; Richard Heuser, Registrar, Matawan; Nathan Ervin, M.D., Inspector, Matawan.

Maurice River, Cumberland county; population 2,133. Members and officers—Charles W. Champion, President, Dorchester; Edwin E. Elliott, Port Elizabeth; William Carlisle, Delmont; Henry Reeves, Jr., Secretary and Registrar, Leesburg.

Medford, Burlington county; population 2,030. Members and officers—Willitts P. Haines, President; Frank A. Braddock, Samuel S. Evans, William M. Potts, Registrar; all of Medford.

Mendham, Morris county; population 1,724. Members and officers—M. M. Connet, President, Brookside; M. S. Burnet, Chester; M. Fred Babbitt, Mendham; Frank Deon, Clerk, Brookside; Fred H. Garrabrant, Registrar, Brookside.

Middle, Cape May county; population 2,584. Members and officers—Luther T. Garrison, President, Cape May C. H.; L. M. Swain, Swainton; Ralph Schellenger, Green Creek; Joseph Camp, Clerk, Registrar and Inspector, Pierces.

Middletown, Monmouth county; population 5,600. Members and officers—Ernest H. Taylor, President, Middletown; J. N. Johnson, Jr., Belford; D. W. Van Note, Belford; Frank Scott, Red Bank; A. M. Posten, Navesink; Henry D. Smith, Clerk, Middletown; Omar Sickles, Registrar, Navesink; O. W. Budling, M.D., Inspector, Belford.

Midland, Bergen county; population 1,465. Members and officers—Thomas Gardner, President, Ridgewood; August C. Ohle, Carl H. Pauly, John D. Bogert, Clerk and Registrar, Ridgewood; Frank Freeland, M.D., Inspector, Maywood.

***Millburn, Essex county;** population 3,182. Members and officers—J. M. Drake, Clerk and Registrar, Millburn.

Millstone, Monmouth county; population 1,432. Members and officers—Abijah B. Chamberlin, President, Perrineville; George M. Davison, Perrineville; John H. Ely, Clarksburg; Geo. J. Ely, Clerk and Registrar, Cranbury, R. F. D.; Wm. T. McMellen, M.D., Inspector, Perrineville.

***Monroe, Gloucester county;** population 2,519. Members and officers—John W. McClure, Clerk, Williamstown.

Monroe, Middlesex county; population 2,023. Members and officers—John D. Butcher; President, Cranbury; George McDowell, Cranbury; Harry Rogers, Cranbury; Rob't R. Vanderbergh, Clerk, Prospect Plains; J. L. Suydam, M.D., Inspector, Jamesburg.

Montague, Sussex county; population 661. Members and officers—Timothy Shay, President, Hainesville; George A. Clark, Port Jervis, N. Y.; Alfred Hartrim, Port Jervis, N. Y.; Geo. McCarty, Clerk and Registrar, Port Jervis, N. Y.

Montgomery, Somerset county; population 1,504. Members and officers—H. A. Duryee, President, Skillman; Jacob Boice, Harlingen; C. B. Allhouse, Skillman; H. DeWitt Terhune, Clerk, Belle Meade; A. B. Mosher, M.D., Inspector, Belle Meade.

***Montville, Morris county;** population 1,650. Members and officers—John M. Tice, Clerk, Montville.

***Morris, Morris county;** population 2,660. Members and officers—J. Paul Jamieson, Clerk, Morristown.

Mount Laurel, Burlington county; population 1,671. Members and officers—Edward L. Godfrey, President, Moorestown; J. Harvey Darnall, Moorestown; Budd M. Horner, Masonville; Benj. M. Haines, Clerk and Registrar, Moorestown; F. G. Stroud, M.D., Inspector, Moorestown.

Mount Olive, Morris county; population 1,098. Members and officers—Geo. N. Salmon, President, Flanders; Hiram E. Dilley, Mt. Olive; Geo. Dorland, Flanders; Fred W. Salmon, Clerk and Registrar, Mt. Olive; Geo. M. Adams, M.D., Inspector, Flanders.

Mullica, Atlantic county; population 794. Members and officers—Jesse R. Abbott, President and Registrar, Hammonton; John Mick, Elwood; Joseph Albor, Ross B. Pierce, Egg Harbor City; John D. Carver, Clerk, Elwood.

