

FORTY-FIRST ANNUAL REPORT

OF THE

DEPARTMENT OF HEALTH

OF THE

STATE OF NEW JERSEY

1917



TRENTON, N. J.

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Letter of Transmittal.

TRENTON, N. J., October 31st, 1917.

To His Excellency, Walter E. Edge, Governor of New Jersey:

SIR—I have the honor to transmit herewith the forty-first annual report of the Department of Health of the State of New Jersey.

Very respectfully,

J. C. PRICE.

Director.

Report of the Director.

J. C. PRICE, M.D., DIRECTOR.

The rapidly increasing pressure being applied to all divisions of public work to secure the largest possible per cent of efficiency is the leading feature of to-day. Reduction of waste and extension of public service toward the ultimates of profitable investment for the public weal—these are the greatest features taking possession of the public mind and speeding the efforts of public efficiency. To find the happy medium of profitable governmental supervision, control and development of our resources, whether it be forests, farms, domestic animals, natural or manufactured materials, public waters or conserving the health of men, women and children, such is the chief preamble and resolution of every branch of efficient public service. No department has felt this growing pressure for increased efficiency, economy and capacity more than the State Department of Health. All our states are far from applying our present knowledge in the preservation of the health of our people and increase of their vital capacity, efforts that will more than pay the cost not only in lives saved but in increasing productive returns, though differences are shown in the standards reached by the various municipalities. New Jersey made her first big advance toward proper public health evolution when she enacted Chapter 288 of the Laws of 1915, which aimed to give the State Department of Health an indirect control over the 495 sanitary districts of the state. Under past conditions, aside from the larger cities, local health administration and efficiency has been largely a dormant status and this is still largely true and will so continue until certain statutory readjustments further the amalgamation of present units that are too small and lacking both energy and efficiency. New Jersey must make revolutionary advances

and make them at an early date to keep abreast with a number of other states that are securing a complete state system of public health organization. To secure the most efficient and complete state system of organization, we should seek to extend the present highly efficient organizations of the service of our larger municipalities to sparsely settled communities and the thinly populated areas of our townships and boroughs. At present, in most of these rural municipalities, the sanitary districts are too small to provide sufficient funds for the one essential service, viz., a full-time health officer and other correctorial health work, too infrequent to sustain the local health boards' interest and activity. Our laws need a revision to secure the necessary amalgamation of many of our present sanitary units. With our local health administration throughout the entire state brought to the active standard of efficiency now attained by our State Department and working co-ordinately under the guidance of the central body, our people will secure a rich reward in the prevention of disease and the enhancement of our vital energies at a profitable cost. It is impossible with the limited funds at the disposal of the State Department of Health to keep constant state-wide observation of our many thousand dairies, potable water supplies, abattoirs, cesspools, disease-bearing insects, and last, but not least, quick and effective control of communicable diseases. Our State Department laboratory gives physicians throughout the state the quickest possible reports on specimens mailed to it of suspected contagious character, but every local sanitary district should have its own laboratory from which reports can be had within a few hours, and every hour saved is often of great value in checking an epidemic in its initiation. Under the existing war-time conditions our people are effecting a great revolution in governmental co-ordination, prevention of wastes, productive output, health and strength development and sanitary efficiency, the lesson and example of which will not pass and be forgotten at the end of the present war with all its horrors, and more than ever will it be imperative to secure the greatest possible check on infant mortality, tuberculosis, typhoid fever and other contagious diseases, occupational diseases and intemperance, and to enhance the standard of health and vigor among our people. Sanitary science has demonstrated her capacity to secure the highest degree of healthfulness and freedom from disease in the most difficult environment—crowded camp life. Grant our domestic public health system the perfected organization, power and means for fighting our perpetual enemy, disease, now so successfully applied by our military system, and we will secure results that will not spell simply victory, but will increase the productive capacity many fold for every dollar expended, and at the same time reduce the heavy cost of needless illness. Four cents per capita is approximately the amount appropriated for state public health use in New Jersey. Our best informed experts place the amount for efficient public health service at from fifty cents to one dollar per capita. This is from twelve to twenty-five times in excess of the allotted amount for health work in New Jersey. With our 495 sanitary districts merged into one-twentieth of that number, and each employing a trained, full-time health officer who shall re-

ceive his license from the State Department of Health, performing his duties under the direction of the local health organization, but subject to a revocation of his license by the State Department of Health for proven inefficiency, we will secure a co-ordinating state system of health organization that will greatly enhance public health and at a less pro rata expense than can possibly be obtained otherwise. Under our present health laws there are about 2,500 members of local health boards. Most of the funds expended (excluding the fully-organized boards of our larger municipalities) go for such membership attendance with a minimum of health work accomplished. We are thus drifting along under an inherited system that is not, and will not, be economical and efficient. Theoretically, we have a complete state health system and functioning organization of public health. Practically, we have an inco-ordinate system with only our State Department and a few municipalities effectively engaged. Since our last annual report our State Department of Health has energetically endeavored to secure the best results within its capacity. It has tightened up the observance of the law by physicians regarding the reporting of vital statistics, instituting trial promptly in case of failure to make reports, enacting chapters of the sanitary code on contagious diseases, nuisances and prohibiting the taking of shell fish from polluted waters, areas of which are defined, and there is a temporary ruling on poliomyelitis. At the instance of the Department a conference was held between the North Jersey Water Supply Commission and the Department of Health to secure co-ordinate definition of the potable waters of the state. With the steady increase of our population, and the extension of urban conditions into rural communities and the rapidly-growing demand for potable waters by our urban population, the preservation of the purity of our uplying waters is becoming a duty of growing importance and further study should be instituted at an early date to secure this pure water-supply with as little absorption of our agricultural production as possible. During the year the Department made a special study, seeking to determine just what lines of activity would secure the largest returns for every dollar expended in the three great ultimates—prevention of disease, preservation of health and increased vital capacity, to the end that we may concentrate our limited resources upon the most vital lines. It is of more importance to develop child hygiene and to check communicable diseases than to detect adulterations that do not affect the health, and if we have not sufficient funds to cope with both, we had best concentrate our efforts in conserving the public health.

The various activities of the Department of Health are given in detail in the reports of the chiefs of the respective bureaus and recorded in the following chapters.

The Department has been embarrassed during the past fiscal year as the result of unusual conditions caused by the war. A number of the staff have been conscripted; some have enlisted and others have been called and have accepted more lucrative positions, in consequence of which our working force has been depleted. Certain branches of health service have failed to receive the attention merited.

With the locating of a government reservation at Wrightstown, known as Camp Dix, it became necessary for this Department to establish at once a sanitary unit at that place. Under the supervision of the Chief of the Bureau of Local Health Administration, a sanitary survey was made of all that property lying contiguous to the cantonment.

There are within this sanitary zone, which extends seven miles from the Wrightstown station, eight different municipalities. One of the first duties of this Department was the abolishment of insanitary eating places, permitting only those to continue where inspection demonstrated their surroundings and equipment would warrant a license. Of the seventy-five applications for food vending purposes, twenty-five were granted.

There are three public water supplies within this zone. Analyses have shown two of these to be of good quality; the third, which is a private corporation, is both inadequate and polluted. The company has been ordered to secure a supply of pure water from an entirely different source, and this it has agreed to do. Aside from the three public supplies, the remaining territory within this zone depends upon shallow wells. Samples from twenty-one of these analyzed in the State Laboratory of Hygiene were found to be polluted, and the owners of these wells were required to install tight covers and protect them from all surface pollutions. Hearty co-operation is maintained between the sanitary unit of the Department at Wrightstown and inspectors at Camp Dix and a system of reporting diseases completed.

Other branches of health service which need immediate attention are milk and dairy inspection, examination of herds for tuberculosis, medical inspection of schools and gratuitous inoculations against typhoid fever and smallpox.

VITAL STATISTICS.

The work of the Bureau of Vital Statistics has been greatly increased during the past year, the increase in a great measure being due to the large number of applications for certificates of births, marriages and deaths issued for military purposes and pension uses. The campaign against physicians for failure to report births has also resulted in a great increase in the number of birth certificates received, and some idea of the amount of this work might be obtained from the following summary:

Deaths registered, indexed and tabulated.....	44,186
Births registered, indexed and tabulated.....	70,211
Still-births registered, indexed and tabulated.....	3,221
Marriages registered, indexed and tabulated.....	31,169
Total records registered, tabulated and permanently preserved.....	148,787
Certified copies issued and searches made for which fees were received	3,390
Certified copies issued and searches made in pension cases for which no fees were received.....	4,673
Fees returned to State Treasurer for certified copies and searches...	\$2,681.35

We receive in the Bureau of Vital Statistics, between the fifth and eleventh day of each month, over 12,000 certificates of births, marriages, deaths and still-births. These certificates are examined, counted and properly marked in the sanitary districts where they belong. The officers signing the certificates are also credited with the total number transmitted, and a book account is kept with close to five hundred of these local registrars, who from time to time receive an order on their local disbursing officer showing the amount due them for transmitting such certificates.

The births and marriages are tabulated separately by sanitary districts, but no punched cards are prepared in reference to the same. However, the births are tabulated so as to show the total number of whites and blacks in each district. The still-birth certificates received in the Department are in no way included in any of the tabulations of births and deaths, and no tabulations have ever been made of these certificates, nor have any tables been published except those showing the total number of such events in the state for a certain year.

The activities of the Bureau are in a general way set forth in the above statement, and because of the lack of sufficient clerical help, only the more important branches of the work are carried along so as to produce the best results possible. However, a comparison of the certificates received in the Bureau of Vital Statistics with similar registration areas having the same population will show that about twice the clerical help is employed in all other offices to handle this work as compared with our Bureau.

FOOD AND DRUGS.

Since the publication of the last report of this Department the Division of Milk Control has been merged with the Bureau of Food and Drugs, making this one of the largest and more important bureaus of the Health Department. Here some of the great food industries of the state are guarded and the foods of our people made safe for human consumption.

The value of the shell fish industry under the supervision of this Department amounts to more than three and one-half million dollars annually.

There are more than 10,000 dairies within the state furnishing food products to millions of people, and it is mandatory that this Bureau enforce the statutes that these various products conform to the legal requirements for purity and cleanliness, and that all animals producing such shall be free from disease.

The rules and regulations of this Department require all proprietary articles to be properly labeled and all pharmaceutical products to conform in strength and purity as required by the National Formulary and U. S. Pharmacopeia.

A special inspector has been appointed, whose sole duty shall be to guard the manufacturing, distribution and sale of ice cream under

rules and regulations of this Department. On February 27th, 1917, the Department adopted the following rules and regulations governing the pasteurization of milk:

RULES AND REGULATIONS.

(Adopted February 27th, 1917.)

1. (a) Every person, firm or corporation not now holding a license who operates or conducts or desires to operate or conduct a creamery or milk pasteurizing plant shall make application to the Department of Health of the State of New Jersey for a license to operate such creamery or milk pasteurizing plant. Such application shall be in writing upon blanks which will be furnished by the State Department of Health upon request and shall be signed by the person, firm or corporation making the application.

(b) Upon receipt of an application to conduct a creamery or milk pasteurizing plant, together with such information as may be required by these rules, an inspection will be made by a representative of this Department of the premises designated in the application. If it appears as a result of this inspection that said creamery or milk pasteurizing plant is so conducted and equipped that the business to be conducted therein can be performed in a cleanly manner and in compliance with the rules and regulations adopted by the State Department of Health and with the provisions of law, a license will be issued. All licenses must be renewed yearly. The date of termination of all licenses is July first.

(c) In the case of new buildings, plans and specifications shall be submitted to the State Department of Health for approval when application for a license is made and before construction is begun. It is advised that plans be submitted for approval for any alterations or changes at creameries or milk pasteurizing plants already licensed which may affect the operations of the plant.

(d) The person, firm or corporation in whose name a license to operate a creamery or milk pasteurizing plant is issued will be held responsible for any violation of law or of the rules of the State Department of Health relating to creameries and milk pasteurizing plants.

(e) A license to operate a creamery or milk pasteurizing plant is not transferable.

2. No person affected with a disease which may be transmitted through milk or its products, or who shall care for or come in contact with any person so affected, shall handle milk or its products.

3. Milk, cream and other milk products when handled or stored in any creamery or milk pasteurizing plant shall be securely protected at all times from flies, dust and all other foreign or injurious contamination.

4. No part of any building occupied as a creamery or milk pasteurizing plant shall be used as a dwelling or kitchen, and no family washing shall be done therein.

5. No part of any building occupied as a creamery or milk pasteurizing plant shall be used as a stable.

6. The floors of all rooms where milk or its products are handled shall be constructed of cement or other impervious material and shall be so graded that waste liquids will be readily removed.

7. Waste liquids shall be conducted to a point outside the building and disposed of in accordance with the provisions of law and in such a manner as will not create a nuisance.

8. The side-walls and ceilings of all rooms where milk or its products are handled shall have smooth surfaces and shall be kept clean. Painting with a light-colored paint at frequent intervals is recommended.

9. Rooms in which milk or its products are pasteurized or otherwise handled and rooms in which utensils, apparatus and containers are washed shall be well lighted and ventilated. Vent pipes or other outlets of adequate size for the removal of steam should be provided.

10. The washing of containers and utensils should be avoided if possible in rooms in which milk or its products are handled. If such washing is done in such rooms it shall not be carried on during the time of milk handling.

11. All openings to the outside air shall be so screened as to exclude flies from the creamery.

12. All creameries and milk pasteurizing plants shall be provided with an abundant supply of pure hot and cold water.

13. Apparatus and utensils used in the handling of milk or its products shall be of such material and construction as to enable them to be readily cleansed.

14. Receiving and holding vats, storage tanks and bottle fillers shall be built of metal or other suitable material and shall be provided with closely fitting metal covers.

15. Milk pipes and pipe fittings shall be constructed of metal with smooth interior surfaces and shall be so connected that leakage will not occur. The amount of milk piping in use should be reduced to a minimum. All pipes shall be disconnected and cleansed daily.

16. All apparatus shall be thoroughly cleansed each day. Such apparatus shall after use be washed with cold water, then scrubbed with a warm alkali solution and finally rinsed with scalding water or steamed. Immediately before use all apparatus shall again be subjected to scalding water or steam.

17. Cans or receptacles which are badly worn or rusted on the inside surface, or in such a condition that they cannot be readily cleansed, shall not be used to contain milk or its products.

18. No milk or cream shall be offered for sale or distribution as "pasteurized" unless it shall have been heated to a temperature of 142 to 145 degrees Fahrenheit and held at that temperature for thirty minutes.

19. Milk or cream, after pasteurization, shall be rapidly cooled to a temperature of 50 degrees Fahrenheit or below and maintained at that temperature until distributed or shipped.

20. Pasteurized milk shall not be held, kept, offered for sale or sold in bottles unless such milk has been bottled at the place and on the day of pasteurization.

21. No milk or cream shall be pasteurized a second time.

22. Every pasteurizing apparatus shall be equipped with a recording thermometer so arranged as to show the temperature to which the milk has been heated and, if possible, the time which it has been held.

23. Recording thermometer charts shall be clear and intelligible and shall show the dates of pasteurization of milk and cream. Such charts shall be kept on file at the pasteurizing plant for not less than ninety days and shall be open to inspection to representatives of the Department of Health of the State of New Jersey.

24. Surface coolers shall be provided with suitable covers of smooth metal or glass, except when such coolers are maintained in a separate room used for no other purpose.

25. Containers in which pasteurized milk or cream is shipped or delivered shall be plainly tagged, capped or labeled "pasteurized" and the said tags, caps or labels shall be marked with the location of the pasteurizing plant, name of proprietor of the business which is conducted at the said pasteurizing plant and the day on which milk was pasteurized.

26. Bottle caps shall be stored in a clean place and protected from contamination.

27. Bottles, cans or other receptacles used as containers for milk and its products shall be cleansed by washing with a solution of at least one per cent. alkali at a temperature of not less than 125 degrees Fahrenheit, scrubbed

inside and out with suitable brushes and then rinsed with warm water, or by some other method, provided that such method results in the same degree of cleanliness as the method described. After such washing and rinsing, said bottles shall be scalded with hot water or steam.

28. Bottles, after washing, shall be so stored as to protect them against contamination until filled.

29. Cans, immediately after washing, unless covered, shall be stored in an inverted position upon racks constructed preferably of metal. The lids of all milk cans shall be stored on suitable racks in such a manner as to avoid contamination.

30. Clean outer garments shall be worn by employees while handling milk or its products.

31. No person shall smoke or expectorate anywhere in any room in which milk or its products are handled.

32. Toilet facilities shall be provided for the use of employees, but no water closet or privy shall communicate directly with any room used for handling milk or its products, or with any room in which utensils are washed. If privies are provided, they shall be so constructed and maintained that flies cannot gain access to the excremental matter contained therein, and such excremental matter shall be prevented from flowing over or upon the surface of the ground. Every privy or other receptacle for human excrement located within 100 feet of any stream, the waters of which are used for drinking or domestic purposes, shall be provided with a water-tight vault. Toilet rooms and privies shall be kept clean.

33. All creameries shall be provided with suitable sinks at which employees may wash their hands and soap and clean towels shall be provided convenient to wash sinks. Employees must wash their hands before beginning work and after visiting toilet.

34. Violation of the above rules or any of them renders the violator liable to a penalty and the license of the creamery or pasteurizing plant in which the violation was committed may be revoked.

During the fiscal year hearings were held each week by the Director of Health for violations of the food laws. During that time 357 persons were cited to appear at these hearings, and 115 cases were referred to the Attorney-General for prosecution. The number of sewage and water cases referred to him was 21. Penalties amounting to \$5,835.02 for violations of the food and drug laws of the state were collected during the year.

Two factors which have greatly hampered the work of the Food and Drug Bureau during the year are the lack of funds and insufficient number of inspectors. More well-trained and competent men are needed. The Bureau is one of the largest organizations of the Department, and its work is so diversified in character that a considerable amount of money is necessary if the work to which it is entrusted is to be thoroughly done. If such funds are not forthcoming, in my judgment, certain of the lines of work with which the Bureau is now engaged should be discontinued. One of the most obvious would be the discontinuance of the inspection of places where ice cream is manufactured. To accomplish this the Creamery law (Chapter 139 of the Laws of 1906, as amended in 1911) should be amended by striking out the words "Ice Cream," and such a procedure is recommended. The work of inspecting ice cream factories can be well entrusted to the local boards of health.

Equally desirable would be an amendment to Chapter 78 of the Laws of 1911, by removing the mandatory provision which now requires the Department to make an inspection of the dairies supplying milk to any city in the state when so requested by the local board of health of such municipalities. The present law makes the Department the servant of every board of health in the state and renders it impossible for the Bureau to make the best use of its men.

Section one of the law providing for the licensing of creameries should be so amended that the authority now existing regarding the use of creamery buildings as dwellings should be removed.

Section 13 of the New Cold Storage law is defective and should be corrected at the coming session of the Legislature. Legislation is also recommended to provide for the licensing of canning factories.

Investigations made this year have indicated that there is still being sold in the state a considerable number of preparations containing morphine and alcohol. These preparations are recommended to be used for babies and young children. The dangers to children which are incurred by the use of preparations having opium and alcohol are well known, and it is therefore again suggested that legislation be secured prohibiting the sale of all patent and proprietary preparations which contain any chloral hydrate, opium, morphine, heroin, codeine, or any salt derivatives or compounds of any of the above-mentioned substances, the labels of which preparations indicate that they are to be used for the treatment of babies or young children.

Data obtained by the Bureau as a result of inspection work indicates that certain pharmacies still have goods displayed for sale and that the packages in which the preparations are contained are marked with the words and figures "On hand October 1, 1908." This is in accordance with the section of the law which states that the provisions of the Food and Drug act relating to misbranding shall not apply to the distribution and sale or to the possession with intent to distribute or sell by any dealer of such proprietary food and medicines as were in such dealer's stock in this state on October 1st, 1908, provided that the package or other container in which such food or medicine shall be contained shall be plainly and conspicuously marked with the words and figures "On hand October 1st, 1908." It is recommended that the Department ask for the repeal of the section of the law above quoted.

Finally, it is recommended that the legislation be prepared, having for its purpose the repealing of Section 24, which now provides that "no person shall kill, or aid in killing for human food, any calf less than four weeks old. No person shall sell, or offer for sale, or have in his possession with intent to sell, any calf which has been killed when less than four weeks old, or any of the meat of any such calf."

COLD STORAGE.

In accordance with Section 8 of Chapter 101 of the Laws of 1916, which requires the State Director of Health to extend the period of storage beyond twelve months for any particular article of food held in cold storage warehouses, the time limit was extended on the lots of foods indicated in the following table:

Amount.	Kind.	Length of Extension Granted.	Reason for Granting Extension.
88 barrels	ducks	2 weeks.	Mandatory by law.
100 barrels	ducks	2 weeks.	Mandatory by law.
50 barrels	ducks	2 weeks.	Mandatory by law.
102 barrels	ducks	2 weeks.	Mandatory by law.
50 barrels	ducks	2 weeks.	Mandatory by law.
101 barrels	ducks	2 weeks.	Mandatory by law.
42 barrels	ducks	1 week.	Mandatory by law.
50 barrels	ducks	1 week.	Mandatory by law.
44 barrels	chickens	1 week.	Mandatory by law.
51 barrels	chickens	1 week.	Mandatory by law.
310 tierces	oleo oil	1 week.	Mandatory by law.
150 tierces	oleo oil	1 week.	Mandatory by law.

During the year application was also received from an exporting house in New York City for permission to extend the storage period on a quantity of oleo oil in cold storage in this state. The total amount of oil was 900 tierces. This oil had been stored during the months of June, July, August, September and October, 1916. The extension requested was for a sufficient length of time to enable the exporters to secure the necessary permits to ship the oil abroad. The detailed facts as presented appeared to justify an extension and an additional period of storage was allowed until October, 1917. Investigations made at this time, however, indicated that the exportation could not be accomplished at any date which could be definitely fixed and the oil was ordered out of storage. It has since been disposed of in this country, in part for edible purposes and in part for industrial purposes.

The following rules governing the operation of canning factories were adopted by the Department of Health, under authority contained in Section 31 of Chapter 217 of the Laws of 1907, and Section 11 of Chapter 231 of the Laws of 1909, at a regular meeting held on June 7th, 1917:

1. When a building is to be erected or equipped as a canning factory, plans and specifications should be submitted to the State Department of Health for approval before construction is begun. It is also advised that plans be submitted for approval for alterations in canning factories which may affect the operation of the establishment.
2. The manufacture of canned goods, and particularly of pulp, paste, catsup or soup stock from wholly or partly unsound materials is prohibited.
3. Materials which are rejected as unsound in any process incident to the preparation of foods for canning will be regarded as decomposed within the meaning of Section 3, Chapter 217 of the Laws of 1907.
4. All tomatoes intended to be used in the manufacture of pulp, paste, catsup or soup stock shall be thoroughly sorted, and all unsound material removed

before the final washing; and the sound stock, after sorting, shall be thoroughly washed in clean water before pulping.

5. If trimmings and peelings from tomatoes are to be used in the manufacture of pulp, paste, catsup or soup stock, such tomatoes must be treated in the manner laid down in Rule 3. Pulp, paste, catsup or soup stock when made from trimmings or peelings will be regarded as misbranded unless so labeled.

6. Tomatoes intended to be used for canning purposes may be sorted and the unsound portions, skins and cores removed after washing and scalding, provided the trimmings are not used in the manufacture of food products.

7. Tomato pulp, paste, catsup and soup stock will be held to be adulterated under the provisions of Section 3, Chapter 217 of the Laws of 1907, unless they comply with the tentative standards in use by the U. S. Department of Agriculture, which are as follows:

Moulds, present in not more than 66% of fields at 90 diameters.

Yeasts and spores, not more than 125 per 1/60 cubic millimeter.

Bacteria, not more than 100,000,000 per cubic centimeter.

8. In the manufacture of pulp, paste, soup stock and catsup from tomatoes adequate facilities and machinery must be provided to handle the product expeditiously and in a clean manner.

9. Canned goods manufactured from dried fruits or vegetables which have been subjected to a preliminary soaking will be held to be misbranded, unless the label bears the word "SOAKED," or an equivalent term, in plainly legible letters conspicuously placed. This rule shall not apply to the packing of marrow beans, pea beans or kidney beans packed with or without pork or tomato sauce.

10. Tomatoes labeled "Fancy," "Superfine," "Finest Quality," "Extra Choice," or with other expressions of like nature, will be held to be of the quality described as "Fancy" defined below, and will be held to be misbranded if they do not conform to that definition or to the quality generally described by the trade by that name.

All goods below the quality of "Standard" as defined below, or goods containing undue amounts of skins, cores, unripe tomatoes or other evidences of careless packing or inferior materials, or goods made from overripe tomatoes, or goods having a disagreeable or unusual odor, will be classed as "Seconds," and will be held to be misbranded unless the word "Seconds," or some similar expression intelligible to the retail purchaser is plainly and conspicuously printed on the label.

"Fancy."—Made from well-selected, ripe tomatoes, a large proportion of which are whole.

"Extra Standard."—Made from ripe, sound tomatoes.

"Standard."—Made from sound, average ripe tomatoes; not necessarily all red.

Canned tomatoes offered for sale in this State will be deemed to be adulterated if, upon examination, they show the presence of added water.

11. All canned goods must be solidly packed—that is, all cans must be filled as full of the material being packed as can be done without injuring its quality or appearance; and if the use of water, brine or syrup is necessary, no more of such water, brine or syrup shall be used than is required to fill the spaces between the material being packed when the cans are solidly filled in the manner above described.

This rule shall not apply to the canning of soups.

12. Adequately equipped wash rooms, and places where employees may change their clothing, must be provided for male and female employees. These wash rooms must be separate and apart from any room where manufacturing or storage of food products is carried on; they must be provided with sufficient water, soap and clean towels.

13. Toilet facilities shall be provided for the use of employees, but no water-closet or privy shall communicate directly with any room used for preparing or packing canned food products. If privies are provided, they shall be so constructed and maintained that flies cannot gain access to the excre-

mental matter contained therein, and such excremental matter shall be prevented from flowing over or upon the surface of the ground. Every privy or other receptacle for human excrement located within 100 feet of any stream, the waters of which are used for drinking or domestic purposes, shall be provided with a water-tight vault. Toilet rooms and privies shall be kept clean.

14. Persons operating canning factories must compel their employees to wash their hands before beginning work and after visiting the toilet.

15. Waste material must not be permitted to accumulate around buildings, but must be removed daily.

16. Rooms in which manufacturing is carried on must be provided with smooth, water-tight floors which can be properly cleansed, and such floors must be cleansed daily.

17. Waste liquids shall be conducted to a point outside the building and disposed of in accordance with the provisions of law and in such a manner as will not create a nuisance.

18. The outer clothing worn by persons engaged in preparing or packing canned food products shall be of material which can be readily cleansed, and only clean garments shall be worn.

19. No employee with infected wounds in the hands or arms shall be permitted to handle food products or the containers in which they are placed, before such containers are sealed or capped. Clean cuts which are not infected shall be covered with rubber cots securely fastened.

20. No employer shall require, permit or allow any person to work, nor shall any person work in any building or room used for the preparing or packing of canned food products who is affected with any communicable disease.

21. The use of barrels or other containers which cannot be properly cleaned and sterilized will not be permitted for the storage of pulp, paste or soup stock.

22. An abstract of the rules and regulations of the State Department of Health shall be posted in a conspicuous place in each room where food is manufactured, handled or stored. If persons are employed who do not understand the English language, suitable translations of so much of the regulations as affect the operatives shall also be posted in languages with which they are familiar.

23. Swells and other spoiled canned goods may be returned to canners by jobbers and retailers for purposes of inspection only. Under no circumstances will the reprocessing, relabeling or sale of canned goods which show evidences of fermentation or spoilage be permitted.

These rules shall take effect July 1st, 1917.

ICE CREAM.

There were during the last season 630 establishments within New Jersey where ice cream was manufactured, and realizing the importance that this valuable food product should be produced only under strict sanitary regulations—a food so susceptible to contamination—the Department determined to place the manufacture, sale and distribution under the supervision of a special inspector. A man of the staff was selected whose knowledge and long experience eminently equipped him for performing the duties this responsible position required.

The following regulations concerning the approval of the site and plans for tuberculosis hospitals or sanatoria, together with form of application for the approval of said site and plans, were adopted by the Department of Health of the State of New Jersey, on December 5th, 1916:

REGULATIONS CONCERNING THE APPROVAL OF THE SITE AND PLANS FOR THE CONSTRUCTION OF TUBERCULOSIS HOSPITALS OR SANATORIA.

The law makes the following requirements regarding the construction of tuberculosis hospitals and sanatoria:

1. No such hospital or sanatorium can be constructed until the State Department of Health has approved the site.

2. Before construction is undertaken it is necessary that the plans and specifications for the buildings be approved by the State Department of Health.

3. In case a source of water other than an already existing public supply is used, plans and specifications for the water supply system must be submitted to and approved by the State Department of Health before the installation is made.

4. In case a sewage disposal plant is constructed, plans and specifications for such construction must be submitted to and approved by the State Department of Health before the construction is undertaken.

Before an application for the approval of a site or the approval of plans for the construction of a tuberculosis sanatorium or hospital will be considered by the State Department of Health, an application must be filed in accordance with the requirements of the following rules and regulations:

(1) *Site*.—An application for the approval of the site for a proposed tuberculosis sanatorium must comply with the following requirements:

(a) The application shall be made in writing, upon blank forms which will be supplied by the Department upon request.

(b) The application shall be signed by the applicant, or by the duly authorized officials of the municipality, county or corporation, when such municipality, county or corporation is the applicant, and shall be filed with the Department of Health of the State of New Jersey at least 30 days prior to the date upon which action by the Department is desired. From this it is not to be inferred that action by the Department will always be taken within the period mentioned.

(c) The application shall give the name of the municipality, in which it is proposed to locate the sanatorium or hospital.

(d) The application shall be accompanied by a clear and legible descriptive map of the proposed site, which shall show the nature and extent of the property intended for the use of the hospital or sanatorium. There shall also be shown on the same or additional map the location of the proposed buildings, the locations of all buildings on the property, and all other buildings within a radius of 250 feet in every direction from the proposed site of the institution buildings. The map shall also show all roads, highways, electric railway lines, or railroads, from which the institution is accessible. If these utilities are more than 250 feet from the site, a brief discussion should accompany the application setting forth the means of reaching the institution and its accessibility.

The map of the site and vicinity shall be drawn to a suitable scale to show the required features, and shall be signed, dated, given an appropriate title, and marked to indicate the true or magnetic north. On the map shall be shown the streams, wooded areas, fields, the location of existing buildings on the tract to be used, the proposed location of sanatoria buildings, location of any proposed sewage treatment plants for the disposal of the sewage, location of any proposed sources of water supply, or other means of obtaining a supply of water.

(e) The application shall state the number of beds to be provided for patients, and shall also state whether it is planned to treat incipient or advanced cases, or both.

(f) When the Department of Health of the State of New Jersey shall have notified the applicant as to the date, time and place for a public hearing on such application, the applicant shall publish a notice giving the date, time and place of such hearing, at least two weeks prior to the date fixed for said hearing, in some newspaper published and circulated in the municipality in which it is desired to locate the institution. If no newspaper is published in

such municipality, the applicant shall post at least ten notices in conspicuous places in the municipality, fifteen days before such hearing giving notice of the application, the date, time and place for the hearing. Sworn, documentary evidence of compliance with this regulation shall be furnished by the applicant on the date fixed by the Department for the hearing.

There should also be a brief discussion of the character of the land which it is proposed to purchase, pointing out whether or not swampy lands of any considerable extent are located within a short distance of the institution.

Information should also be provided as to the direction in which the buildings will face, as to whether or not the buildings will be exposed to the full force of the wind, and information should be provided as to the disposition of other buildings which are on the property and which were there when the property was purchased, or which are later to be constructed.

(2) *Plans and Specifications.*—(a) All plans for the erection or alteration of hospitals or sanatoria for tuberculous patients shall be submitted to the Department of Health of the State of New Jersey before construction is begun.

(b) All plans, drawings, specifications shall be clearly legible, fully detailed, and comprehensive.

Scale.—(c) It is recommended that the general drawings, plans, elevations, etc., be drawn to a scale of one-quarter inch to one foot. Special details should be shown to a larger scale.

Drawings.—(d) All drawings submitted shall be neatly and plainly executed and may be traced on tracing cloth, printed on transparent cloth, or printed on any of the various papers of strong texture giving distinct lines.

Size of Drawing.—(e) With the exception of the map submitted with the application for an approval of the site the following dimensions are suggested for ordinary use. Distance from top to bottom 20 or 30 inches, length of drawing 24, 32, 40 or 48 inches or thereabouts.

By this section it is intended to prevent the use of unnecessarily large or small drawings.

Title.—(f) Each drawing shall show the name of the municipality, county, or person for whom the drawing is made, the name of the institution, the signature of the designing or supervising architect, the date, the scale, and such references in the title as are necessary for the complete understanding of the drawing.

Specifications and Estimate of Cost.—(g) The specifications shall be full and complete and shall disclose the nature of the methods to be used in the construction and the character and kind of materials to be utilized and the equipment to be provided.

The following fixtures and equipment shall be covered separately and in detail in the specifications:

- Plumbing and fixtures
- Heating apparatus
- Power house and equipment
- Laundry and sterilizing room and equipment
- Cold storage plant
- Amusement pavilion
- Lighting system and fixtures
- Vacuum cleaning and equipment

Report.—(h) The specifications and designs shall be accompanied by a letter or report giving the following information:

The window space provided as related to the area of the walls of the building.

The amount of porch space available for each patient in square feet.

The air capacity of the wards per patient in cubic feet.

Information as to the housing of the administration staff, servants and patients, clearly pointing out the use of each of the rooms provided in the buildings.

NOTE.—Detail plans of buildings, specifications, etc., need not be prepared and submitted to the Department until the site for the proposed Sanatorium has been approved.

Water Supply System.—If a new source of water is to be utilized, designs for such water supply system for the institution shall be submitted to the Department separately and shall comply with the rules and regulations of the Department of Health of the State of New Jersey, for the submission of such plans.

Sewage Treatment Plant.—Designs for a sewage treatment plant for the institution, if the construction of such a plant is necessary, shall be submitted to the Department separately and shall comply with the rules and regulations of the Department of Health of the State of New Jersey for the submission of such plans.

No Deviations from the Approved Plans Shall be Made unless amended plans, showing such proposed changes, have been submitted to and approved by the Department of Health of the State of New Jersey.

DEPARTMENT OF HEALTH OF THE STATE OF NEW JERSEY, TRENTON, N. J.

APPLICATION FOR THE APPROVAL OF THE SITE OF A PROPOSED HOSPITAL, SANATORIUM, PREVENTORIUM, OR OTHER INSTITUTION FOR THE CARE, BOARD, OR TREATMENT OF PERSONS AFFLICTED WITH PULMONARY TUBERCULOSIS.

19.....

To the Director of Health, Department of Health of the State of New Jersey, Trenton, New Jersey.

SIR:—In accordance with the provisions of Chapter 66 of the Laws of 1910.

(Cross out all but chapters of Chapter 55 of the Laws of 1910, Chapter 217 of the Laws of 1912, and the laws in accordance with the provisions of which this application is made.) various amendments and supplements thereto, application is hereby made by

..... of the (Common council, commissioners, board or individual.) (City, town or borough, etc.) of in the county of of the

(Name of municipality.) (Name of county.) State of New Jersey, for the approval of the site on which it is proposed to

..... an institution for the (Construct or establish.) (Care, board or treatment.) of persons afflicted with of pulmonary

tuberculosis for which purpose (Incipient or advance cases or both.) beds are to be provided for

patients. The said site is located in (Number.) (City, town, township, etc.)

of in the county of (Name of municipality.) (Name of county.) of the State of New Jersey.

Accompanying this application is a general plan of the proposed site and adjacent territory showing:

1. Nature and extent of the property intended for the use of the institution.
2. Location of proposed buildings.
3. Location of existing buildings and all information required by Section D. of the rules and regulations for the approval of the site for Tuberculosis Hospitals and Sanatoria, adopted by the Department of Health of the State of New Jersey.

There is also transmitted herewith a statement containing information required in Sections G. and H. of the above-mentioned rules and regulations.

(Signed)

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NOTE.—This application for approval of the site must be signed by the proper officials having legal jurisdiction over the proposed institution, or by the individual who expects to operate the institution.

ANTHRAX.

During the months of July and August, 1917, an outbreak of anthrax occurred in Salem county. An investigation was made by the veterinarian connected with this Department in co-operation with the Chiefs of the Bureau of Animal Industry. Reports obtained of local burials indicated that 59 cattle had died as a result of anthrax on 23 dairy farms. It was found during the investigation that most of the dairymen were either selling their milk for pasteurization purposes or had discontinued the sale of the same. In those cases where the dairymen sold their milk for pasteurization purposes, and were co-operating in stamping out the disease, the owners were advised concerning the nature of the disease and the precautions which should be taken to prevent the spread of the same. There were three dairymen, however, who failed to co-operate with the Department and it was found necessary to stop the sale from their dairies temporarily. The sale of milk from these premises was prohibited for 10 days, until after the last death caused by anthrax had been reported.

VENEREAL DISEASES.

The following act was passed by the Legislature of 1917, amending Chapter 288 of the Laws of 1915, requiring physicians to report cases of venereal diseases:

CHAPTER 282.

A Supplement to an act entitled "An act to increase the efficiency of public health protection in this State, to abolish the State Board of Health, and to create a State Department of Health, and to prescribe and define the powers and duties of such department," approved April fourteenth, one thousand nine hundred and fifteen.

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

1. Every physician, superintendent or other person having control or supervision over any State, county or municipal hospital, sanatorium or other public or private institution in which any person suffering from or infected with a venereal disease, such as chancroid, gonorrhoea, syphilis or any of the varieties or stages of such diseases is received for care or treatment or in which any person who is received into any such State, county or municipal hospital, sanatorium or other public or private institution suffering from any other disease, but is found to be also infected with any venereal disease such as chancroid, gonorrhoea, syphilis or any of the varieties or stages of such diseases, shall immediately after such case of sickness or disease has been received into said institution report such case of sickness or disease to the Department of Health of this State. Such report shall state the name, address, color, sex and nationality of the person and the age as nearly as practicable, together with the character of the disease and the probable source of infection and whether previously reported or not, and if so, when, where and by whom; and every physician, superintendent or other person having control or charge over any State, county or municipal hospital, sanatorium or other public or private

institution in which any case of venereal disease set out in this section is received for cure or treatment, who shall fail to perform the above-mentioned duty at the time and in the manner named, shall be liable to a penalty of fifty dollars for each such failure.

2. Every physician, nurse or other person treating or attempting to treat by prescription, formula, patented or proprietary medicine or compound or otherwise, and every physician, nurse or other person selling or giving away any prescription, formula, patented or proprietary medicine or compound, which either by itself or in connection or conjunction with any other treatment, medicine or compound is claimed to be useful, or to cure, relieve or to arrest in any way or manner any venereal disease such as chancroid, gonorrhoea, syphilis or any of the varieties or stages thereof, shall report immediately to the Department of Health of this State the name, sex, address, color and nationality of the said person so infected with such disease, and the age as nearly as practicable, together with the character of the disease and the probable source of infection and whether previously reported or not, and if so, when, where and by whom; and every physician, nurse or other person treating or attempting to treat in any manner any of the venereal diseases or varieties or stages thereof, and every physician, nurse or other person selling or giving away any prescription, formula, patented or proprietary medicine or compound for the uses and purposes mentioned in this section who shall fail to perform the above-mentioned duty at the time and in the manner named, shall be liable to a penalty of fifty dollars for each such failure.