Neptune, Monmouth county; population 9,357. Members and officers—Alfred D. Clark, President, Ocean Grove; Leonard Hulit, West Grove; Fred Hurley, West Grove, John F. Messler, West Grove; R. E. K. Rothfritz, Whitesville; T. Nelson Lillagore, Clerk, Registrar and Inspector, Ocean Grove.

New Hanover, Burlington county; population 960. Members and officers—Albert Watson, President, Wrightstown; Lewis Yerkes, Pointville; George Parker, Cookstown; Charles Remine, Clerk, Wrightstown; Howard Allen, M.D., Inspector, New Egypt.

***New Providence, Union county;** population 456. Members and officers—P. G. Johnson, Clerk and Registrar, New Providence.

Newton, Sussex county; population 4,422. Members and officers—Warren H. Smith, M.D., President; Wm. H. Nichols, Chas. M. Oakes, H. D. Couse, A. V. B. Mackerly, Clerk and Registrar; Israel L. Hallock, Inspector; all of Newton.

Northampton, Burlington county; population 5,509. Members and officers—Franklin Dill, President; Chas. Morton, Harry Hawkins, Wm. H. Mason, Samuel P. Cline, W. T. Stewart, Clerk and Registrar; R. H. Parsons, M.D., Inspector; all of Mount Holly.

North Bergen, Hudson county; population 11,134. Members and officers—Chas. Dietz, President; Henry Andes, George Hartmann, Aug. Maltz, Chas. Heinrichs, Albert Mry, Chas. McCollum, Edward Beck, Thomas Dubelbeiss, Clerk; August Berberick, Inspector.

North Brunswick, Middlesex county; population 929. Members and officers—A. A. Voorhees, President; Alfred Yorsten, William Vincent, Isaac V. Williamson, Clerk; all of New Brunswick, R. F. D.; J. D. Ten Eyck, M.D., Inspector, Franklin Park.

North Hanover, Burlington county; population 747. Members and officers—Frank Warner, President, Cream Ridge; Richard Rahilly, Wrightstown; Alzora Poinsett, Jacobstown; Benj. Harker, Jr., Clerk, Wrightstown.

North Plainfield, Somerset county; population 693. Members and officers—Theodore Luerssen, President, Watchung; Alex. Archibold, Scotch Plains; Albert Brokaw, Bound Brook; Francis E. Bodin, Clerk, Watchung; Arthur Jacot, Inspector, Watchung.

Ocean, Monmouth county; population 1,574. Members and officers—Wm. B. Ireland, President, Oakhurst; John R. Jeffrey, Elberon; John Wooley, Oakhurst; Harry G. Van Note, Clerk and Registrar, Oakhurst; E. M. Beach, M.D., Inspector, West Long Branch.

*No report received.

*Ocean, Ocean county; population 409. Members and officers—Oscar R. Cranmer, Clerk and Registrar, Brookville.

Oldmans, Salem county; population 1,374. Members and officers—William Stiles, President; Pedricktown; William Darlington, Pedricktown; M. White, Auburn; Emanuel Black, Clerk; E. E. Somers, Registrar; Pedricktown; H. T. Johnson, Inspector.

Orvil, Bergen county; population 752. Members and officers—S. M. Terhune, President; J. W. Quackenbush, C. J. Doty; G. M. White, Clerk and Registrar; all of Waldwick.

Oxford, Warren county; population 2,964. Members and officers—George Potts, President, Oxford; William H. H. Stires, Bridgeville; William G. Cole, Belvidere; E. D. Cooper, Clerk, Oxford; Michael Mountain, Registrar, Oxford.

Pahaquarry, Warren county; population 257. Members and officers—William Brink, President, Mill Brook; John Clyde Depew, Dunfield; John Garvis, Mill Brook; Hiram Zimmerman, Assessor, Mill Brook.

Palisade, Bergen county; population 1,042. Members and officers—George Gerehty, President, New Milford; Carl Upheil, Peetzburg; Frederick Heine, New Bridge; George Gengenagel, Clerk and Registrar; Peetzburg; Chester A. King, M.D., Inspector, Oradell.

Palmyra, Burlington county; population 2,643. Members and officers—James E. Russell, President; H. Parker Hurff, Albert Hodson, Andrew P. Lore, F. Blackburn, Clerk, Registrar and Inspector; all of Palmyra.

Passaic, Morris county; population 2,163. Members and officers—William Scheuerman, President, Millington; Charles Kutcher, Millington; C. R. Wenman, Newvernon; J. A. Harvey, Clerk and Registrar, Stirling; T. W. Bebout, M.D., Inspector, Stirling.

Pemberton, Burlington county; population 1,706. Members and officers—Walter Woolston, President, Smithville; John Davis, Browns Mills; Victor Bush, Pemberton; E. Hollingshead, M.D., Pemberton; M. W. Hargrove, Clerk, Browns Mills; Barclay Seeds, Registrar, Pemberton.

Pensauken, Camden county; population 3,957. Members and officers—Isaiah S. Hatch, President, Fish House; Gale Bennett, Delair; Gerhard Loeling, M.D., Pensauken; Harry E. Horner, Clerk and Registrar, Merchantville; Job Pidgeon, Inspector, Pensauken.

Pequannock, Morris county; population 1,674. Members and officers—A. J. Slingerland, President, Pequannock; Fred Ricker, Butler; Thomas Dodd, Lincoln Park; Alfred Gilland, Clerk and Registrar, Pompton Plains; C. D. V. Romondt, M.D., Inspector, Pompton Plains.

Pilesgrove, Salem county; population 1,726. Members and officers—John G. Barton, President, Woodstown; Edgar C. Moore, Woodstown; Clement McAllister, Sharptown; George H. Kirby, Clerk, Woodstown.

*Piscataway, Middlesex county; population 2,767. Members and officers—George W. Coriell, Registrar, New Market.

*Pittsgrove, Salem county; population 2,514. Members and officers—George Schalick, Clerk and Registrar, Centreton.

Plumsted, Ocean county; population 1,241. Members and officers—Charles W. Hopkins, President; Dayton Hopkins, James Larkin, George Hartshorn, Clerk and Registrar; Dr. Bichler, Inspector; all of New Egypt.

*No report received.

*Pohatcong, Warren county; population 3,408. Members and officers—Harry E. Boyer, Clerk and Registrar, Springtown.

*Pompton, Passaic county; population 2,981. Members and officers—David Beam, Clerk and Registrar, Midvale.

*Princeton, Mercer county; population 1,144. Members and officers—J. H. Hulit, Clerk, Princeton, R. F. D. No. 3.

*Quinton, Salem county; population 1,135. Members and officers—Joseph Powell, Clerk, Quinton.

*Randolph, Morris county; population 2,327. Members and officers—Geo. W. Crane, Clerk, Dover.

Raritan, Hunterdon county; population 3,861. Members and officers—John B. Rockafellow, President, Flemington; Joseph Alvater, Flemington; Joel D. Hellyer, Ringoes, R. F. D. No. 1; W. S. Buchanan, Clerk and Registrar, Flemington; I. S. Cramer, M.D., Inspector, Flemington.

Raritan, Middlesex county; population 2,612. Members and officers—Peter Meeker, President, New Brunswick; Edward Pfeiffer, Metuchen; John Cogswell, New Brunswick; Wm. T. Woerner, Clerk, New Brunswick.

Raritan, Monmouth county; population 1,473. Members and officers—J. L. T. Webster, President, Hazlet; Robert Brown, Keansburg; Charles Carr, Keansburg; Peter O. Weigand, Hazlet; Herman L. Lehr, Clerk and Registrar, Keansburg; G. G. Hoagland, M.D., Inspector, Keyport.

Readington, Hunterdon county; population 2,423. Members and officers—Silas Schomp, President, Stanton; Andrew H. Seals, White House; Calvin C. Huff, Three Bridges; W. T. Hoffman, Clerk and Registrar, White House Station; Fred L. Johnson, M.D., Inspector, Stanton.

Riverside, Burlington county; population 3,301. Members and officers—Edward Shawberland, President; Henry Taubel, Jacob Theurer, Charles Heiss, Clerk and Registrar; C. B. Lambert, M.D., Inspector; all of Riverside.

Rivervale, Bergen county; population —. Members and officers—Ellis Collignon, President; Julius Kessler, Otto Lentz; M. J. Ford, Clerk and Registrar; G. M. Levitas, M.D., Inspector; all of Westwood.

Rockaway, Morris county; population 5,153. Members and officers—Marmaduke Pickitt, President, Mt. Hope; James Arthur, Wharton, R. F. D.; Calvin Lawrence, Dover, R. F. D.; Sidney Cook, Denville; Joseph Hitchens, Rockaway; Thomas Delaney, Clerk and Registrar, Hibernia; Samuel Blanchard, Inspector, Rockaway; F. W. Flagee, M.D., Medical Inspector, Rockaway.