3. The Department of Health of this State shall make and enforce such rules and regulations for the quarantining and treatment of venereal disease such as chancroid, gonorrhoea, syphilis or any of the varieties or stages of such diseases reported to it as may be deemed necessary for the protection of the public. Said Department of Health shall not disclose the names or addresses of such persons reported or treated to any person other than a prosecuting officer or in court in prosecutions under this or any other State law.

4. The Department of Health of this State shall provide facilities for the free bacteriological examination of discharges for the diagnosis of gonorrhoeal infections, and also shall provide, at cost, vaccines or antitoxins for the treatment of such infections. And the said department shall make, at the expense of the State, the Wasserman or other approved tests or examine smears for the diagnosis of syphilis; and shall furnish the treatment known as "Salvarsan" or other accredited specific treatment at cost. But such diagnosis and treatment shall not be furnished until the data required for the registration of the case has been furnished by the physician, nurse, or institution treating the patient.

5. For the expenses of carrying into effect the purposes of this act, the sum of two thousand dollars is hereby appropriated annually, when included in any annual or supplemental appropriation bill.

6. This act shall take effect immediately.

Approved March 29th, 1917.

LABORATORY OF HYGIENE.

The work of the Laboratory of Hygiene, in the main, has been continued along the lines pursued in previous years. The most important part of the work is the examination of specimens from suspected cases of communicable diseases, which are sent for this purpose by physicians in all parts of the state. During the present year a total of 28,713 such specimens have been examined. Of these, 13,935 were examined for the purpose of ascertaining whether or not diphtheria bacilli were present: 5,916 were specimens of sputum sent to be examined for tubercle bacilli: 5,023 were specimens of blood to be ex-

amined by Widal's method; 331 were specimens to be examined for malaria; 2,939 were from suspected cases of venereal diseases, and 549 were miscellaneous specimens, involving a very considerable variety of examinations.

Besides making these examinations, the laboratory has been engaged in the manufacture of culture media and other laboratory supplies, which it furnishes at cost to local board of health laboratories, and to the laboratories of water purification and sewage disposal plants throughout the state. This service furnished by the laboratory has induced a number of local health departments to begin the examination of specimens themselves, and it is the desire of the Department to encourage these examinations by local boards of health. It is a great convenience to local health departments and water and sewage laboratories, who use culture media in limited quantities, to purchase it at reasonable prices and thus to avoid its manufacture, which is troublesome and time-consuming.

The work of the laboratory is steadily increasing, and will doubtless continue to increase, not only in the number of specimens examined, but in the variety of the examinations undertaken. During the past year the examination of specimens by Wasserman's method for syphilis was begun, and 1,822 specimens were examined. It is expected that during the coming year the number of these specimens will have increased at least fivefold. The laboratory is also examining specimens of stools and urine from suspected typhoid cases and carriers, both for the Bureau of Local Health Administration and for institutions and physicians. Methods are now available whereby typhoid bacilli, if present in feces or urine, can be isolated with reasonable certainty, but the examination of these specimens requires considerable time, as well as large quantities of culture media, and severely taxes the present laboratory force.

During the present year a considerable number of specimens were received and examined from the United States army cantonment at Wrightstown, most of these having been collected and submitted by the physicians employed by the contractor putting up the buildings for the cantonment, and some few having been submitted by medical officers of the army previous to the time when the laboratory at the base hospital at Wrightstown was completed.

The laboratory also makes chemical examinations of water and sewage for the Bureau of Engineering, and of a large number of samples of food and drugs for the Bureau of Food and Drugs. Examinations of this character are also made, on request, for local boards of health, and it is hoped that additional facilities will be provided so that this service can be extended. If local boards of health can be assured of analytical assistance in the enforcement of the Food and Drugs act, many of them will be much more active in this work than they are at the present time, but this assistance can only be offered now to a very limited extent because of the smallness of the laboratory force.

During the year the laboratory has been called upon to continue

the investigations begun during the preceding fiscal year, into the cause of certain objectionable fumes and odors produced by manufacturing plants in the vicinity of Edgewater, N. J. The manufacturers co-operated very satisfactorily in these investigations, and have installed fume and odor consuming devices, so that the situation in this vicinity has materially improved. An investigation has also been begun into the source of certain fumes and odors arising in the vicinity of Bound Brook, and which are causing complaints by citizens of that municipality. These inquiries could profitably be extended to various parts of the state, if the working force of the laboratory were sufficiently large to make the necessary investigations. With the increase of chemical manufactories in this state, complaints of fumes and odors are inevitable, and unless steps are promptly taken to regulate those industries which are liable to produce objectionable odors, nuisances will surely arise which will be very difficult to abate after they have become permanently established. This situation is one which requires legislative action, and it is recommended that the attention of the legislature be drawn to the necessity for the enactment of laws regulating the location of factories likely to produce objectionable odors and fumes, and providing for the installation of fume and odor consuming devices. Provision should also be made for an inspection force sufficiently large to enable an investigation of the numerous factories in the state now producing odors and fumes to be made, and an experimental station where devices for the control of fumes and odors could be studied.

The work of the laboratory has been very seriously hampered during the past year, because of the crowded quarters which it occupies. With every increase in the number of specimens, and with each new line of activity undertaken, this crowding becomes more and more acute. It has now reached the point where it causes serious inefficiency in the work. It is therefore recommended that the Legislature be requested to provide funds for the construction of a laboratory building outside the State House, where sufficient room to carry on the work properly can be made available, and where a suitable place will be provided to adequately house the present laboratory equipment and to provide space for reasonable growth.

SEWERAGE WORKS, PLANS FOR WHICH HAVE BEEN ACTED UPON BY THE DEPARTMENT OR THE WORKS CONSTRUCTED.

The plans for sewer extensions approved by the Department have been for the following municipalities: Avon, Collingswood, Cranford Township, Haskell (E. I. du Pont de Nemours & Company), Linden Township, Long Branch, Ocean City, Plainfield, Pompton Lakes (Cap Works of the E. I. du Pont de Nemours & Company), Red Bank, Roselle, Sea Girt, Summit.

Sewer extensions were approved with conditional stipulations, as follows:

CARNEY'S POINT (E. I. du Pont de Nemours & Company):—That a sewage treatment plant shall be installed when required by this Department.

HIGHLAND PARK:—(a) That such approval will not in any manner affect the status, force, or terms of an order issued by this Department requiring the Borough of Highland Park to cease polluting the waters of this State. (b) That detailed plans for sewage treatment works must be submitted to and approved by this Department before the same are constructed.

NEW BRUNSWICK:—Subject to the order issued by the Department to the authorities of the City of New Brunswick to discontinue discharging crude sewage into the Raritan river.

PARLIN (E. I. du Pont de Nemours & Company):—Subject to the construction of a sewage treatment plant at such time as this Department may require.

RIDGEWOOD:—That such approval will not in any way affect the orders of this Department relative to the construction or alteration of the existing sewage treatment plant.

TRENTON:—That a sewage treatment plant be constructed as required by this Department.

AT THE FOLLOWING PLACES PLANS FOR SEWAGE TREATMENT PLANTS HAVE BEEN APPROVED.

ATLANTIC CITY (Atlantic City Sewerage Company):—On June 7th, 1917, plans were approved for a temporary screening plant for the treatment of the sewage from the west side of the city. These plans were approved with the proviso that provision be made for disinfecting the sewage when the plant is constructed, and that the amended plans showing the necessary apparatus be submitted to and approved by this Department before the plant is constructed. The plans show a screening chamber with a hopper shaped bottom, 10 feet in width, 39 feet in length, 4½ feet average depth; four screens, inclined at an angle of 45° and spaced at intervals of 7 feet, are of the following sizes: ¾-inch bar screen, ⅝-inch bar screen, ¼-inch mesh screen, and 1/16-inch mesh screen.

GIBBSBORO (John Lucas & Company):—On May 15th, 1917, plans were approved for a trade waste treatment plant. The treatment approved is one that includes sedimentation and broad irrigation.

HADDONFIELD:—Plans were approved October 2d, 1917, for alterations and additional units to the present sewage treatment plant. The approved plans show the following units: A two-story sedimentation tank, 25 feet in width, 50 feet in length, and 21 feet in depth; a secondary settling basin of two compartments, each compartment has a hopper shaped bottom and is 16 feet in width, 60 feet in length, and 5½ feet in depth; and two sludge drying beds—one is 20 feet by 30 feet, filtering material 2 feet in depth, and the other is 80 feet by 90 feet, and 18 inches in depth.

METUCHEN (Woodbrook Farms):—On February 6th, 1917, plans were approved for a sewage treatment plant consisting of the following units: A one-story sedimentation tank of two compartments, each compartment has a capacity of 2,100 gallons; a dosing tank with a capacity of 450 gallons; and two sand filtration beds, each bed is 750 square feet in area and 3 feet in depth. The effluent will discharge into a tributary of the Raritan river.

NORTH ARLINGTON:—On July 31st, 1917, plans were approved for a sanitary sewer system for a part of the above borough and for a sewage treatment plant consisting of the following units: A two-story sedimentation tank, 29 feet in diameter and 24 feet in depth; a sludge well, 10 feet square, 3 feet effective depth; a sludge drying bed, 940 square feet in area, depth of filtering material 14 inches. The effluent will discharge into Kingsland creek, a tributary of the Hackensack river.

PHILLIPSBURG:—On March 6th, 1917, plans were approved for a sanitary sewer system and sewage treatment plant. The plant is to consist of the following units: A screening chamber, to contain two mechanical screens with 1/32-inch slots, each screen to have a capacity of 2,000,000 gallons per 24 hours. The screened effluent is to be treated with liquid chlorine before it is discharged

into the Delaware river. These plans were approved with the proviso that additional purification processes will be constructed when required by the Department.

RAHWAY VALLEY TRUNK SEWER:—On July 31st, 1917, plans were approved of the primary layout of the trunk sewer.

RED BANK:—On February 27th, 1917, plans were approved for an additional one-story sedimentation tank with two compartments, each compartment is 15½ feet in width, 76 feet in length, and 6½ feet in depth. The plans were approved with the proviso that the sewage sludge from the plant shall not be discharged into the Navesink river at any time.

RIDGEFIELD PARK (L. A. Eucker):—On October 2d, 1917, plans were approved for the construction of a one-story sedimentation tank to treat the sewage from part of the property of L. A. Eucker.

SPRING LAKE:—On March 27th, 1917, plans were approved for sewer extensions and for a sewage pumping station. At the Pennsylvania Avenue sedimentation tank a new outfall pipe has been installed.

UNION TOWNSHIP:—On December 19th, 1916, revised plans were approved for a two-story sedimentation tank and a sludge drying bed.

WASHINGTON:—Plans were approved October 2d, 1917, for the construction of additional units to the sewage treatment plant. These units consist of a two-story sedimentation tank, 13½ feet in width, 40 feet in length, 18 feet in depth; four sand filters, each 50 feet by 100 feet and 4 feet in depth; and a sludge drying bed, 46 feet square and 3 feet in depth.

WOODBIDGE TOWNSHIP (Ridgedale Avenue):—On July 31st, 1917, plans were approved for a sanitary sewer system and a one-story sedimentation tank with two compartments, each compartment is 6 feet in width, 30 feet in length, and 6 feet in depth. The effluent will discharge into a tributary of Woodbridge creek.

WOODBIDGE TOWNSHIP (Fords):—On July 31st, 1917, plans were approved for a sanitary sewer system and a two-story sedimentation tank, 11½ feet in width, 48 feet in length, and 22 feet in depth. The effluent will discharge into a tributary of the Raritan river.

AT THE FOLLOWING PLACE PLANS FOR INDUSTRIAL WASTE TREATMENT PLANTS HAVE BEEN DISAPPROVED.

BUTLER (Pequanoc Rubber Company):—On July 31st, 1917, plans for a waste treatment plant were disapproved.

AT THE FOLLOWING PLACES THE SEWAGE TREATMENT PLANTS ARE UNDER CONSTRUCTION OR HAVE BEEN CONSTRUCTED.

ALLWOOD (Brighton Mills):—Plans for two sewage treatment plants were approved April 17th, 1917. The plant for the residences consists of the following units: A two-story sedimentation tank, 4½ feet in width, 8 feet in length, and 18 feet in depth; a siphon chamber with a capacity of 470 gallons; three sub-surface irrigation fields, each field contains 840 feet of 3-inch farm tile; and a sludge drying bed 70 square feet in area. The plant for the mills consists of the following units: A two-story sedimentation tank, 5 feet in width, 10 feet in length, and 21 feet in depth; a siphon chamber with a capacity of 560 gallons; three sub-surface irrigation fields, each field contains 1,120 feet of 3-inch farm tile; and a sludge drying bed 72 square feet in area. Depth of filtering material on sludge drying beds is 12 inches.

AVALON:—The sewage treatment plant is now in operation. The effluent is discharged into the south channel of Townsend's inlet.

BABBITT (B. T. Babbitt, Inc.):—The one-story sedimentation tank is constructed. The effluent is discharged into the Cromackill creek.

BAY HEAD:—The constructed sewage treatment plant consists of the following units: A two-story sedimentation tank; a dosing tank; a sprinkling filter; a secondary settling basin; and a sludge drying bed. The effluent is discharged into Barnegat bay.

BUTLER (W. & M. Kinney Estate) :—Plans were approved April 17th, 1917, for two sewage treatment plants now in operation upon the above estate. One plant is to treat the sewage from the stables, and the second plant the sewage from the garage. These plants are identical in design and consist of the following units: A circular sedimentation tank, 6 feet in diameter and 6 feet in depth; a circular siphon chamber with a capacity of 125 gallons; and two sand filtration beds, each 8 feet by 16 feet. The effluent is discharged into Kikeout brook.

BUTLER (Pequanoc Rubber Company) :—Plans approved July 31st, 1917. At this factory there is in operation a sewage treatment plant consisting of the following units: A one-story sedimentation tank, 6 feet in width, 10 feet in length, and 7 feet in depth; a dosing tank with a capacity of 600 gallons; and one sand filtration bed, 990 square feet in area and 3 feet in depth. The effluent is discharged into the Pequannock river.

CRESSKILL (C. Tietjon) :—Plans approved November 14th, 1916. The constructed plant consists of the following units: A one-story sedimentation tank, 3 feet in width, 8 feet in length, and 2½ feet in depth; a dosing tank with a capacity of 900 gallons; and a sub-surface irrigation field containing 300 feet of 4-inch farm tile.

DEANS (Middlesex County Work House) :—Plans approved February 6th, 1917. The approved plans show the following units: A one-story sedimentation tank, 4 feet in width, 13½ feet in length, 4½ feet average depth; a dosing tank which contains two 5-inch alternating siphons and which has a capacity of 500 gallons; and two sand filters, each 28 feet by 30 feet, and 3 feet in depth. The effluent will discharge into a tributary of Lawrence brook.

FRANKLIN TOWNSHIP, Somerset County (Pillar of Fire) :—The plans approved May 15th, 1917, call for the construction of the following units: A one-story sedimentation tank, 10 feet in width, 22 feet in length, 6½ feet average depth; a dosing tank of 2,100 gallons capacity and to contain two alternating siphons; and two sand filtration beds, each 40 feet by 50 feet, and 2½ feet in depth. The effluent will discharge into a tributary of the Raritan river.

GIBBSTOWN (E. I. du Pont de Nemours & Company) :—On December 19th, 1916, plans were approved for alteration to a cesspool. The treatment approved is one of sedimentation only. The effluent is discharged into a tributary of the Delaware river.

HACKETTSTOWN (Lackawanna Leather Company) :—The settling basin at the trade waste treatment plant has been remodelled so as to increase the storage period.

HAMPTON (The Standard Water System Company) :—Lagoons have been constructed for the distribution of the tank effluent to broad irrigation fields. These lagoons were constructed to prevent the pollution of the Musconetcong river.

HIGH BRIDGE (Taylor Iron and Steel Company) :—On November 28th, 1916, plans were approved for a sewage treatment plant consisting of the following units: A one-story sedimentation tank, 5 feet in width, 10 feet in length, and 5½ feet in depth; a dosing tank with a capacity of 165 gallons; and two sand filtration beds, each 16 feet by 30 feet, and 2½ feet in depth. The effluent is discharged into a tributary of the Raritan river.

HOBOKUS (Estate of Veryl Preston) :—Plans approved November 14th, 1916. The plant consists of the following units: A circular sedimentation tank, 7 feet in diameter and 6 feet in depth; a dosing tank with a capacity of 210 gallons; and two sand filtration beds, each 15 feet by 20 feet, and 3 feet in depth. The effluent is discharged into Saddle river.

HOPEWELL (St. Michael's Orphan Asylum) :—The sewage treatment plant, plans approved June 6th, 1916, is in operation. The effluent is discharged into a tributary of the Raritan river.

KINGSTON (St. Joseph's College) :—The sewage treatment plant at St. Joseph's College has been rebuilt and now consists of a sedimentation tank sprinkling filters, and a secondary settling tank.

NORTHFIELD CITY (Atlantic County Institutions) :—Plans approved Sep-

tember 4th, 1917. The plant consists of the following units: A one-story sedimentation tank with two compartments, each compartment is 6 feet in width, 26 feet in length, and 5 feet in depth; a disinfecting tank, 4 feet in width, 8 feet in length, and 3½ feet in depth. A building over the disinfecting tank houses the liquid chlorine apparatus. The effluent is discharged into Lake's bay.

OCEAN CITY (Ocean City Sewerage Company) :—On June 7th, 1917, plans were approved for a sewage pumping station consisting of the following units: A pump well, 20 feet in width, 21 feet in length, 13 feet in depth; a brick building will contain the pumping equipment consisting of two centrifugal pumps each with a capacity of 700 gallons per minute.

PLAINFIELD, NORTH PLAINFIELD AND DUNELLEN :—Revised plans for the outfall pipe from the sewage treatment plant for the above municipalities were approved November 24th, 1916.

POMPTON LAKES (E. I. du Pont de Nemours & Company) :—On July 31st, 1917, plans were approved for alterations to the sprinkling filter at the Fuze Works.

POINT PLEASANT (The Beacon Hotel) :—The Beacon Hotel has installed a small sewage treatment plant consisting of a one-story sedimentation tank, and sand filtration beds. The effluent is discharged into a tributary of Barnegat bay.

RED BANK (Estate of E. H. Schwed) :—Plans approved July 3d, 1917. The plant consists of the following units: A sedimentation tank, 7 feet in diameter and 4 feet in depth; a dosing tank with a capacity of 250 gallons; and two sand filtration beds, each 146 square feet in area and 3 feet in depth. The effluent is discharged into the Navesink river.

RIVERVIEW VILLAGE (Carney's Point) :—On May 15th, 1917, plans were approved for an outfall sewer with the proviso that sewage treatment works shall be installed when required by the Department.

ROEBLING (John A. Roebling Sons' Company) :—On March 28th, 1917, plans were approved for sewer extensions and for a sewage pumping station.

SEWELL'S POINT (Naval Station) :—A one-story sedimentation tank has been constructed and is used in series with the old sedimentation tank.

SHORT HILLS (Estate of F. V. Skiff) :—Plans approved June 9th, 1917. The plant consists of the following units: A sedimentation tank, 10½ feet in diameter and 4 feet in depth; one contact filter, 6 feet in width, 16 feet in length, 4 feet in depth; a dosing tank with a capacity of 500 gallons; and two sand filters, each 300 square feet in area and 3 feet in depth. The effluent is discharged into the Rahway river.

SKILLMAN (N. J. State Village for Epileptics) :—The sewage treatment plant, plans for which were approved June 6th, 1916, is now operating. The plant consists of the following units: Two two-story sedimentation tanks; three contact beds; four sand filtration beds; and a sludge drying bed.

SPRINGFIELD TOWNSHIP (Chemical Company of America) :—On May 5th, 1917, plans were approved for an experimental trade waste treatment plant.

TENAFLY (The U. S. War Department) :—The U. S. War Department has installed a sedimentation tank at Camp Merritt. The effluent is discharged into the Hackensack river.