Roxbury, Morris county; population 2,323. Members and officers—Theodore F. King, President, Ledgewood; Charles I. King, Succasunna; John F. Todd, Landing; E. W. Kilpatrick, Registrar, Kenvil; Harvey C. Upchurch, Inspector, Kenvil.

Saddle River, Bergen county; population 2,048. Members and officers—Otto P. Peale, President, Rochelle Park; Adam Hopper, Fair Lawn; David Gall, Dundee Lake; Isaac A. Hopper, Clerk and Registrar, Fair Lawn; Dr. Van Derbeek, Inspector, 174 Broadway, Paterson.

*Sandyston, Sussex county; population 872. Members and officers—M. D. Hughes, M.D., Clerk, Branchville.

Sayreville, Middlesex county; population 4,779. Members and officers—August Rohde, President; Chas. M. Fisher, Robert Fetts, J. H. Beekman, M.D., Thomas Creamer, Clerk and Registrar; Henry Boyler, Inspector; all of Sayreville.

*No report received.

Shamong, Burlington county; population, 508. Members and officers—Isaac Brown, John Miller, John Crain, Mahlon T. Prickett, Clerk; all of Indian Mills.

Shrewsbury, Monmouth county; population 5,502. Members and officers—Abram T. Bennett, President and Registrar, Fairhaven; F. R. Smith, Fairhaven; Aaron Armstrong, Shrewsbury; John C. Crawford, Tinton Falls; Raymond Doughty, Clerk, Fairhaven; Robert Dickson, M.D., Inspector, Fairhaven.

Southampton, Burlington county; population 1,860. Members and officers—John W. Brushwood, President; Frank L. Simons, Wm. H. Branin, Charles G. Naylor, Registrar; J. C. Brown, M.D., Inspector; all of Vincentown.

South Brunswick, Middlesex county; population 2,489. Members and officers—I. S. Bennett, President, Jamesburg; H. W. Jefferes, Plainsboro; Arthur Turton, Monmouth Junction; Wm. Perkins, Clerk and Registrar, Kingston.

South Harrison, Gloucester county; population 680. Members and officers—Clayton G. Kirby, President, Mullica Hill; George F. Wilkinson, Swedesboro; Mathew Allen, Mullica Hill; Samuel Ashcraft, M.D., Mullica Hill; D. C. Lippincott, Clerk and Registrar, Harrisonville.

South Orange, Essex county; population 1,946. Members and officers—William H. Knox, President, South Orange; William H. Kemp, Maplewood; William A. Greenaway, Irvington; G. H. Taylor, M.D., Maplewood; William G. Miller, Maplewood; Edward R. Arcularius, Clerk, Hilton; William G. Miller, Registrar, Maplewood; G. H. Taylor, M.D., Inspector, Maplewood.

Sparta, Sussex county; population 1,613. Members and officers—Manning Sickles, President, Sparta; Walter D. Byram, Sparta; Sanford Reid, Clerk and Registrar, Lafayette; A. N. Jacobs, M.D., Inspector, Sparta.

Springfield, Burlington county; population 1,323. Members and officers—Howard Letts, President, Jobstown; Edward K. West, Juliustown; Ezra F. Burr, Burlington; Aaron H. Burtis, Clerk and Registrar, Mt. Holly, F. R. D. No. 2.

Springfield, Union county; population 1,123. Members and officers—Robert Morrison, President; Fredman Kienle, George Parcell, Lewis T. Terry, Clerk and Registrar; J. A. Stites, M.D., Inspector; all of Springfield.

Stafford, Ocean county; population 994. Members and officers—Joshua Hilliard, M.D., President, Manahawkin; William B. Sprague, Manahawkin; Charles H. Cranmer, Manahawkin; Samuel Cranmer, Cedar Run; John B. Courtney, Secretary, Manahawkin.

Stillwater, Sussex county; population 815. Members and officers—Geo. C. Ogden, President, Stillwater; A. C. Root, Stillwater; Wm. P. Struble, Swartswood; E. W. Landes, M.D., Stillwater; O. Van Horn, Clerk and Registrar, Stillwater.

Stow Creek, Cumberland county; population 855. Members and officers—Albert Shimp, President, Bridgeton; Eric Carlson, Bridgeton; Asa Bitters, Roadstown; William H. Davis, Clerk and Registrar, Bridgeton, R. F. D. No. 3.