WARRENVILLE (N. & L. Hofheimer) :—Plans approved November 28th, 1916. The plant consists of the following units: A one-story sedimentation tank, 3 feet in width, 10 feet in length, 5 feet in depth; a dosing tank with a capacity of 220 gallons; two filtration fields, each field containing 600 feet of 4-inch farm tile.

WOODSTOWN (Wallace Roberts Canning Company) :—A trade waste treatment plant consisting of a sedimentation tank and a sand filtration bed has been installed at the factory of the Wallace Roberts Canning Company. The effluent is discharged into a tributary of the Salem creek.

WRIGHTSTOWN (The U. S. War Department) :—The U. S. War Department has installed a sedimentation tank at Camp Dix. The effluent is discharged into Crosswicks creek.

HEARINGS ON MATTERS RELATING TO SEWAGE.

ATLANTIC CITY:—In August, 1917, a hearing was given to the Atlantic City Sewerage Company relative to the construction of a sewage treatment plant by the said company.

BEACH HAVEN:—On January 9th, 1917, a hearing was given to representatives of the borough relative to the operation of the sewerage system.

CLOSTER:—On February 6th, 1917, a hearing was given to representatives of the B. Ullman & Company relative to the construction of a sewage treatment plant which was not constructed in accordance with the plans approved by this Department.

EWING TOWNSHIP:—On May 22d, 1917, a hearing was given to representatives of Ewing Township and of the Agasote Millboard Company relative to the discharge of wastes from the plant of the said company into a tributary of the Delaware river.

HADDONFIELD:—On April 17th, 1917, a hearing was given the borough officials relative to the unsatisfactory operation of the present sewage treatment plant.

MILLVILLE:—On October 9th, 1917, a hearing was given to representatives of Millville and of the Board of the Shell Fisheries relative to the discharge of sewage from Millville into the Maurice river.

RIDGEFIELD PARK:—On September 24th, 1917, a hearing was given to the local board of health and L. A. Eucker relative to the construction of a private sewage treatment plant to serve the properties of Mr. Eucker.

RIDGEWOOD:—On April 17th, 1917, a hearing was given relative to the unsatisfactory operation of the sewage treatment plant.

ROCKAWAY:—Numerous hearings were given throughout the year to Dover, Rockaway, Boonton, and Jersey City, relative to the construction of the Rockaway Valley trunk sewer.

SOUTH ORANGE:—On December 5th, 1916, a hearing was given relative to the application of the authorities of South Orange Township for the approval of plans for a sewage treatment plant.

WASHINGTON:—On April 17th, 1917, a hearing was given to the borough officials relative to the unsatisfactory operation of the sewage treatment plant.

WATER WORKS. THE PLANS FOR WHICH HAVE BEEN ACTED UPON OR THE WORKS CONSTRUCTED.

BELVIDERE (Belvidere Water Company):—Plans approved November 14th, 1916. A liquid chlorine apparatus, dry feed type, has been installed for the treatment of the water supplied by the above company.

CRANBURY (Cranbury Water Company):—Plans and supply approved July 31st, 1917. A new well, with a diameter of 8 inches and a depth of 115 feet, was constructed.

DOVER:—On July 31st, 1917, an additional water supply to be taken from Mill Brook was approved. On February 6th, 1917, the request to discontinue the use of their water disinfection apparatus during the cold seasons was denied.

DUNELLEN (Watchung Water Company):—Plans and supply approved December 19th, 1916. Five new wells, with a diameter of 8 inches and depths of 135 feet to 210 feet, were constructed.

ELIZABETH (Elizabethtown Water Company):—On July 31st, 1917, plans were approved for a water purification plant consisting of a coagulating basin with two compartments, each compartment to be 28 feet in width, 100 feet in length, and 12 feet in depth; a pump room; four rapid sand filters, each 12 feet by 22 feet; and a wash water tank with a capacity of 45,000 gallons.

FARMINGDALE (West Monmouth Water Company):—Plans and supply were approved February 27th, 1917, for a distribution system and a driven well, 6 inches in diameter and 480 feet in depth. This system is now being constructed.

HALEDON:—Supplementary source of water supply from a spring was approved on November 14th, 1916. On July 31st, 1917, plans for a water treatment plant were disapproved.

MENDHAM BOROUGH:—Plans and supply approved March 27th, 1917. The approval was for an extension to the present water distribution system and for the construction of an impounding reservoir to increase the supply obtained from the Cramer and the O'Keefe brooks.

NEW BRUNSWICK:—The new water purification plant was placed in operation in October, 1917. The plant consists of the following units: Two sedimentation basins, each with a capacity of 375,000 gallons; eight rapid sand filters, 14½ feet by 24 feet; and a clear water well with a capacity of 470,000 gallons. The water entering the clear water well is disinfected by a proportional solution feed chlorinator.

OGDENSBURG:—On April 3d and July 3d, 1917, plans were approved for a water supply system.

ORANGE:—On December 19th, 1916, plans were approved for the installation of a liquid chlorine apparatus, solution feed type. The chlorine is discharged into the suction line of the pumps.

PERTH AMBOY:—Plans approved February 27th, 1917. A liquid chlorine apparatus, solution feed type, has been installed to treat the auxiliary supply of surface water.

HEARINGS ON MATTERS RELATING TO POTABLE WATER SUPPLIES.

BERNARDSVILLE:—On March 27th, 1917, a hearing was given to a representative of the Bernards Water Company, relative to the proper disinfection of the water supply.

WRIGHTSTOWN:—On October 2d, 1917, a hearing was given to representatives of the Wrightstown Electric Light and Water Company relative to quantity and quality of the water supplied by the said company.

TUBERCULOSIS HOSPITALS—PLANS FOR WHICH HAVE BEEN APPROVED.

BURLINGTON COUNTY:—On November 14th, 1916, plans were approved for the construction of a county tuberculosis hospital to be located in New Lisbon.

MORRIS COUNTY:—Plans were approved May 15th, 1917, for the construction of a nurses' home at the county tuberculosis hospital located in Morris Township.

UNION COUNTY:—Plans were approved on December 19th, 1916, for the construction of a children's building at the Bonnie Burn Tuberculosis Sanatorium in New Providence Township.

MAUSOLEUMS—PLANS FOR WHICH HAVE BEEN APPROVED.

HIGHTSTOWN:—On July 31st, 1917, plans were approved for the erection of a community mausoleum in the Cedar Hill cemetery.

NORTH BERGEN TOWNSHIP:—On March 27th, 1917, plans were approved for the erection of a community mausoleum in the above township.

TRENTON:—Plans were approved on July 3d, 1917, for the erection of a community mausoleum in the Greenwood cemetery.

BUREAU OF VITAL STATISTICS.

The Bureau of Vital Statistics has charge of the collection of records of marriages, births, stillbirths and deaths, and the reports of the Bureau are for calendar years, hence the figures and tabulations appearing in this report will show this data for the calendar year ending December 31st, 1916.

During the year the Bureau received 44,186 certificates of death, 70,211 certificates of birth, 31,169 certificates of marriages, and 3,221 stillbirth certificates, making a total of 148,787, an increase of 12,000 certificates over the previous year. These figures show that the Bureau handles over 12,000 certificates a month, and when it is considered that each one of these certificates is carefully examined, tabulated and made complete for proper tabulation, some idea may be had of the labor necessary to carry on the work.

In addition to receiving and tabulating the above reports the Bureau receives daily requests for searches and certified copies, which in the course of a year amount to about 8,000 applications for certified copies of the records, the majority of which are used in pension claims and a great number for legal purposes, passports, settlement of estates, insurance, &c.

Population—The total estimated mid-year population of New Jersey for the year 1916 was 2,948,016. These figures are based on estimates made from the United States census. Heretofore in figuring estimated populations, the New Jersey state census and the national census have been used jointly, but in future only the Government figures will be used for this purpose.

Deaths—The 1916 death-rate shows an increase over the previous year, the rate per 1,000 inhabitants for 1915 being 13.70 and for 1916, 14.71. The figures just quoted are for the resident death-rate and do not include the deaths of persons from other states who died in New Jersey. The separation of these non-resident deaths began July 1st, 1915. The number of such deaths was 810, which, if included in the total number of deaths for the state, would give a death-rate of 14.99.

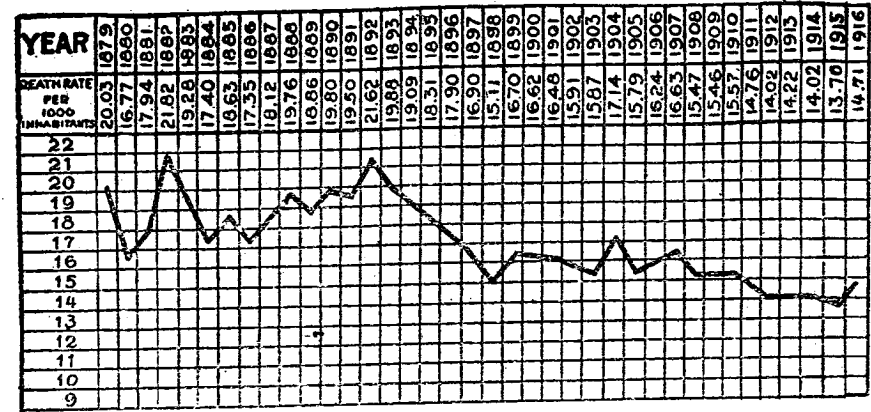
Births—The birth-rate of 23.82 for the year shows an increase over that of the previous year, which was 23.10 per 1,000. The number of births reported to the Department increased from 66,416 to 70,211.

Excellent results are shown under the operation of Chapter 389, Laws of 1915, which makes it compulsory for local boards of health to bring prosecution against physicians for failure to report births, and during the year a large number of notices have been forwarded to local boards of health, calling their attention to violations of the law by certain physicians, and prosecutions have been ordered.

Comparative Death-Rate of White and Colored Inhabitants—The total estimated population for the state for 1916 was 2,948,016, and the estimated colored population 103,797. The death-rate among the colored inhabitants was 22.05, while the death-rate among the white inhabitants was 14.45, a difference of eight points.

Marriages—The number of marriages recorded for the year 1915 was 27,694, and for 1916, 31,169, a difference of 3,475. The marriage-rate for 1916 was 21.15.

CHART SHOWING TOTAL DEATHS PER 1,000 POPULATION FOR 38 YEARS.



DEATHS FROM CERTAIN CAUSES AND RATES PER 10,000 POPULATION WITH PROPORTION OF DEATHS FROM EACH TO TOTAL DEATHS, 1916.

CAUSE OF DEATH.	Deaths.	Rate per 10,000 population.	Proportion to total deaths.
Typhoid fever	194	0.7	.4
Malaria	10	0.0	.0
Smallpox	0	0.0	.0
Measles	344	1.2	.8
Scarlet fever	69	0.2	.2
Whooping cough	262	0.9	.6
Diphtheria and croup	444	1.5	1.0
Tuberculosis, all forms	4,333	14.7	10.0
Cancer and other malignant tumors	2,357	8.0	5.4
Diabetes	533	1.8	1.2
Diseases of nervous system and of the organs of special sense	5,076	17.2	11.7
Diseases of circulatory system	6,265	21.3	14.4
Pneumonia	3,607	12.2	8.3
Diseases of respiratory system (pneumonia excepted)	2,814	9.5	6.5
Diarrhea and enteritis (under 2 years)	1,970	6.7	4.5
Diseases of digestive system (diarrhea and enteritis under 2 years excepted)	2,286	7.8	5.3
Acute nephritis and Bright's disease	3,850	13.1	8.9
The puerperal state	383	1.3	.9
Malformations and causes due to early infancy	2,859	9.7	6.6
Suicide	390	1.3	.9
Other violent causes	2,549	8.7	5.9

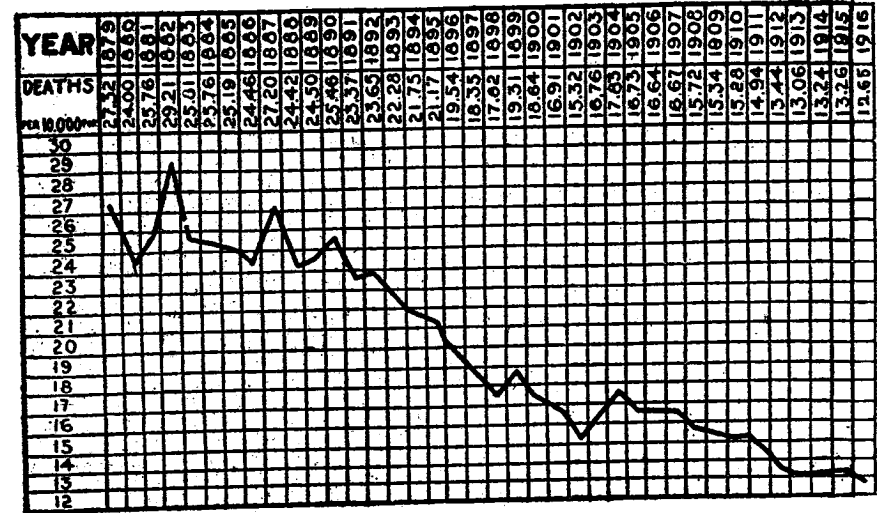
NUMBER OF LIVING BIRTHS AND DEATHS UNDER ONE YEAR OF AGE IN NEW JERSEY AND PERCENTAGE OF BIRTHS LIVING ONE YEAR TO TOTAL BIRTHS.

YEAR.	Births reported.	Deaths under 1 year of age.	Percentage of living births to total births.
1906.....	42,677	7,773	61.79
1907.....	44,651	7,132	62.68
1908.....	47,405	7,623	61.50
1909.....	47,508	7,656	62.68
1910.....	53,942	7,352	64.92
1911.....	58,133	7,642	66.52
1912.....	60,073	7,451	64.59
1913.....	61,432	7,542	64.12
1914.....	65,403	7,431	66.64
1915.....	66,476	7,014	69.35
1916.....	70,211	7,348	69.53

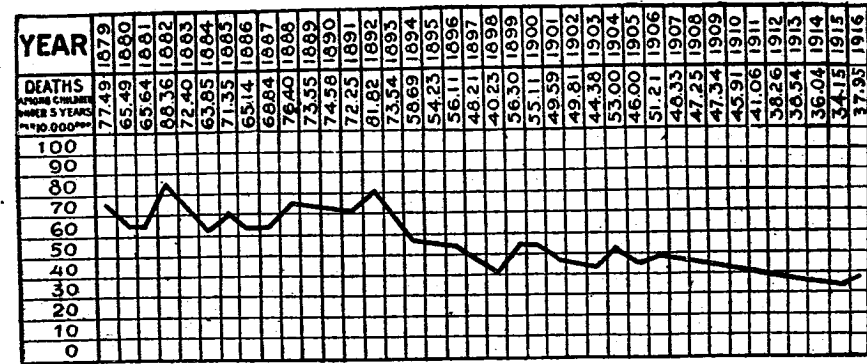
AVERAGE ANNUAL DEATH-RATES, PER 10,000 POPULATION, FROM ALL CAUSES AND FROM TUBERCULOSIS OF LUNGS FOR 38 YEARS, COMPARED WITH RATE FOR 1916.

COUNTIES.	Average annual death-rate from all causes per 10,000 for 38 years.	Average annual death-rate from tuberculosis of lungs per 10,000 for 38 years.	Death-rate from all causes for year ending Dec. 31, 1916.	Death-rate from tuberculosis of lungs for year ending Dec. 31, 1916.
Atlantic County.....	163.2	15.16	122.4	10.81
Bergen County.....	101.2	12.37	123.4	7.18
Burlington County.....	154.9	16.46	162.3	10.59
Camden County.....	179.5	20.37	158.6	14.12
Cape May County.....	137.1	12.46	124.9	4.19
Cumberland County.....	91.2	17.90	150.6	11.28
Essex County.....	177.2	23.02	147.3	15.06
Gloucester County.....	143.6	15.99	149.7	12.25
Hudson County.....	193.9	22.80	147.8	15.34
Hunterdon County.....	138.5	13.88	172.2	9.70
Mercer County.....	171.8	20.86	160.8	14.79
Middlesex County.....	158.6	15.24	163.5	9.84
Monmouth County.....	152.7	15.15	157.5	8.96
Morris County.....	115.2	17.94	139.8	9.66
Ocean County.....	141.6	17.90	130.5	10.76
Passaic County.....	169.6	18.59	137.5	11.65
Salem County.....	145.2	17.38	178.0	10.03
Somerset County.....	141.1	13.77	148.7	6.59
Sussex County.....	127.2	13.30	128.0	3.27
Union County.....	135.7	14.78	148.1	12.30
Warren County.....	144.5	13.50	143.8	9.02
The State.....	166.6	19.05	147.1	12.65

DEATHS FROM TUBERCULOSIS OF LUNGS PER 10,000 POPULATION FOR 38 YEARS.



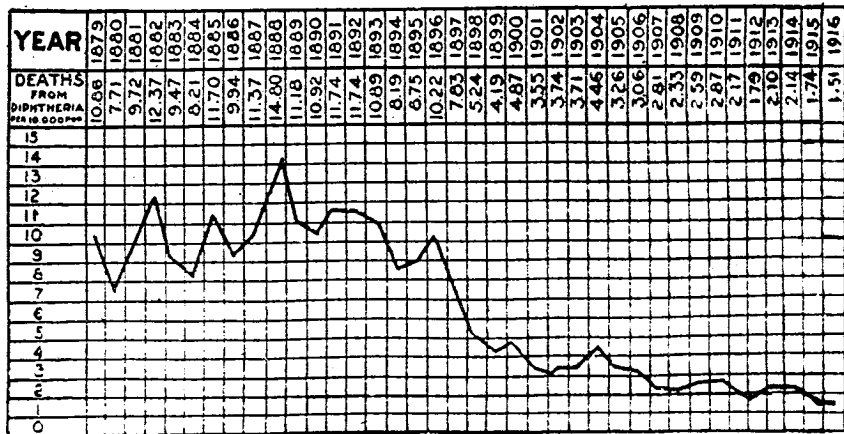
DEATHS UNDER FIVE YEARS OF AGE PER 10,000 POPULATION FOR 38 YEARS.



Diphtheria—The death-rate from diphtheria for the year 1916 was 1.51 per 10,000 inhabitants, the lowest rate shown for this disease in the history of the state. The prompt and scientific use of anti-toxin has of course been the means of reducing the rate to a minimum.

Deaths in New Jersey from diphtheria, with ages of decedents, for year ending December 31st, 1916, were: under 1 year, 35; 1 year, 88; 2 years, 69; 3 years, 53; 4 years, 52; 5 to 9, 122; 10 to 19, 17; 20 to 29, 3; 30 to 39, 1; 40 to 49, 2; 50 to 59, 1; 60 to 79, 1. Total, 444.

DEATHS FROM DIPHTHERIA PER 10,000 POPULATION FOR 38 YEARS.



Typhoid Fever.—The number of deaths from typhoid fever in New Jersey for the year 1916 was 194, an increase of 6 over the previous year. The death-rate per 10,000 inhabitants was .66.

Typhoid fever is a preventable disease, and there is no reason why, with scientific study and proper educational methods, a much lower death-rate from this disease could not be shown.

Deaths in New Jersey from typhoid fever by age periods for 1916 were: 2 years, 1; 3 years, 1; 4 years, 3; 5 to 9, 6; 10 to 19, 35; 20 to 29, 61; 30 to 39, 34; 40 to 49, 25; 50 to 59, 18; 60 to 69, 6; 70 to 79, 4. Total, 194.

Deaths from typhoid fever in the counties of New Jersey for the year ending December 31st, 1916, were: Atlantic, 14; Bergen, 11; Burlington, 8; Camden, 25; Cape May, 3; Cumberland, 6; Essex, 26; Gloucester, 6; Hudson, 35; Hunterdon, 1; Mercer, 7; Middlesex, 7; Monmouth, 15; Morris, 4; Ocean, 2; Passaic, 10; Salem, 4; Somerset, 2; Sussex, 1; Union, 7; Warren, 0. Total, 194.

COMPARATIVE DEATH-RATES FROM TYPHOID FEVER, PER 10,000 INHABITANTS, IN THE REGISTRATION AREA OF U. S. AND IN N. J. FOR 10 YEARS.

	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Averages for ten years.
Registration area of United States...	3.03	2.53	2.20	2.35	2.10	1.65	1.79	1.54	1.24	1.33	1.98
New Jersey	2.06	1.60	1.28	1.55	1.29	1.22	1.00	0.78	0.65	0.66	1.21

DEATHS FROM TYPHOID FEVER, BY COUNTIES, PER 10,000 POPULATION, FOR 10 YRS.

COUNTIES.	1907	1908	1909	1910	1911	1912	1913	1914	1915	1916	Averages for ten years.
Atlantic County	2.30	1.62	1.13	1.53	2.15	1.96	1.14	1.47	0.59	1.59	1.55
Bergen County	1.29	0.71	0.85	1.16	0.69	0.72	1.00	0.36	0.41	0.63	0.78
Burlington County	4.41	4.04	2.00	3.31	1.33	3.36	1.59	1.28	1.13	1.11	2.36
Camden County	2.89	2.00	1.28	1.97	1.23	1.46	1.88	1.20	0.86	1.53	1.64
Cape May County	2.62	1.45	1.52	0.49	0.48	1.42	0.92	0.43	1.26	1.11	1.11
Cumberland County	2.29	1.71	1.32	1.99	1.43	1.06	0.88	1.39	1.04	1.43	1.42
Essex County	2.00	1.16	1.22	1.21	1.03	0.81	0.66	0.55	0.35	0.44	0.94
Gloucester County	1.41	1.39	1.09	1.61	3.43	2.60	1.28	1.01	1.49	1.47	1.62
Hudson County	1.58	1.11	0.78	0.98	0.97	0.72	0.83	0.76	0.63	0.55	0.89
Hunterdon County	2.44	0.62	0.62	1.49	0.30	1.78	2.37	0.30	0.60	0.30	0.89
Mercer County	6.69	4.45	3.10	4.14	3.89	3.26	1.86	1.45	0.85	0.48	3.02
Middlesex County	1.92	1.68	1.17	0.96	1.19	1.73	0.96	1.09	0.83	0.51	1.20
Monmouth County	1.99	2.41	2.16	2.22	2.91	2.87	1.62	1.50	1.68	1.46	2.05
Morris County	1.01	0.72	1.14	1.34	0.92	0.78	0.25	1.12	0.38	0.37	0.80
Ocean County	1.41	...	0.92	3.28	1.40	1.40	2.32	0.46	0.90	0.90	1.30
Passaic County	1.19	1.06	0.99	1.16	0.76	0.65	0.63	0.52	0.57	0.39	0.79
Salem County	1.51	2.62	1.49	1.48	2.58	1.10	1.09	0.36	1.08	1.43	1.43
Somerset County	0.27	2.35	2.31	1.80	3.32	0.25	...	0.24	0.24	0.47	1.13
Sussex County	1.29	3.94	1.32	1.87	0.73	0.36	...	...	0.36	0.35	1.02
Union County	1.37	2.19	1.67	1.71	0.83	1.61	1.86	0.38	0.62	0.42	1.22
Warren County	1.43	0.71	1.18	2.78	0.69	0.68	0.89	0.66	1.09	...	1.01
The State	2.06	1.60	1.28	1.55	1.29	1.22	1.00	0.78	0.65	0.66	1.21

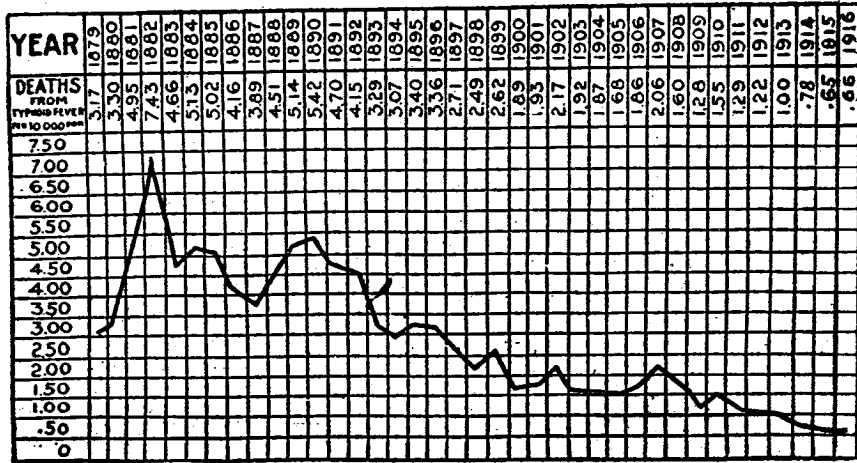
DEATHS FROM TYPHOID FEVER IN URBAN AND RURAL DISTRICTS FOR 1916.

	Aggregate population.	Deaths from typhoid fever.	Deaths from typhoid fever per 10,000 population.
State	2,948,016	194	0.66
Cities	2,085,106	131	0.63
Rural Districts	862,910	63	0.73

Whooping Cough—The number of deaths from whooping cough in New Jersey for the year 1916 was 262, an increase of 3 over the previous year. The death-rate per 10,000 inhabitants for 1916 was .89, as compared with .90 for the previous year.

Deaths in New Jersey from whooping cough, with ages of decedents, for the year ending December 31st, 1916, were: under 1 year, 150; 1 year, 68; 2 years, 22; 3 years, 11; 4 years, 3; 5 to 9, 6; 10 to 19, 1; 50 to 59, 1. Total, 262.

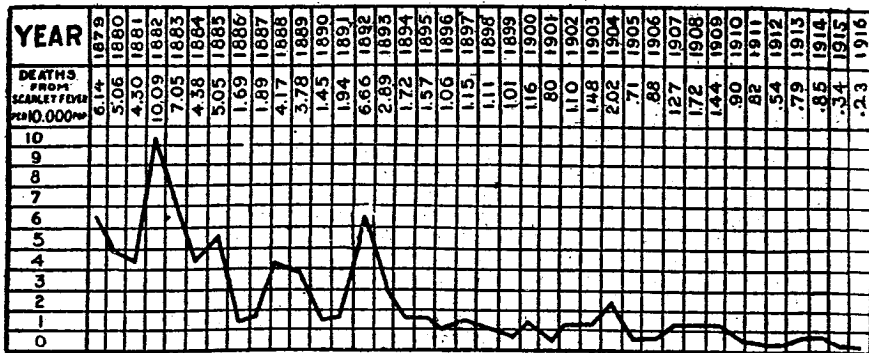
DEATHS FROM TYPHOID FEVER PER 10,000 POPULATION FOR 38 YEARS.



Scarlet Fever—The total number of deaths from scarlet fever for the year 1916 was 69, a decrease of 28 from the previous year. The death-rate for 1916 was .23.

Deaths in New Jersey from scarlet fever, with age at death, for year ending December 31st, 1916, were: under 1 year, 1; 1 year, 9; 2 years, 8; 3 years, 7; 4 years, 10; 5 to 9, 18; 10 to 19, 12; 20 to 29, 1; 30 to 39, 2; 40 to 49, 1. Total, 69.

DEATHS FROM SCARLET FEVER PER 10,000 POPULATION FOR 38 YEARS.



Measles—The number of deaths from measles for the year 1916 was 344, an increase of 139 over the previous year. The death-rate from this disease per 10,000 for 1916 was 1.17.

Deaths in New Jersey from measles, with age at death, for the year ending December 31st, 1916, were: under 1 year, 93; 1 year, 131; 2 years, 48; 3 years, 23; 4 years, 14; 5 to 9, 24; 10 to 19, 6; 20 to 29, 3; 40 to 49, 2. Total, 344.

Malarial Fever—The number of deaths from malarial fever for the year ending December 31st, 1916, was 10, and the death-rate per 10,000 inhabitants was .03, a figure slightly lower than the rate for the two previous years.

Deaths in New Jersey from malarial fever for thirty-eight years have been: 1879, 268; 1880, 293; 1881, 431; 1882, 379; 1883, 290; 1884, 230; 1885, 209; 1886, 243; 1887, 217; 1888, 264; 1889, 203; 1890, 195; 1891, 180; 1892, 198; 1893, 148; 1894, 162; 1895, 144; 1896, 119; 1897, 132; 1898, 82; 1899, 96; 1900, 84; 1901, 50; 1902, 36; 1903, 40; 1904, 47; 1905, 21; 1906, 33; 1907, 29; 1908, 30; 1909, 25; 1910, 25; 1911, 25; 1912, 29; 1913, 11; 1914, 10; 1915, 17; 1916, 10.

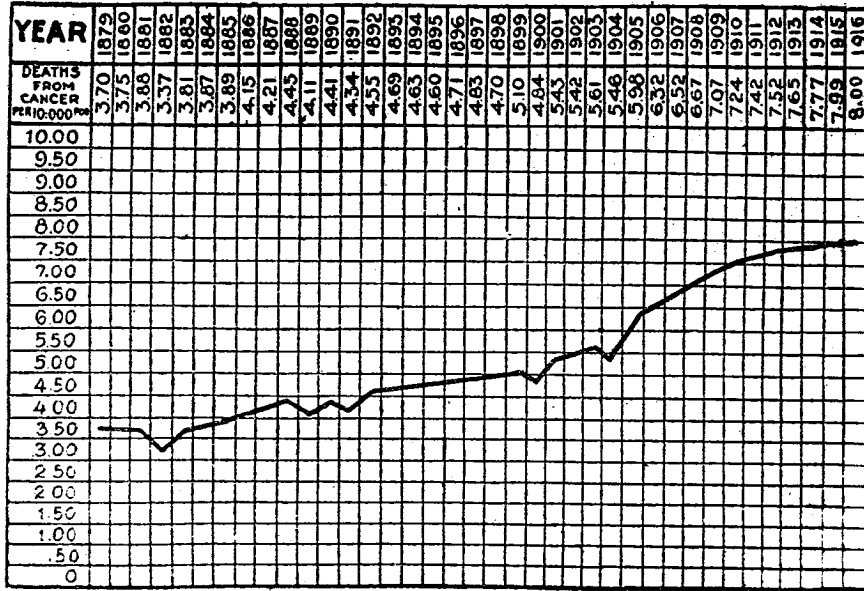
Smallpox—There were no deaths from smallpox in New Jersey during the past year, and no serious epidemics of this disease have occurred during the past decade. The State Department of Health continues to urge upon local boards of health and parents the necessity and importance of vaccination.

Cancer—The total number of deaths from cancer for the year 1916 was 2,357, an increase of 59 over the previous year. Deaths from cancer continue to show a slight increase.

DEATHS FROM CANCER AND OTHER MALIGNANT TUMORS IN NEW JERSEY BY ORGAN AFFECTED, 1916.

CANCER AND OTHER MALIGNANT TUMORS.	Under 1 year.																Total.
	1 to 4.	5 to 9.	10 to 14.	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 69.	70 to 79.	80 to 89.	90 and over.	
Buccal cavity	1																81
Stomach, liver, Peritonæum, intestines, rectum	1			1													861
Female genital organs		2															376
Breast					2	5	13	31	30	68	65	46	75	37	7	12	381
Skin						1			19	29	36	23	55	32	14	12	230
Other organs or organs not specified									1	5	5	5	24	22	14	12	79
Total	2	4	3	2	7	4	3	3	8	21	33	33	37	92	71	24	2,357

CHART SHOWING DEATHS FROM CANCER PER 10,000 POPULATION FOR 38 YEARS.



Suicide—The total number of deaths from suicide for the year 1916 was 390, a decrease of 106 from the previous year.

DEATHS BY SUICIDE IN NEW JERSEY, 1916.

MODE OF DEATH.	10 to 14.	15 to 19.	20 to 24.	25 to 29.	30 to 34.	35 to 39.	40 to 44.	45 to 49.	50 to 54.	55 to 59.	60 to 69.	70 to 79.	80 to 89.	90 and over.	Not stated.	Total.
Poison	5	4	6	12	13	14	7	6	5	15	12	3	5	16	5	57
Asphyxia	1	4	1	1	1	1	1	1	1	1	1	1	1	1	1	122
Strangulation	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	47
Drowning	4	4	1	1	1	1	1	1	1	1	1	1	1	1	1	29
Firearms	5	12	12	13	13	13	13	13	13	13	13	13	13	13	13	95
Cutting instruments	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	25
Precipitation from height	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	10
Crushing	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	4
Others	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
Total	1	24	30	37	27	36	38	48	40	34	47	26	2	..	..	390

Bright's Disease—For the year ending December 31st, 1916, 3,850 deaths occurred in New Jersey from Bright's disease, an increase of 386 over the previous year.

Report of the Bureau of Medical Supervision

A. CLARK HUNT, M.D., CHIEF.

During the summer of 1916, while the epidemic of infantile paralysis was in progress, considerable assistance was rendered the physicians of the state in determining doubtful cases. Fortunately, the disease failed to appear in epidemic form in 1917, and therefore there were no calls for such assistance. Assistance, however, was rendered in disputed diagnoses of scarlet fever.

The Department directed the Chief of the Bureau to make a careful study of the work of various bureaus for the purpose of ascertaining how the Department could obtain from the moneys appropriated the fullest return in health protection and disease prevention. This inquiry necessitated the careful collection of data relating to each bureau. The investigation was primarily an efficiency proposition, the Department desiring to make every effort to maintain a high standard of effectiveness. Considerable time was expended in the preparation of this report, and, although owing to the lack of available data, it was impossible to determine the exact cost of various activities and the relative value of each class of work, many changes in present methods were presented, some of which have been acted upon and others will be when sufficient moneys are available for the purpose.

Special inquiries and reports were made during the year, as follows: Examination of properties for the extension of cemeteries, report of nuisance caused by acid works in Newark, correction of unsanitary conditions in state institutions, report on the Home for Blind Babies at Summit, numerous minor investigations made at the request of the Director.

Meetings of women's clubs in Upper Montclair, South Amboy and Newark were attended and papers presented. The meetings of medical societies of Middlesex, Somerset, Union, Hudson and Mercer counties were attended, and also various conferences of state and national health authorities.

In July an appointment as assistant medical examiner to the Local Draft Board, No. 4, of Middlesex county, was received, and considerable time was devoted to assisting in the medical examination of over 2,000 drafted men.

In March, 1917, Dr. Millard Knowlton, who was Chief of the Bureau of Education and Publicity, resigned from that position for the purpose of taking a course in public health at the Massachusetts

School of Technology. Your Board at that time selected Dr. R. B. Fitz-Randolph to continue the editing of the bulletin, *Public Health News*, and the newspaper work, and appointed the Chief of the Bureau of Medical Supervision as Acting Chief of the Bureau of Education and Publicity. This Bureau directs its efforts principally along educational lines for the prevention of tuberculosis and for child hygiene. These activities have necessitated the expenditure of considerable time devoted principally to assisting in the preparation of the exhibit and planning for its presentation to the people of the state.

During the later months of the year special surveys have been made of the county hospitals for the care of the tuberculous. These institutions provided by several counties were erected in compliance with the state law which requires counties in the state to provide hospitals for the care of persons having tuberculosis, or to make provision for their care in similar institutions in other counties. Nine counties in the state have erected hospitals; two counties have selected locations for hospitals, one of which will be opened for the reception of patients on January 1st, 1918.

In Passaic there are two county hospitals, and, including the state sanatorium, there are now actually eleven hospitals in operation in the state. Although these hospitals are without exception well located and capably managed, the survey has developed some interesting information regarding the effect of these institutions on the reduction of the state death-rate from tuberculosis, which will be made the basis for future study.

Report of the Bureau of Education and Publicity

By

A. CLARK HUNT, M.D., ACTING CHIEF.

This Bureau was created in November, 1915, and from that time until February, 1917, it was under the supervision of Dr. Millard Knowlton. On the latter date Dr. Knowlton resigned for the purpose of attending the Massachusetts School of Technology. To his untiring and intelligent efforts is due the educational work which has been accomplished by the tuberculosis exhibit. His assistance in the preparation of an exhibit on child hygiene, which, since its completion and presentation to the public, has received the highest appreciation, was also invaluable.

Upon the retirement of Dr. Knowlton, the Department made a change in the Bureau by which Dr. R. B. Fitz-Randolph, Assistant Director, was given the editing of *Public Health News*, and Dr. A. Clark Hunt, Chief, Bureau of Medical Supervision, was made Acting Chief of the Bureau.

DIVISION OF CHILD HYGIENE AND NURSING.

This division was created November 1st, 1915, as a part of the Bureau of Education and Publicity, and a chief was not appointed until February 1st, 1916, when Dr. Bertha F. Johnson was selected for the position.

From November 1st, 1916, to April 25th, 1917, almost the entire time of the chief of the division was occupied in securing and preparing material for and supervising the construction of a child hygiene exhibit. The State Supervising Nurse also assisted in this work after her appointment. This work included visiting many different agencies to select lantern slides, moving picture films and photographs, the mounting of photographs, shopping for demonstration material and charts.

When the exhibit was finished each separate panel was photographed, as well as each section, and lantern slides were made from some of these negatives.

Through the courtesy of the Russel Sage Foundation the exhibit was shown in their rooms April 25th-27th, inclusive, to a number of social workers and physicians who came by invitation.

A second issue of the three circulars used last year in connection with Baby Week—"Is Your Baby Registered?" "How to Grow Prize Babies" and "Saving Babies a Community Problem"—was reprinted; a new leaflet was prepared and printed, "The Public Health Nurse;" "Saving Mothers," a leaflet prepared by the Children's Bureau, was also reprinted; 100,000 copies of each of these leaflets being made.

A special design was made by the artist who illustrated the exhibit for our poster and window card, which were printed and used for advertising the exhibit.

A circular on venereal diseases has been prepared, but has not yet been published.

Occasional press material and articles for the bulletin have also been prepared in this Division.

In addition to the preparation of the exhibit, Dr. Bertha F. Johnson, Chief of the Division, has done some lecturing and made plans for future work of the Division.

Lantern slides on various subjects, secured from the National Public Health Service, Children's Bureau, National Organization for Public Health Nursing, American Posture League, Brooklyn Rapid Transit Company, and from other sources, have been arranged and classified, some of them for loan purposes.

In response to numerous requests a model form for record keeping in infant welfare stations has been prepared and is now in the hands of the printer.

The two small loan exhibits on child hygiene purchased last year from the National Child Welfare Exhibit Association have been loaned to thirty-one societies in twenty-four towns. These exhibits have been shown in schools, libraries, board of health offices, store windows and at the Summer Camp at Avon.

STATE SUPERVISING NURSE.

Mary V. Crich, State Supervising Nurse, began her work April 16th, 1917. She assisted in the preparations for the child hygiene exhibit, and accompanied the exhibit, giving addresses on Public Health Nursing, Talks to Mothers, to "Little Mothers' League" classes and to co-operation committees, to school children, and at evening meetings when Dr. Johnson's services were required elsewhere, in the ten places the exhibit has been shown, which has met with splendid co-operation. A number of problems have been referred to her in these communities, and a high standard of nursing service is striven for. These problems related to record forms, record keeping, home visits and technique, number of visits that should be made, etc., co-operation with other agencies, the organization and equipment of infant welfare stations, the way to get the mothers to bring the babies to welfare centers, how frequently babies should be examined and the records and record keeping in these centers, the adjustment of problems relative to the physical welfare and health of children. She has had conferences with

state executives and officials, county officials, health officers and executive officers of visiting nurse associations, women's clubs, co-operative charities, Anti-Tuberculosis League, nursing organizations, and superintendents of training schools. These conferences all related to public health nursing, and in some cases the planning of work for the nurses. She has gone out in districts with the nurses, pointing out the problems and endeavoring to improve the technique of public health nursing work, and to raise the standards.

She has addressed thirty-four meetings, attended seventeen where no address was given but has taken part in discussion at some of these. She has interviewed twenty-one nurses engaged in public health or visiting nursing work in the towns we have visited with the exhibit, and interviewed seventy-seven nurses in other boroughs or cities where we have not been with the exhibit, and has visited thirty-four different municipalities. Some of the nurses have been visited several times.