Tabernacle, Burlington county; population 462. Members and officers—J. Cooper Haines, President; J. Cooper Crain, Chas H. Alloway, Geo. H. Wisham, Clerk, Vincentown, R. F. D. No. 2.

Teaneck, Bergen county; population 1,222. Members and officers—J. E. Pierce, President, Englewood; J. W. Ackerman, Hackensack; George V. Demarest, Hackensack; C. Benson, Englewood; Peter I. Ackerman, Clerk and Registrar, Hackensack; Robert Stevenson, Inspector, Englewood.

Tewksbury, Hunterdon county; population 1,815. Members and officers—L. M. Hoffman, President, Califon; Frederick L. Lindabury, Lebanon; Jacob J. Neff, New Germantown; Francis A. Apgar, M.D., New Germantown; Hezekiah Philhower, Clerk and Registrar, Califon.

Union, Bergen county; population 2,188. Members and officers—Charles Rehwoldt, President; Andrew Egert, Charles E. Garland, John W. Clarke, M.D., Charles J. Rodgers, Clerk and Registrar; Otto Meyer, Inspector; all of Lyndhurst.

Union, Hunterdon county; population 923. Members and officers—Godfrey Emery, President, Jutland; Jos. Gano, Pattenburg; George B. Smith, Clinton; Morris Stockton, Clerk and Registrar, Pattenburg.

Union, Ocean county; population 913. Members and officers—John R. S. Cox, President; J. C. Bower, J. C. Woodmansee, Clerk and Assessor; all of Barnegat.

Union, Union county; population 2,614. Members and officers—Gottlieb Schnabel, President, Lyons Farms; D. B. Wade, Union; Daniel H. Beach, Union; D. Hobart Sayre, Clerk and Registrar, Union.

Upper, Cape May county; population 1,350. Members and officers—Harry Young, President, Beesley's Point; Z. A. Townsend, Tuckahoe; James S. Smith, Petersburg; Jesse T. Young, Clerk, Beesley's Point; Randolph Marshall, Inspector, Tuckahoe.

Upper Freehold, Monmouth county; population 2,002. Members and officers—Isaac Dawes, President; Joseph C. Johnston, William Quicksill, John W. Havens, R. F. Garrison, M.D., Clerk, Registrar and Inspector; all of Imlaystown.

Upper Penns Neck, Salem county; population 793. Members and officers—Jos. E. Clark, President; Jas. Hutchinson, Jos. Lloyd, Dr. Fleming, J. Ford Thompson, Clerk and Registrar; all of Penns Grove.

Upper Pittsgrove, Salem county; population 1,722. Members and officers—Charles Driver, President, Monroeville; Wm. F. Mayhew, Elmer; Walter Lawrence, Elmer; Geo. W. Fitch, M.D., Daretown; R. A. Robinson, Clerk and Registrar, Monroeville.

Vernon, Sussex county; population 1,649. Members and officers—Sherwood B. Garlinghouse, President, Vernon; Chas. T. Giveans, Vernon; Edw. P. Uptegrove, M.D., Hamburg; N. P. Ryerson, Clerk and Registrar, Glenwood.

Voorhees, Camden county; population 1,009. Members and officers—Chas. Hammel, President, Marlton; Albert Raw, Ashland; John P. Thompson, Gibbsboro; William Wescott, M.D., Berlin; S. H. Gardiner, Clerk and Registrar, Ashland.

Wall, Monmouth county; population 3,518. Members and officers—Chas. White, President, Belmar; Edgar C. White, Belmar; S. Bartley Pearce, Brielle; Wm. W. Trout, M.D., Spring Lake; Geo. E. Rogers, Clerk, Registrar and Inspector, Belmar, R. F. D. No. 2.

Wallpack, Sussex county; population 325. Members and officers—Nicholas Tillman, President, Wallpack Centre; Samuel S. Cole, Wall-

pack Centre; Eugene Rosenkranz, Flatbrookville; J. W. Bunnell, Registrar, Wallpack Centre.

Wantage, Sussex county; population 2,080. Members and officers—Jason House, President; Frank Coe, Frank Wedaugh, James Wilson, S. M. Parcell, Clerk and Registrar; H. J. Harp, M.D., Inspector; all of Sussex.

***Warren, Somerset county;** population 974. Members and officers—E. E. Sage, Clerk, Registrar and Inspector, Plainfield, R. F. D. No. 3.