The co-operation met with from nurses, officials, committees and organizations has been extremely gratifying to the State Supervising Nurse.

TUBERCULOSIS EXHIBIT.

The campaign with the smaller tuberculosis exhibit was conducted along lines similar to those of the preceding season. While the value of this work in the village and country communities may not seem so apparent in terms of statistics, there are many reasons why the need of work in these places is equally as great as in the more thickly populated sections. The fact that less anti-tuberculosis activity is carried on in the rural districts than in the cities, indicates a field which the state may not consistently neglect.

Owing to the epidemic of infantile paralysis the campaign did not begin as early as usual. Since the school year was shortened for the same reason, some of the school authorities were reluctant about taking any of the school time for educational work of this character. In most instances, however, it was appreciated and hearty co-operation given. In view of putting a child hygiene exhibit on the road in the spring, to which the field force of the tuberculosis exhibit was assigned, the work of the latter was discontinued much earlier than usual. Hence the season was but little more than half as long as in the preceding year.

This season's work began where that of last season was discontinued. Essex, Morris, Warren, most of Hunterdon, and a part of Somerset county was covered. The places visited were as follows: Glen Ridge, Verona, Caldwell, Essex Fells, Livingston, Newark, Pompton Plains, Riverdale, Whippany, Morris Plains, Belvidere, Broadway, Delaware, Delaware Park, Shimers, Vienna, Allamuchy, Port Murray, Port Colden, New Village, Stewartville, Asbury, Oxford, Blairstown, Johnsonburg, Mt. Pleasant, Frenchtown, Finesville, Pattenburg, Three Bridges, North Branch, Gladstone and Far Hills. While the number of places visited was not so many as last year, owing to shortness of season, the average number per month was practically the same.

The exhibit was shown in 34 places on 38 days. During this time 68 lectures were given, 3,720 stereopticon views and 13 motion pictures were shown, and 6,828 persons attended. Advertising and educational literature was distributed as follows:

One-sheet posters	4
Window cards	462
Talking dodgers	8,445
Tags	6,370
Rules and regulations.....	5,375
Prevents	10,300

Putting up a portable tuberculosis exhibit on the folding map plan was an experiment about which some doubts had been entertained. Chief among these was the question of its durability. An exhibit to be used daily at different places must be put up and taken down much more frequently than one used at weekly or two weeks' stands. To have it light in weight and at the same time sufficiently strong to withstand much handling were objects sought in the new plan. The experiment has proven most gratifying. Although the larger tuberculosis exhibit was on the road about three and one-half years, it was only put up about 116 times, while the smaller exhibit was put up about 92 times within less than half that period. The expenses for repairs were nominal since such repairs were made by the state's mechanician who operated the stereopticon or motion picture machine. At the end of its second season, the small tuberculosis exhibit continued to be acceptably presentable.

PERSISTENT EFFORT IN ANTI-TUBERCULOSIS WORK THE PRICE OF SUCCESS.

The draft examinations since war was declared have brought to light thousands of cases of tuberculosis which were absolutely unsuspected. Likewise, careful and thorough surveys in typical sections of the country have brought out similar facts. Although conservative estimates in the past have placed the number of cases at about eight times the number of deaths, known facts indicate a much greater proportion. The disease being extremely insidious it must be fought continually and intelligently. The state long since recognized the need of thorough work in combatting it. Therefore, "An act appropriating \$10,000 a year to be used in educational work for the prevention of tuberculosis in New Jersey was approved and became a law March 14th, 1910." Since funds under this act became available a large tuberculosis exhibit has covered the state, requiring about three and one-half years in which to do so. Later, a smaller exhibit going to village and rural communities has covered most of the territory of eight counties in the northern part of the state in localities where the larger exhibit did not go.

MINIATURE LOAN EXHIBITS.

The Bureau has arranged a number of small loan exhibits which are sent to various parts of the state. These exhibits are frequently used in schools, libraries, places of business and other places where numbers of persons are accustomed to congregating. There is no charge for the use of these exhibits other than that for transportation. At the present time there are five of these exhibits, on housing, patent medicines, diseases of adult life, child hygiene, and tuberculosis.

During the year these exhibits have been sent to 31 communities. The total number of days that they were exhibited is 482.

The appreciation of these exhibits which is shown by the increased applications for their use from various communities indicates that this line of work should be continued, and if possible additional exhibits constructed dealing with other sanitary problems.

The experience gained thus far from the use of exhibit material as a method of education proves that the field is one of great opportunity, and that especially in the education of children lies the chief hope of conservation of lives, which are now more than at any time in the history of the world at a great premium.

This report should not be completed without an expression of appreciation of the faithful work of the Division Chief and employes of the Bureau, and also of the many suggestions and hearty co-operation extended by the State Department of Health.

Report of Bureau of Local Health Administration

D. C. BOWEN, CHIEF.

In submitting the second annual report of the Bureau of Local Health Administration, special attention is called to two new lines of work in which the Bureau has engaged during the year. They are: (1) handling morbidity records, and (2) the enforcement of sanitary regulations in the special sanitary district created in the territory surrounding Camp Dix.

MORBIDITY RECORDS.

Transfer of Records—Prior to March 12th, 1917, reports of morbidity were received, tabulated and filed in the Bureau of Vital Statistics. In order that the information which these reports contain might be acted upon more promptly for the prevention of the spread of communicable diseases, and might be more conveniently used in making epidemiological studies which are conducted by this Bureau, the entire work connected with handling the state morbidity records was transferred to the Bureau of Local Health Administration on the date above named.

Change In Statistical Year—Previous to the year 1916, the statistical year for morbidity reports ended October 31st, which corresponded with the fiscal year of the Department. On January 1st, 1916, a change was made to the calendar year, in order that the statistical records of reportable diseases might correspond to the tabulations of marriages, births and deaths, therefore, no yearly tabulation of morbidity reports for 1917 appears in this report, since the present statistical year will not end until December 31st, 1917. The tabulations of morbidity reports for the year 1916 will be found in the annual report of the Bureau of Vital Statistics in which they were compiled for that year.

Additions to the List of Reportable Diseases—Brief mention might be made at this time of the diseases that have been added during the past year to the list of those previously reportable. They are: dysentery (amoebic and bacillary), measles, German measles, meningitis (epidemic cerebrospinal), paratyphoid fever and whooping cough. These diseases were made reportable through the enactment of Regulation 1, Chapter 6 of the State Sanitary Code, which took effect on the first day of June, 1917. From this date to October 31st, a period of five months, cases of these diseases have been reported as follows:

MONTH.	Dysentery.	Measles.	German measles.	Whooping-cough.	Epidemic cerebro-meningitis.	Paratyphoid fever.
June .....	..	690	975	532	24	..
July .....	..	359	138	1,265	11	..
August	1	164	38	1,203	13	..
September	2	61	14	676	3	..
October	2	284	32	506	3	..
Totals	5	1,558	1,197	4,181	62	8

Incompleteness of Reports—The number of cases reported during these five months cannot be taken as the normal seasonable incidence for this period of any one of the diseases named in the above table, owing to the fact that there are still many physicians who are not yet familiar with the new regulations of the State Sanitary Code. Therefore, it is reasonable to assume that some time will elapse before reporting will be as complete for the diseases recently added to the list as it is for those that have been reportable over a longer period.

Venereal Diseases—By legislative enactment venereal diseases became reportable directly to the State Department of Health on March 29th, 1917. The first special announcement directing the attention of medical practitioners to the requirements of this act was published in the April-May number of the Public Health News. During the seven months that have elapsed since the law became operative, to October 31st, cases have been reported as follows:

Month.	Syphilis.	Gonorrhoea.	Chancroid.
March	2	3	..
April	6	4	..
May	5	8	..
June	54	23	1
July	42	41	..
August	260	254	32
September	135	219	13
October	109	120	16
Totals	614	672	62 = 1,348

Considering the fact that this is the first attempt on the part of the State of New Jersey to secure the reporting of venereal diseases, and that the names and addresses of the persons reported under the act must be given, the number of reports thus far received indicates that the act is being more favorably accepted by the medical profession than was generally anticipated.

Increased Number of Morbidity Reports Anticipated—While it is still too early to estimate with any degree of precision how much the reporting of the additional diseases will increase the total number of morbidity reports during the coming year, the results thus far indicate that the total number of cases reported will be at least one hundred per cent. greater than in any preceding year.

ENFORCEMENT OF SANITARY REGULATIONS IN THE SANITARY DISTRICT
AROUND CAMP DIX.

Necessity for the Work—Six months ago Wrightstown was one of a number of small settlements located in the northeastern part of Burlington county. The town contained about forty-two dwellings, one hotel, a grist mill, two general stores, one barber shop, one hay press, three blacksmith shops and two creameries. The population of the town was less than 250 persons. That the inhabitants of the town were largely interested in agricultural pursuits was apparent from the business interests represented.

These conditions have all changed since the beginning of the operations at Camp Dix which occupies the land that lies immediately adjoining the settlement, so that Wrightstown within a few months has grown to several times its normal size and has become a thriving business center. Not only do the soldiers from Camp Dix assemble here, but there is also a large influx of strangers who daily pass through Wrightstown on their way to and from the camp.

With an inadequate water supply, no sewers and no local health regulations in force, insanitary conditions were soon created in Wrightstown that called for immediate correction. What happened in Wrightstown also occurred to a greater or less degree in the other small settlements and in one or two municipalities located within a radius of eight or ten miles surrounding Camp Dix. Most of the farm houses lying within this zone were filled with boarders, principally laborers employed on the government reservation, and members of the families of military officers.

Plan for Co-operative Work—In anticipation of insanitary conditions which were likely to arise as a result of the rapid growth of the population of the small villages within easy reach of the Wrightstown cantonment, an effort was made by the State Department of Health, during the latter part of August, to have the local boards of health representing the townships and municipalities lying within a radius of ten miles surrounding the cantonment join in creating a special sanitary district. This district was to include all of the territory surrounding the reservation that was likely to be directly affected. It was also proposed that a single sanitary unit be organized to which each of the local boards should contribute a pro rata share of operating expenses; this unit to have supervision over sanitary matters within the entire area, and the State Department of Health agreeing to contribute liberally to the work by furnishing certain equipment and personnel to direct its operations.

Several joint meetings were held to discuss ways and means for putting the plan into effect and nearly a month passed without a final agreement being reached. In the meantime the necessity for beginning the work became more urgent and the likelihood of the interested boards getting together became less promising. They all expressed

willingness to co-operate with the State Department of Health but not to the extent of binding themselves to contribute a definite amount to the support of a co-operative organization. Each board preferred to assume responsibility for the enforcement of sanitary regulations within its own territory although no perfected organization existed in any one of the municipalities, nor had any steps been taken to correct insanitary conditions then existing in these municipalities.

Activity of the State Department of Health—A preliminary survey of the territory surrounding Camp Dix was made by the Bureau of Local Health Administration and a special sanitary district was mapped out which includes all the area within a radius of seven miles of Wrightstown, exclusive of the government reservation. A new chapter was added to the State Sanitary Code containing regulations requiring all persons engaged in the sale or distribution of foods within this area to procure a license from the State Department of Health and further providing that such a permit should not be granted unless the premises upon which the business was to be conducted complied with the requirements of the statutes in respect to the manufacture, sale and distribution of foods.

Branch Office Opened—On September 20th, a branch office was opened at Wrightstown and four inspectors assigned to work in the special sanitary area around Camp Dix.

During the five weeks that have elapsed since the opening of the branch office the work has become fairly well organized and considerable missionary work has been done among the different local boards of health in an effort to co-ordinate their work with that undertaken by the State Department. Seventy-five applications have been received for licenses to conduct food vending establishments, such as restaurants, lunch counters, ice cream parlors, soda fountains and soft drink stands, boarding houses, hotels and markets.

Twenty-five of these applications have been favorably acted upon. Licenses in thirty-four cases are being withheld, awaiting additional alterations required for sanitary reasons, business being continued pending these changes. In ten cases licenses are being withheld and no business will be conducted on the premises for which these applications were made until the requirements of the Sanitary Act have been complied with, and nine applications were withdrawn because of the inability of the applicants to meet the conditions necessary to receive a license. One hundred and forty-nine inspections and re-inspections have thus far been made of the seventy-five food vending establishments for which applications for licenses have been made. It has not yet been possible, with the small number of inspectors, to make investigations on premises other than those upon which foods are prepared for sale, except in a few cases where glaring insanitary conditions called for immediate action. A systematic house to house inspection of all premises within the area will be conducted as the work proceeds.

Water Supply—Perhaps the most difficult sanitary problem involved is the water supply, which is derived entirely from domestic wells with the exception of supplies at Wrightstown, New Egypt, Brown's Mills and Pemberton. In these places part of the inhabitants are furnished with water from public supplies. However, many families in these places still depend on private wells, a number of which are already grossly polluted and others are likely to become so in the near future from the unavoidable ground pollution that is taking place in the absence of sewers. Prior to the opening of the cantonment, part of the village of Wrightstown was amply supplied with water from a small public supply, but at the present time this supply is entirely inadequate to meet the demands made upon it by those consumers already connected with the street mains, thus leaving a large part of the inhabitants entirely dependent upon domestic wells, and the village practically without water for fire protection. All wells are being examined and recommendations are being made to protect from pollution those that are still safe for potable use. Those that are dangerously polluted are being closed. A plan has been perfected which should soon result in increasing the public water-supply in Wrightstown, thereby making it practicable to condemn and order closed all domestic wells used for potable purposes that have become dangerously polluted.

Disposal of Excreta—Insanitary privies prevail throughout the entire area surrounding the cantonment. There has evidently never been any attempt on the part of the local boards of health in that section of Burlington county to enforce the regulations of the State Sanitary Code in respect to insanitary privies. This matter is now receiving attention and it is expected to have all privies within the special sanitary area surrounding the cantonment made fly-tight before another fly season arrives. The local boards of health will be expected to assist in this work.

Additional Work to be Done—Other lines of work that will be performed or supervised by the Bureau of Local Health Administration within the area surrounding the Wrightstown cantonment are: supervision over communicable diseases, control over mosquito breeding areas, abolishment of fly breeding accumulations, and the abatement of other nuisances that constitute a potential source of danger to the public health. Medical examination and licensing of food handlers are also contemplated. Free anti-typhoid inoculation and vaccination against smallpox will be offered.

PERSONNEL OF THE BUREAU OF LOCAL HEALTH ADMINISTRATION.

The personnel of the Bureau has been increased during the year by the addition of four clerical assistants, and three inspectors, the latter having been temporarily transferred from other bureaus to the Bureau of Local Health Administration for special service in the area sur-

rounding Camp Dix. This increase in the personnel is not sufficient, however, to satisfactorily carry on all of the lines of work with which the Bureau is charged, nor to permit the assignment of any of our inspectors to any special branch of work to the exclusion of other matters.

TABLE SHOWING THE PERSONNEL AND PERIOD OF SERVICE OF EMPLOYEES AVAILABLE FOR FIELD WORK IN THE BUREAU OF LOCAL HEALTH ADMINISTRATION DURING YEAR ENDING OCTOBER 31st, 1917.

NAME OF EMPLOYEE.	1916			1917								
	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.
D. C. Bowen	x	x	x	x	x	x	x	x	x	x	x	x
W. H. MacDonald	x	x	x	x	x	x	x	x	x	x	x	x
W. T. Eakins	x	x	x	x	x	x	x	x	x	x	x	x
I. W. Knight	x	x	x	x	x	x	x	x	x	x	x	x
M. Lewis											x	x
A. I. Goehrig										x	x	x
C. M. Nichols										x	x	x
C. W. Sparmaker											x	x

*On duty August 1 to 4 inclusive.
 †On duty September 10 to 30 inclusive.
 ‡On duty August 18 to 25 inclusive.
 §On duty September 19 to 29 inclusive.
 ¶On duty October 15 to 31 inclusive.

DIVISION OF TIME SPENT IN OFFICE, TRAVEL AND FIELD.

NAME OF EMPLOYEE.	Hours spent in—			Total hours.	Total hours required.	Hours over-time.	Working hours off duty.	Days vacation.
	Office.	Travel.	Field.					
D. C. Bowen,*	950½	262	354¼	1,566¾	1,220	346¾	37	1
W. H. MacDonald	1,580¾	201	495¼	2,277¼	1,833	444¼	¾	7
W. T. Eakins	1,158½	572¾	567¼	2,298½	1,833	465½	0	0
I. W. Knight,†	968¾	319½	418¾	1,707	1,391	316	41	0
M. Lewis‡	188¼	75¾	46¾	308¾	276	32¾	24	0
Totals ...	4,846¾	1,429	1,882½	8,158¼	6,553	1,605¼	102¾	15
A. I. Goehrig,§	130½	96	161½	388	271	117	0	0
C. M. Nichols,¶	52¼	30	39¼	121½	93	28½	0	0
C. W. Sparmaker,||	44½	58¼	108½	211¼	162	49¼	0	0
Totals ...	227¼	184¼	309¼	720¾	526	194¾	0	0
Totals	5,074	1,613¼	2,191	8,879	7,079	1,800	102¾	15

*November 1 to February 28 not included.
 †On duty November 1 to August 4 inclusive.
 ‡On duty September 10 to October 31 inclusive.
 §On duty August 18 to Oct. 31 inclusive.
 ¶On duty October 15 to October 31 inclusive.
 ||On duty October 1 to October 31 inclusive.

TABLE SHOWING PERIOD OF SERVICE OF CLERICAL EMPLOYEES IN THE BUREAU OF LOCAL HEALTH ADMINISTRATION DURING YEAR ENDING OCTOBER 31st, 1917.

NAME OF EMPLOYEE.	1916			1917								
	Nov.	Dec.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.
M. G. Malloy	x	x	x	x	x	x	x	x	x	x	x	x
M. Reeves			x*	x	x	x	x	x	x	x	x	x
A. J. Henry					x†	x	x	x	x	x	x	x
H. J. Duffy					x†	x	x	x	x	x	x	x
R. E. Broome												x

*On duty January 15 to 31 inclusive.

†On duty March 12 to 31 inclusive.

COMMUNICABLE DISEASES.

During the fiscal year just closed the Bureau has been called upon to assume control of several epidemics of more than ordinary magnitude, and to investigate numerous smaller outbreaks, some of which presented problems of unusual importance from a public health standpoint.

Number of Outbreaks Investigated—Epidemiological investigations have been made in forty-two outbreaks of communicable diseases occurring in forty separate municipalities in the state, exclusive of those occurring on dairy premises or at state institutions.

Typhoid fever claimed the largest share of attention, investigations having been conducted in twenty-six outbreaks. Other investigations were made in respect to the occurrence of: cerebro-spinal meningitis, one; chickenpox, two; diphtheria, five; measles, one; poliomyelitis, one; scarlet fever, one; smallpox, four; tuberculosis, one.

Typhoid Epidemic Due to an Infected Water-Supply—During July, August and September an epidemic of typhoid fever prevailed in Pompton Lakes that was by far the largest outbreak of this disease with which the Bureau has had to deal during the year. The infection was transmitted through the public water-supply which became infected about July 22d, either by fecal material that was washed into the receiving well with surface drainage during a heavy rain storm that occurred on that date, or by the discharges from a water-closet in the pump house, which were found to be escaping through a defective drain and flowing directly into the well. Both of these sources of pollution carried a considerable amount of human excrement into the well from which the entire public water supply for the borough was pumped. Among the civilian population of about 3,000 there were 115 cases reported and twenty-two cases occurred in the 5th Regiment, New Jersey National Guard, encamped on the watershed at that time and using the public water supply. That the water supply received a heavy dose of infection was apparent from the

explosive character of the outbreak and the high incidence of cases in both the civilian population and the members of the 5th Infantry who had not yet been vaccinated against typhoid.