***Washington, Bergen county;** population 382. Members and officers—P. C. Schultz, Secretary.

Washington, Burlington county; population 568. Members and officers—Joseph M. Birdsall, President, Green Bank; Thos K. Sooy, Green Bank; Julius Gerber, Batsjo; A. E. Koster, Clerk and Registrar, Green Bank.

Washington, Gloucester county; population 1,336. Members and officers—Augustus Their, President, Sewell; G. R. Hurff, Turnersville; G. Clark Shuster, Sewell; Jos. E. Hurff, M.D., Blackwood; C. D. Nicholson, Clerk and Registrar, Turnersville.

***Washington, Mercer county;** population 1,173. Members and officers—E. B. Yard, Secretary, Robbinsville.

Washington, Morris county; population 2,021. Members and officers—John A. Parker, President, German Valley; Fred Apgar, German Valley; George H. Sliker, Clerk and Registrar, Port Murray, R. F. D.; Lewis Dufford, Inspector, German Valley.

Washington, Warren county; population 1,089. Members and officers—William Larison, President; Orin Perry, Daniel M. Wyckoff, Charles B. Smith, M.D., Samuel Rinehart, Clerk; all of Washington.

***Waterford, Camden county;** population 2,713. Members and officers—Chas. D. Heath, Clerk and Registrar, Berlin.

Wayne, Passaic county; population 2,017. Members and officers—Geo. W. Colfax, President, Pompton; Thos. MacCord, Mountain View; Edward Merselis, Paterson, R. F. D.; Thos. D. Ryerson, Registrar, Wayne.

Weehawken, Hudson county; population 8,027. Members and officers—Emil W. Graunt, President; A. E. Fendrick, M.D., A. F. Anderson, T. A. Anderson, John M. Harman, Geo. C. McDonald, Silas W. Platner, Ferdinand Rubardt, Geo. McCaustan, Clerk.

***Westampton, Burlington county;** population 542. Members and officers—Hudson B. Haines, Clerk, Mt. Holly.

West Amwell, Hunterdon county; population 858. Members and officers—Chas. A. Slack, President; Chas. E. Holcombe, Wm. J. Cane, G. H. Carr, Clerk; F. W. Larrison, Inspector; all of Lambertville, R. F. D.

West Deptford, Gloucester county; population 2,227. Members and officers—Joseph A. Moore, President, Thorofare; R. M. Plum, Thorofare; W. R. Gibbs, Thorofare; James Hunter, M.D., Westville; James Carter, Clerk and Registrar, Thorofare.

West Milford, Passaic county; population 2,002. Members and officers—Samuel E. Cotter, President, Echo Lake; W. W. Eckhart, Newfoundland; Theo. Stickles, Newfoundland; John M. Weaver, Clerk and Registrar, Newfoundland; D. E. Drake, M.D., Newfoundland.

West Windsor, Mercer county; population 1,320. Members and officers—Jacob R. Wyckoff, President, Dutch Neck; Walter S. Grover, Princeton Junction; Hiram Mount, Trenton, R. F. D.; Hiram A. Cook, Clerk, Dutch Neck.

*No report received.

Weymouth, Atlantic county; population 900. Members and officers—Wm. Wilbur, President, Risley; Hope W. Gandy, Tuckahoe; Thos Bailey, Tuckahoe; F. R. McKeague, Registrar, Tuckahoe; Randolph Marshall, Inspector, Tuckahoe.

Willingboro, Burlington county; population 658. Members and officers—Elwood Hart, President, Rancocas; J. S. Perkins, Beverly; H. J. Hart, Clerk and Registrar, Rancocas; E. S. Adams, M.D., Inspector, Beverly.

Winslow, Camden county; population 2,856. Members and officers—F. Priestley, President, Elm; H. Kelling, Blue Anchor; F. Sickler, Sickler-ville; Joseph H. Graham, Registrar, Blue Anchor; C. Cunningham, Inspector, Hammonton.

Woodbridge, Middlesex county; population 10,221. Members and officers—Lewis E. Potter, President and Registrar, Woodbridge; Randolph Lee, Woodbridge; George Brown, Woodbridge; Michael Leehey, Fords; A. P. Cranston, Colonia; Anton Kuhlman, Clerk, Sewaren; R. A. Hirner, Inspector, Woodbridge.

***Woodland, Burlington county;** population 413. Members and officers—W. J. Buzby, Clerk, Chatsworth.

***Woolwich, Gloucester county;** population 1,138. Members and officers—W. G. Simmon, M.D., Secretary, Swedesboro.

*No report received.

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