Typhoid Outbreaks Caused by "Carrier"—In several smaller outbreaks of typhoid fever investigated during the year, the source of infection was traced to typhoid "carriers." In one of these outbreaks, due to an infected milk supply in Bordentown, a typhoid "carrier" was found on the dairy that supplied the infected milk. The fact that this man is a typhoid "carrier" was first brought to the attention of the State Department of Health about two years ago. Four separate outbreaks of typhoid fever have been traced to this particular individual since the summer of 1915, and during the intervening time typhoid bacilli have been isolated from specimens of his feces on several occasions. In these four outbreaks more than seventy cases of typhoid fever, resulting in four known deaths, have been traced to this source. The man gives a history of having had typhoid fever about forty years ago, since which time he claims to have been subject to frequent attacks of diarrhea. While every means afforded under the present laws have been taken to prevent this infected individual from engaging in occupations where his uncleanly personal habits would be liable to cause an outbreak of typhoid fever, or from infecting individuals with whom he came in contact, our efforts in this direction have not thus far been wholly successful, as is demonstrated by the Bordentown outbreak. This case is illustrative of a class of typhoid "carriers" with whom it is difficult to deal, and emphasizes the necessity that exists for the state to make some adequate provision by which such irresponsible persons who are found to be harboring the causative agent of a dangerous communicable disease, but who are apparently in normal health, can be kept under surveillance until such time as they are shown to have been cured of this condition.

Other Outbreaks—Among the other outbreaks investigated by this Bureau are water-borne outbreaks of typhoid fever in New Brunswick city and Frenchtown borough; milk-borne outbreaks of typhoid fever in Northampton township, Riverton borough and Palmyra township, and a milk-borne outbreak of diphtheria in Woodbridge township.

The details of the above mentioned and of other epidemiological investigations made by the Bureau of Local Health Administration during the year are available through the files of the Department.

Communicable Diseases on Dairy Premises—The diseases that are now reportable directly to the State Department of Health when they occur on dairy premises are: Asiatic cholera, diphtheria, dysentery (amoebic and bacillary), paratyphoid fever, scarlet fever, tuberculosis and typhoid fever. Asiatic cholera and paratyphoid fever were added to the list by the enactment of Regulation 4, Chapter 6 of the State Sanitary Code. This regulation took effect on the first day of June, 1917. It also provides that the local health officer of a district in which any of these diseases occur on dairy premises the products of which are sold or distributed in another municipality, shall promptly

notify the Director of Health of the action that is being taken by such local official to prevent the transmission of infection through milk or other dairy products produced on such premises. The purpose of this requirement is not only to place the responsibility of caring for communicable diseases that may occur on dairies upon the local health officials themselves, but also to provide a check on the work so that the State Department of Health may be able to judge whether or not the precautionary measures taken are adequate to protect the consumers of the milk.

The fatal weakness in the practical working out of this regulation is found in the fact that in many of the rural districts devoted to the production of market milk there is no health officer or other official versed in modern methods of controlling communicable diseases, so that a matter so vitally important from a public health standpoint cannot be entirely left to the local boards of health in such districts. In consequence the State Department of Health found it advisable to establish supervision over fifty-seven dairies upon which communicable diseases were reported during the past year. These include diphtheria, on nineteen dairies, with a total of twenty-nine cases; scarlet fever on twenty dairies, with a total of thirty-one cases; typhoid fever on thirteen dairies, with a total of fourteen cases, and tuberculosis on five dairies. The longest period of time over which it was necessary to continue supervision of any one dairy was 225 days, and the shortest two days. The fifty-seven dairies supervised had an average daily production of 5,600 quarts. It was only found necessary to prohibit the sale of milk on twelve of these dairies, with an aggregate production of 525 quarts per day. In the remainder of the cases either because of efficient isolation, removal of the infected persons from the premises, pasteurization of the milk or the transfer of the dairy business to other premises, the sale of milk was uninterrupted. Whereas, if an arbitrary order prohibiting the sale of milk had been issued in every case, it would have resulted in withdrawing from the market during the year a total of 343,198 quarts, an average of 940 quarts per day.

Justification for permitting this milk to be shipped to market may be found in the fact that no case of communicable disease was traceable to the use of such milk except where infection had already taken place before the existence of the disease on the dairy had been brought to the attention of the Department.

It will be noted that only five investigations were made on account of tuberculosis reported on dairy premises. This seems to be a relatively small number when compared with the number of cases of other milk-borne diseases investigated on such premises. Whether tuberculosis is less prevalent in rural districts than in the urban population, or whether this disease is not so well reported as other diseases occurring on dairy premises, is a question that requires further inquiry to answer.

Communicable Diseases at State Institutions—The statutes make it

the duty of the State Department of Health to "institute and prosecute vigorously all measures to check and control epidemics in institutions maintained, in whole or in part, by the state." In accomplishing this work it has been the policy to place at the disposal of the institutional officials every facility of the Bureau and to co-operate with them in the handling of outbreaks of communicable diseases.

Communicable diseases (exclusive of tuberculosis) were reported during the year at the following named institutions: New Jersey State Institution for Feeble Minded, at Vineland, diphtheria and scarlet fever; Training School for Boys, at Vineland, diphtheria, scarlet fever and chickenpox; New Jersey State School for the Deaf, at Trenton, diphtheria and whooping cough; New Jersey State Village for Epileptics, at Skillman, chickenpox and measles; State Normal School, at Trenton, diphtheria, scarlet fever and measles.

Schick Test Successfully Used in Three Outbreaks—The most extensive of these outbreaks occurred at the Training School for Boys, in which twelve cases of diphtheria occurred between February 9th and May 17th, 1917. All efforts instituted by the school authorities to eradicate the infection from among the inmates having failed, the advice of the Bureau of Local Health Administration was sought and a Schick test was suggested, to be followed by the immunization with toxin-antitoxin of all susceptible individuals. This was carried out by the medical staff of the institution, with the assistance of a representative of the Bureau of Local Health Administration, with the result that no additional cases have occurred since the work was completed.

At the New Jersey State School for the Deaf, two cases of diphtheria occurred shortly after the opening of the Fall term. Inasmuch as there had been a somewhat extensive outbreak of diphtheria at this institution during the preceding year, which continued for a long time, it seemed advisable to make a Schick test on all persons residing on the premises. These tests showed that twenty-four out of 191 pupils, and seventeen out of fifty-eight employees tested gave a positive reaction and they were therefore immunized with toxin-antitoxin. Three employees who refused to submit to the treatment were excused from duty until the work had been completed. The work was completed about December 12th, 1916, and no additional case has since been reported.

The outbreak of diphtheria at the New Jersey State Institution for Feeble Minded occurred just at the time preparations were being completed for making a Schick test on all inmates at the institution. The work had been undertaken at that time on account of the prevalence of diphtheria at the Training School for Boys, which is located on adjoining property. A day or two before the work was actually begun several cases of sore throat occurred among the inmates, two of which later proved to be true diphtheria. As the result of these cases the Schick test was hurriedly completed with the results shown in the following table:

AGE GROUPS.	No. of Individuals Tested.	Positive Schicks.	Per Cent. Positive Schicks.	Pseudo Reactions.	Per Cent. Pseudo Reactions.
0 to 4 years.....	1	..	..	..	..
5 to 9 years.....	27	12	24	3	11
10 to 14 years.....	47	16	35	13	28
15 to 19 years.....	98	22	22	28	28
20 to 24 years.....	105	27	26	43	41
25 to 29 years.....	85	24	28	25	29
30 to 34 years.....	50	12	24	12	24
35 to 39 years.....	31	7	22	7	22
40 to 44 years.....	29	5	17	8	27
45 to 49 years.....	17	6	35	6	35
50 to 54 years.....	22	5	22	4	18
55 to 59 years.....	7	3	43	..	..
60 to 64 years.....	3	1	33	..	..
65 to 69 years.....	7	..	..	1	14
Totals	529	140	26.4	150	28.7

All of those who gave a positive Schick reaction were given injections of toxin-antitoxin, and while a number of "carriers" of virulent diphtheria bacilli were found among the inmates who gave a negative Schick, none of them developed clinical diphtheria, nor did other cases occur among those who had given a positive Schick, previous to immunization.

SANITARY STUDIES AND SURVEYS.

Although the Bureau of Local Health Administration is charged with the duty of making sanitary surveys throughout the state, with a view to advising the Department as to how conditions may be improved, a very limited amount of time has been available for this work. This is due to the fact that other urgent matters have demanded practically all of the time of the inspectors, preference having always been given to the work which seemed to be of the most importance from a public health standpoint. The Bureau has, therefore, been unable to do more in this line than to make a limited number of surveys. These surveys have been conducted in the localities to which the Department's attention was particularly directed on account of the existence of insanitary conditions of more than ordinary magnitude, or because of some unusual circumstances which required supervision beyond that which the local board of health was able to provide. Therefore, special surveys have only been made in Matawan borough, Matawan township and in the territory surrounding Camp Dix, concerning the last of which mention is made elsewhere in this report.

Scope of Survey at New Jersey State Prison—At the request of his Excellency, the Governor, a special investigation was made at the New Jersey State Prison, at Trenton, during the early part of the year. This investigation included a survey and report on the structural condition of the building, housing and treatment of the prisoners in so far as these matters relate to their physical condition, the diet of the prisoners and the prevalence of communicable diseases among

them. A copy of the report of this investigation, which contained recommendations based on the findings, was submitted to the Governor.

CO-OPERATION WITH LOCAL BOARDS OF HEALTH.

Conference With Local Health Officials—Local health officials frequently make requests for conferences with a representative of this Bureau. It is regretted that it is not always possible to comply with these requests because such conferences are particularly helpful to localities in which there is no trained health officer; notably in gaining control over outbreaks of communicable diseases in communities where the local officials are not familiar with the best restrictive measures and in calling attention to other branches of local health work that are being neglected. During the past year officers of the Bureau of Local Health Administration have held 320 conferences with local health officials in the field. One hundred and twenty-eight of these were held at the request of local officials. In addition, thirty-five meetings of local boards were attended, seventeen by special request from the local board and the balance were arranged at the instigation of the State Department.

Citizens' Complaints—Since the enactment of a State Sanitary Code there has been a marked increase in the number of complaints received by the State Department of Health from private citizens against insanitary conditions alleged to exist in various parts of the state. While in many cases the conditions complained of have little or no direct bearing on the public health, the frequency of such complaints denotes an awakening interest on the part of the public in matters relating to the public health work, which should eventually tend to bring about better local health administration.

It has been the policy of the Bureau to refer such complaints to the local boards of health of the municipalities in which the alleged insanitary conditions exist, directing attention to their duty under the law and requesting them to investigate the conditions and report their findings and action to this Department. Only in cases where the nuisance appeared to be of particular gravity, has an inspector from this Bureau been detailed to make a special field investigation.

In the majority of the cases this method of dealing with nuisances has proved unsatisfactory, as it has been impossible, with few exceptions, to follow up with field investigations and conferences the cases in which correspondence has failed to gain the desired results.

Twenty special field investigations were conducted during the past year, either as the result of complaints received from private citizens or by request of local health authorities. In addition, numerous other nuisance inspections were made by representatives of the Bureau in connection with other field investigations.

OFFICE WORK.

Correspondence—The amount of correspondence conducted by the Bureau of Local Health Administration during the year 1917 is greatly in excess of that handled during the preceding year, and has occupied more of the Chief's time than should be devoted to this kind of work. Much of this correspondence deals with the enforcement of the law and the regulations of the State Sanitary Code, hence it must be handled by some one who is thoroughly conversant with these subjects as well as the fundamental principles of modern public health administration. This Bureau is obliged to handle many matters by correspondence that could be much more satisfactorily disposed of by sending inspectors into the field. This cannot be accomplished, however, with the present force. The time has arrived when the state should be divided into districts with a state health officer in charge of each district to co-operate with local boards of health and represent the State Department of Health in matters over which it has supervision. This would effect a great saving in time and expense that is now necessarily devoted to travel by officers who are sent out from the main office, as well as to enable the same number of inspectors to accomplish considerably more actual work in the field. It would also bring the Department in closer touch with local boards of health throughout the state, and keep it better advised concerning their activities in the enforcement of local health regulations and the provisions of the State Sanitary Code.

Bureau of Food and Drugs.

WILLIAM G. TICE, ACTING CHIEF.

The Bureau of Food and Drugs enforces the Food and Drugs act (Chapter 217 of the Laws of 1907) and its amendments and supplements, which include the Sanitary act of 1909; the law relating to the production and distribution of shellfish (Chapter 24 of the Laws of 1912); the law relating to the distribution and sale of oleomargarine (Chapter 84 of the Laws of 1886) its amendments and supplements; the act governing the sale and distribution of milk (Chapter 78 of the Laws of 1914); the law controlling pasteurization of milk and its products (Chapter 285 of the Laws of 1915); the Slaughter-House act (Chapter 295 of the Laws of 1910); the Cold Storage act (Chapter 101 of the Laws of 1916); the act regulating the sale and breaking of eggs (Chapter 30 of the Laws of 1914), and the Methyl Alcohol act (Chapter 286 of the Laws of 1912).

Sanitary Act—This far-reaching law (Chapter 231 of the Laws of 1909) gives to the State Department of Health, and to each local board of health, authority to regulate the sanitary conditions of all establishments where food intended for sale, or distribution, is produced, stored or handled. Several years experience in the enforcement of this law, has shown not only its importance, but the impossibility of state-wide enforcement by this Bureau without the aid of local boards of health. The provisions of the law which deals with retail establishments must be enforced by local boards of health if they are to be enforced at all. More work has been done by local boards of health this year than ever before, but there still remains a large number of local boards of health who have not done their part in the work. Believing that it is the duty of local boards of health to supervise the sanitary conditions of the retail establishments within their jurisdiction, in which food is handled and sold, the Bureau has directed most of its attention to the inspection of business houses engaged in an interstate or intrastate business.

The following table shows the number and kinds of establishments at which sanitary inspections have been made during the year:

Bakeries, 2; bologna factories, 13; bottling plants (water), 26; bottling plants (non-alcoholic beverages), 187; candy factories, 64; canning factories, 207; cold storage plants, 309; confectionery stores, 63; drug stores, 11; edible oil refineries, 5; egg breaking establishments, 45; grocery stores, 126; macaroni factories, 15; meat markets, 113; oyster shucking houses, 2; pickling establishments, 2; produce stands, 64; restaurants, 9; slaughter-houses, 1,050. Total, 2,313.

Meat Inspection—There is no legislation in force in this state requiring the inspection of meat at the time of slaughter, and while sufficient authority is contained in the food law to prevent the sale of diseased meat, it is obvious that no far-reaching results will be obtained until a comprehensive system of meat inspection is in effect. The following table shows the amounts and kinds of meat which have been inspected during the year:

CARCASSES.			PARTS OF CARCASSES.		
	Passed.	Condemned.		Passed. lbs.	Condemned. lbs.
Beef	1,069	21	Beef	4,055	3,025
Hogs	1,766	..	Hogs	1,095	.....
Calves	456	2	Calves	915	.....
Sheep	40	..	Sheep	415	.....
Totals	3,331	23	Totals	6,480	3,025
			Poultry	17,457	
				23,937	

Adulterated Meats—Forty-five samples of ground beef were collected and examined, seven of which were found to be preserved with compounds containing sulphur, in the form of sulphite. The use of sulphites tends to conceal inferiority by the restoration of the normal fresh color and may result in the sale of tainted meat due to the concealment of odors.

Slaughter-House Inspection—The inspection of places where animals are slaughtered for food purposes, begun in 1910 has been continued for the purpose of obtaining better and cleaner slaughter-houses. All licenses held by slaughter-house operators were revoked on June 30th, 1917, and new licenses were issued for a period of one year, on July 1st, 1917, to such places as had complied with the law and rules and regulations pertaining to slaughter-houses. It is believed that the practice of granting licenses for periods of one year rather than for indefinite periods, as heretofore, will be the means of securing more definite control over the industry.

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

Slaughter-houses operating under license on October 31st.....	251
Licenses revoked during the year.....	1
Total number of inspections made during the year.....	1,050

The above summary does not include farmers who may slaughter animals raised on their premises, and does not include small dealers who slaughter animals occasionally on farms where such animals are purchased.

Milk and Cream—During the year 2,187 samples of milk and cream were collected, of which 416 samples were found to vary from the legal standard. The samples found to differ from the standard may be divided into the following classes:

Milk below the standard with respect to total solids.....	305
Milk containing added water.....	96
Milk having been skimmed.....	2
Cream below the legal standard with respect to fat.....	13
Total	416

By consulting the table it will be seen that 96 samples or 4.4 per cent. were adulterated by the addition of water. This is considerably higher than the figures obtained for the same period last year when 1.4 per cent. of the samples examined were found to contain added water. Fourteen per cent. of the specimens examined were found to be below the legal standard for total solids, compared with 4 per cent. of the samples found to differ from the standard during the preceding fiscal year. The figures relating to total solids are significant and those pertaining to added water are inexcusable at a time when the consumer is asked to pay for the additional cost of producing milk.

The following table shows the number and kinds of samples of food collected during the year other than milk and cream:

Article.	Above Standard.	Below Standard.	Total.
Allspice, ground	1	...	1
Beans, canned	1	...	1
Butter	64	17	81
Cider	3	...	3
Cinnamon, ground	3	...	3
Cloves, ground	3	...	3
Cordials	5	...	5
Cottonseed oil	1	...	1
Flour	2	...	2
Hamburg steak	38	7	45
Honey	9	2	11
Lard	21	12	33
Lemon extract	32	2	34
Molasses	30	...	30
Oleomargarine	6	...	6
Oleo oil	2	...	2
Olive oil	33	1	34
Oysters	19	...	19
Paprika	3	...	3
Peaches, canned	2	...	2
Pepper, black	5	...	5
Pepper, white	2	...	2
Preservaline	1	...	1
Soft drinks	82	3	85
Tomato products	156	20	176
Vanilla	4	...	4
Vinegar, cider	5	...	5
Totals	533	64	597

Drugs—United States Pharmacopoeia—The ninth decennial revision of the United States Pharmacopoeia and the fourth edition of the National Formulary became official standards for pharmaceutical preparations on September 1st, 1916. During the past fiscal year the Department caused a notice to be sent to all pharmacists in the state, advising them that samples of drugs would be collected for the purpose of ascertaining whether or not pharmacists were making their preparations in conformity with the new standards. Since April 1st, 1917, one hundred and fifty-six samples of drugs have been collected and examined. The drugs selected for the investigation were confined to simple preparations and to those which are almost invariably prepared by the pharmacists themselves.

The analytical results of fifty-four samples of diluted mercurial ointment are summarized in the following table:

Number of samples collected.....	54
Number complying with the standard.....	29
Number not complying with the standard.....	22
Number showing variation of 1 to 5% from standard.....	8
Number showing variation of 5 to 10% from standard.....	10
Number showing variation of 10 to 20% from standard.....	2
Number showing variation of 30 to 40% from standard.....	2
Mercurial ointment sold when diluted ointment was requested.....	3

An inspection of the above summary shows that twenty-two samples or 41.0 per cent. of the samples contained mercury in quantities at variance with the amount required by the United States Pharmacopoeia. In two cases there was a deviation of more than 30 per cent. from the standard. Three samples purchased as diluted mercurial ointment were found upon examination to be mercurial ointment, this substance having been substituted for the material requested.

The following table shows in detail the results of analyses of fifty-one samples of tincture of ferric chloride:

Number of samples collected.....	51
Number complying with the standard.....	35
Number not complying with the standard.....	16
Number showing variation of 1 to 5% from standard.....	4
Number showing variation of 5 to 10% from standard.....	5
Number showing variation of 10 to 20% from standard.....	3
Number showing variation of 20 to 30% from standard.....	3
Number showing variation of 50 to 60% from standard.....	1

It will be seen from the preceding summary that sixteen samples or 31.6 per cent. contained less than 4.48 per cent. of iron, the requirement of the United States Pharmacopoeia. Four samples showed a variation greater than 1 per cent.; five samples showed a variation greater than 5 per cent., and seven samples varied from the standard strength by more than 10 per cent.

The results obtained by the examination of twenty samples of solution of magnesium citrate are tabulated below:

Number of samples collected.....	20
Number complying with the standard.....	9
Number not complying with the standard.....	11
Number showing variation of 1 to 5% from standard.....	1
Number showing variation of 5 to 10% from standard.....	3
Number showing variation of 10 to 20% from standard.....	3
Number showing variation of 20 to 30% from standard.....	2
Number showing variation of 30 to 40% from standard.....	1
Number showing variation of 40 to 50% from standard.....	1

The above summary shows that eleven samples or 55 per cent. contained less magnesium oxide than the amount fixed by the United States Pharmacopoeia. One sample showed a variation greater than 1 per cent.; three samples showed a variation greater than 5 per cent., and seven samples varied from the standard strength by more than 10 per cent. It will be observed that the majority of the samples containing less than the required amount of magnesium oxide, showed a marked variation from the standard. Our investigation further indicated that there are two types of this drug, one of which is prepared in accordance with the standard of the United States Pharmacopoeia and sold under the name of Solution of Magnesium Citrate, and the other, which is a substandard preparation, differing widely from the standard, which is sold in containers labeled at variance from the name of the official preparation. The latter compound is sold largely in response to requests for "A bottle of magnesia," and in making this purchase the average person desires the United States Pharmacopoeia preparation and is under the impression that he is receiving the same, even though the container is labeled in variance from the official designation. When preparations of this kind are sold they should be labeled so as to enable the purchaser to form an intelligent opinion of the quality and purity of the same.

Ammonia Liniment was the fourth drug selected for investigation, and thirty-one samples were collected and examined with the following results:

Number of samples collected.....	31
Number complying with the standard.....	13
Number not complying with the standard.....	18
Number containing cottonseed oil.....	10
Number containing linseed oil.....	1
Number containing olive oil.....	1
Number in which the oil used was not identified.....	6

The results of our investigation indicate that a considerable number of pharmacists were not entirely familiar with the provisions of the new Pharmacopoeia and the National Formulary, and in certain instances preparations were being sold which did not meet the requirements of these publications.

The following table shows the number and kinds of samples of drugs collected during the year:

UNITED STATES PHARMACOPOEIAL AND NATIONAL FORMULARY DRUGS.

Article.	Above Standard.	Below Standard.	Total.
Aqua hamamelidis	106	9	115
Bismuthi subnitras	1	1	2
Cinchona rubra	1	1	2
Elixir ferri quinae and strychninae	15	16	31
Linimentum ammoniac	1	1	2
Linimentum camphorae	1	1	2
Linum	1	1	2
Liquor hydrogenii dioxidi	9	11	20
Liquor magnesi citratis	1	1	2
Pilulae ferri carbonatis	16	2	18
Spiritus camphorae	78	30	108
Spiritus myrciae compositus	32	1	33
Tinctura delphinii	4	6	10
Tinctura opii	1	1	2
Tinctura ferri chloridi	35	16	51
Ulmus	1	1	2
Unguentum hydrargyri	3	3	6
Unguentum hydrargyri dilutum	29	25	54
Totals	333	121	454

DRUGS OTHER THAN U. S. PHARMACOPOEIAL AND NATIONAL FORMULARY PREPARATIONS.

Article.	Above Standard.	Below Standard.	Total.
Acetanilid tablets	13	1	14
Aspirin tablets	12	1	13
Hair tonic	149	55	204
Honey tonic	1	1	2
Kil-ve	1	1	2
Liniments	4	1	5
Pinoleum	1	1	2
Rheumatic remedy	1	1	2
Solution of magnesia	1	6	7
Soothing drops	1	1	2
Toilet waters	25	14	39
Totals	206	78	284

Patent Medicines—In its work of investigating the distribution and sale of patent medicines, the Bureau has been compelled to rely almost entirely upon that section of the Food and Drug law which provides that a drug is misbranded, "If its package or label shall bear or contain any statement, design or device regarding the curative or therapeutic effect of such article or any of the ingredients or substances contained therein which is false or fraudulent." Our investigation has been confined principally to those preparations which are prepared within the state and to the average stock carried by the retail pharmacist. It was found that certain pharmacists still have goods displayed for sale the packages of which are marked with the words and figures "On hand Oct. 1, 1908." This is in accordance with the section of the law which states that the provisions of this act relating to misbranding shall not apply to the distribution and sale or to the possession with intent to distribute or sell, by any dealer, of such proprietary foods and medicines as were in such dealer's stock in this state on October 1st, 1908; provided, that the package or other container in which such foods or medicines shall be contained shall be plainly and conspicuously marked with the words and figures, "On hand Oct. 1, 1908." This provision of the law has made

it possible for the pharmacist to continue to display for sale many preparations which are grossly misbranded as to their curative claims.

Investigations have been made of 284 different preparations of which 149 were found to be misbranded. As a result of this work the sale of 120 of these misbranded compounds was caused to be discontinued. In eighteen cases the labels were changed to comply with the provisions of the law, and information concerning eight preparations was referred to the Bureau of Chemistry, United States Department of Agriculture, for their consideration.

It is of interest to note that the misbranding took the form of specific therapeutic claims for such diseases as diphtheria, tuberculosis, catarrh and asthma. A type of preparation which may be exceedingly dangerous and possibly a habit-former is that now commonly sold among our foreign population as a baby remedy. These preparations usually contain morphine, codeine, or other alkaloids in appreciable amounts, but are so cleverly labeled as to evade the provisions of existing laws.

While our investigations show that the average patent medicine is no longer alleged to be a cure for our ills, nevertheless, the same thought is conveyed by the use of skillfully prepared labels and misleading advertisements.

Methyl Alcohol Act—Throughout the past year investigations have been made of the toilet preparations sold in barber shops and barber supply houses in thirty municipalities of the state. It was found that most of the preparations used were sent into this state by companies operating in other states, notably Pennsylvania. In certain instances it was learned that barbers manufactured their own compounds.

Two hundred and seventy-three samples of preparations were collected and analyzed during the year, of which ninety-nine or 36 per cent. were found to contain wood alcohol. The Department was unable to proceed against the manufacturers of these compounds because of the fact that the manufacturers were located in other states. Action was, however, taken to cause the compounds found to contain wood alcohol to be either destroyed or exchanged for other lotions prepared with grain alcohol.

While the continued external application of compounds containing wood alcohol is liable to result in injury, it is obvious that the most dangerous use of methyl alcohol is its consumption in beverages or medicinal preparations. Two preparations sold under the name of Fernet Branca and Ferro China Bisleri, and imitations of well known preparations bearing the above names were sold in the foreign quarter of a city of the state, both of which when examined were found to contain methyl alcohol in considerable quantities. These preparations had been shipped into the state from New York and further investigations indicated that their consumption had resulted in at least one case of blindness. The evidence collected in this case was submitted to the Bureau of Chemistry, United States Department of Agriculture, and legal action was begun by that Department

against the shippers of the above mentioned beverages. We have been informed that this action has resulted in a successful termination.

As previously pointed out various toilet waters are shipped into the state which are found to contain methyl alcohol. Inasmuch as the persons responsible are not within our jurisdiction, and because the United States Department of Agriculture are unable to cope with the situation, it was recommended that an attempt be made to secure federal legislation to prevent this interstate traffic. Such an attempt was made but legislation was not secured at the last session of Congress.

Non-Alcoholic Beverages—The law regulating the sale of non-alcoholic beverages has now been in effect about two years. During this time inspections have been made of most of the establishments in the state where soda water is prepared, as a result of which there has been marked improvement in the sanitary aspect of the business. Difficulty has, however, been found in teaching the average bottler the necessity and importance of cleanly methods. Considerable time has been spent during the past year investigating the methods of cleansing containers and utensils at establishments where non-alcoholic beverages are prepared.

Bacteriological examinations have been made of the waters used in the preparation of beverages, and of the bottles prior to filling. Examinations have also been made of the finished product. At sixty-nine places it was found to be the custom to subject the water as received at the establishment to some form of mechanical filtration before using it in the manufacture of beverages. Samples of the water were examined before and after filtration for the purpose of ascertaining the possibility of contamination, due to improper filtration. It was found that 14 per cent. of the samples collected had become contaminated by the method of filtration as carried out at the bottling establishment. At fifty-nine places the results indicated that the filtration was satisfactory. The results of the ten samples found to be contaminated are shown in the following table:

SAMPLE NO.	Source.	Before filtration as delivered to the bottling establishment.		After filtration in the bottling establishment.	
		Bacteria per c.c. @ 37°.	B. coli communis.	Bacteria per c.c. @ 37°.	B. coli communis.
WO 11746..	City supply..	20	absent in 5 c.c.	16	present 4 in 10 c.c.
WO 10064..	City supply..	4,000	absent in 5 c.c.	90,000	present 10 in 10 c.c.
WO 11601..	City supply..	23	absent in 5 c.c.	31	present 10 in 10 c.c.
WO 11733..	City supply..	18	absent in 5 c.c.	20	present 10 in 10 c.c.
WO 11612..	City supply..	11	absent in 5 c.c.	18	present 10 in 10 c.c.
WO 9688..	City supply..	21	absent in 5 c.c.	12	present 10 in 10 c.c.
WO 10953..	City supply..	25	absent in 5 c.c.	overgrown	present 5 in 10 c.c.
WO 11757..	City supply..	25	absent in 5 c.c.	20	present 4 in 10 c.c.
WO 9788..	City supply..	30	absent in 5 c.c.	650	absent in 5 c.c.
WO 9564..	City supply..	9	absent in 5 c.c.	200	absent in 5 c.c.

The necessity of clean bottles and containers was recognized when the regulations governing the operations of bottling establishments were adopted and a general procedure was adopted for the guidance of the bottlers. This year it was determined to test the efficiency of the methods in use for the cleansing of containers, by bacteriological examinations. One hundred and one bottles of various sizes and types, which had been washed and were ready for filling were examined, sixty-seven of which were found to have been satisfactorily cleansed, and thirty-four bottles or 33 per cent. were found to be contaminated by organisms of intestinal origin. In the following table the results obtained by the examination of the thirty-four unclean containers are shown:

Washed bottle.	Bacteria per c.c.	B. coli communis.	Per cent. NaOH in washing solution.
8 ounce.....	65,000	present 10 in 10 c.c.....	.012
8 ounce.....	250,000	present 10 in 10 c.c.....	.012
8 ounce.....	160,000	present 10 in 10 c.c.....	.012
28 ounce.....	165	present 6 in 10 c.c.....	.012
1 quart.....	15,000	present 10 in 10 c.c.....	....
28 ounce.....	60,000	present 10 in 10 c.c.....	....
8 ounce.....	1,100	present 4 in 10 c.c.....	....
28 ounce.....	3,500	present 8 in 10 c.c.....	....
8 ounce.....	12,500	present 8 in 10 c.c.....	....
28 ounce.....	19,000	present 10 in 10 c.c.....	....
24 ounce.....	27,000	present 10 in 10 c.c.....	.94
24 ounce.....	30	present 2 in 10 c.c.....	.94
8 ounce.....	30,000	present 8 in 10 c.c.....	....
28 ounce.....	8,500	present 8 in 10 c.c.....	....
8 ounce.....	70,000	present 10 in 10 c.c.....	....
8 ounce.....	65,000	present 10 in 10 c.c.....	....
8 ounce.....	390	present 6 in 10 c.c.....	1.4
8 ounce.....	415	present 2 in 10 c.c.....	.048
24 ounce.....	56	present 2 in 10 c.c.....	.14
24 ounce.....	160	present 2 in 10 c.c.....	.028
8 ounce.....	75,000	present 10 in 10 c.c.....	.028
28 ounce.....	28,000	present 10 in 10 c.c.....	....
8 ounce.....	600,000	present 10 in 10 c.c.....	....
8 ounce.....	950,000	present 10 in 10 c.c.....	....
28 ounce.....	670	present 6 in 10 c.c.....	.006
8 ounce.....	350	present 10 in 10 c.c.....	.006
28 ounce.....	50,000	present 6 in 10 c.c.....	....
8 ounce.....	130	present 2 in 10 c.c.....	....
8 ounce.....	350	present 2 in 10 c.c.....	.012
8 ounce.....	44	present 2 in 10 c.c.....	.012
8 ounce.....	400	present 2 in 10 c.c.....	....
8 ounce.....	140	present 2 in 10 c.c.....	....
1 quart.....	1,100	present 4 in 10 c.c.....	....
8 ounce.....	2,200	present 2 in 10 c.c.....	....

Two hundred and forty-three bacteriological examinations of so-called bottled soda waters and carbonated beverages of various kinds were made to determine their bacterial content. For this purpose a total count of the bacteria was made and the beverages were tested for the presence of *B. coli communis*. Of the specimens tested eighteen or 7 per cent. were found to contain organisms of the *B. coli* type. The following table shows the results of those samples found to be contaminated:

SAMPLE NO.	Article.	Bacteria.	B. coli communis.
WO 10939	Ginger ale	14,000	present 10 in 10 c.c.
WO 11767	Cherro Colo	75	present 2 in 10 c.c.
WO 10218	Ginger ale	3	present 2 in 10 c.c.
WO 9721	Strawberry soda	1,150	present 6 in 10 c.c.
WO 11617	Cream soda	105	present 4 in 10 c.c.
WO 10973	Sarsaparilla	3	present 2 in 10 c.c.
WO 11665	Cream soda	17	present 2 in 10 c.c.
WO 11506	Lemon soda	100	present 8 in 10 c.c.
WO 11507	Chocolate soda	1,600	present 10 in 10 c.c.
WO 11508	Strawberry soda	100	present 8 in 10 c.c.
WO 11808	Raspberry soda	8	present 2 in 10 c.c.
WO 11806	Ginger ale	24	present 4 in 10 c.c.
WO 11810	Cream soda	350	present 2 in 10 c.c.
WO 11811	Lemon soda	44	present 2 in 10 c.c.
WO 10068	Raspberry soda	20,000	present 10 in 10 c.c.
WO 10070	Ginger ale	12,000	present 10 in 10 c.c.
WO 11751	Lemon soda	50	present 2 in 10 c.c.

The results of this investigation show that the methods employed in many establishments visited are a source of potential danger to the persons consuming such beverages, and indicate that the business of preparing non-alcoholic beverages is in need of constant supervision.

Bottled Waters—Under authority contained in Chapter 253 of the Laws of 1909, the Department requires the vendors of bottled waters to obtain a permit before placing their product on the market. There are at present forty-eight plants operating in the state in which water is bottled for sale. The operators of forty-four of these establishments have been granted permits by the Department to sell bottled water. Seven applications for permits have been received during the year, of which three have been granted. Three plants formerly operated under permits have discontinued business during the year. Twenty-six inspections have been made of bottled water plants for the purpose of investigating the methods in use and to determine the sanitary conditions of the establishments. One hundred and five samples of bottled waters offered for sale in this state have been collected and examined during the year. The demand for bottled waters is based upon the belief in its superiority over the average public water-supply. However, investigations which have been made show that bottled water may become contaminated either at the source or in the bottling house. This industry should, therefore, receive periodical supervision.

Cold Storage—The cold storage industry has grown to be a necessity in the distribution of the food supply of the nation and since the beginning of the war it has become an important factor in facilitating the preservation of perishable commodities destined for export. Since the entrance of this country into the war it has been of considerable service in the preservation of foodstuffs for our troops.

The following table shows the kinds and amounts of foods held in cold storage during the fiscal year:

SUMMARY OF ARTICLES OF FOOD HELD IN COLD STORAGE IN NEW JERSEY.

ARTICLE.	November, 1916.	December, 1916.	January, 1917.	February, 1917.	March, 1917.	April, 1917.	May, 1917.	June, 1917.	July, 1917.	August, 1917.	September, 1917.	October, 1917.
Eggs (cases)	267,909	169,080	21,934	922	3,090	203,087	484,116	650,874	651,037	613,445	570,038	463,112
Eggs, broken (lbs.)	136,056	60,934	31,110	16,650	14,315	8,335	20,400	38,550	50,530	38,581	37,940	65,425
Cheese (lbs.)	771,303	817,912	307,897	245,619	97,488	78,221	104,927	1,022,717	1,796,398	2,169,171	1,961,468	1,934,540
Butter (lbs.)	5,122,088	3,614,045	2,390,485	1,828,157	351,740	111,177	341,624	4,195,927	5,364,202	6,508,284	6,880,088	6,134,277
Poultry (lbs.)	8,926,033	11,405,099	11,613,037	10,782,251	9,735,179	9,491,458	7,949,879	8,051,924	7,304,379	6,916,075	6,287,031	7,704,113
Fresh meats (lbs.)	5,905,100	8,079,763	7,887,275	8,016,037	8,281,206	10,288,904	7,980,644	6,195,006	6,059,730	4,800,294	5,387,031	8,217,467
Fresh fish (lbs.)	1,533,281	1,237,020	854,620	308,155	56,387	88,698	857,775	2,301,799	2,150,150	1,576,101	1,472,270	1,530,943
Milk and milk products (lbs.) ..	34,700	4,800	7,680	13,040	23,040	100,840	200,485	313,429	488,530	980,010	974,212	404,200
Edible fats and oils (lbs.)	2,223,799	3,286,088	2,241,224	1,747,632	1,775,842	2,181,122	2,801,263	2,580,038	712,025	2,430,980	1,625,489	1,407,486
Game (lbs.)	10,200	41,800	8,175	50	20	25	.....	.....	.....	.....	.....	.....
Miscellaneous articles (pkgs.) ..	107,163	692,309	214,864	87,680	23,608	8,385	1,354	3,196	33,978	5,884	57,102	88,908

The three articles of food which have been stored almost exclusively for the use of our armies and for other war purposes are beef, cured and salt meats and edible fats and oils. In June of this year the amount of salt and cured meats was well in excess of 3,000,000 pounds. This figure is particularly interesting because it is the type of business that the warehouses have not heretofore been engaged in to any great extent, and because it has been packed and prepared almost entirely to meet the requirements of foreign governments. It is a high class product, all of it being inspected before curing by representatives of the Bureau of Animal Industry, United States Department of Agriculture. The amount of fresh meat stored reached a maximum of 10,288,904 pounds on April 30th, 1917, and the greatest amount of edible fats and oils on December 31st, 1916. The figures for these products fluctuate greatly depending upon the available shipping facilities.

The economic conditions have been most unusual and have been reflected in the amounts of poultry and eggs stored. Poultry has been high in price and quantities far in excess of normal holdings were placed in storage during the last two months of 1916 and in January, 1917. Investigations which have been made by representatives of the Bureau have shown that large amounts of poultry which have been stored in other states for various lengths of time, are removed from the warehouses in other states and transferred to this state, where their storage may be continued up to the twelve months period permitted by the Cold Storage act. This is a condition which the Bureau is powerless to prevent inasmuch as the Attorney General has ruled that sufficient authority is not contained in our present Cold Storage act to prevent the above-mentioned practice. The transfer of goods frequently cannot be accomplished without possible deterioration and is a deplorable factor which should be broken up. In one case an entire lot of poultry consisting of 3,700 pounds had become unfit for food due to three transfers.

During the year several requests were made for permission to store eggs for a temporary period less than thirty days. The prevailing impression seemed to be that the packages containing eggs so stored need not be marked in accordance with the provisions of the law. Eggs which have been stored for temporary periods cannot be regarded as fresh eggs and should not be offered for sale as such. Regulations were, therefore, issued by the Department and distributed to the trade informing them that all articles of food as defined by the Cold Storage act, when placed in storage for any length of time, must be marked with the dates of entrance into storage and with the words "Cold Storage."

The following table shows the kinds and amounts of foods held in cold storage in the state during the year, which was found to be in a condition as to render it unfit for food purposes, and the disposition of such goods:

WAREHOUSE.	Owner.	Article and quantity.	Condition.	Disposition.
Merchants' Refrigerating Co., Jersey City.	Guaranty Trust Co., New York.	200 lbs. bologna.	Decomposed and filthy.	Destroyed.
Merchants' Refrigerating Co., Jersey City.	G. F. Fish, 183 Reade St., New York.	78 crates celery.	Partly decayed.	Removed.
Droste & Snyder, Paterson.	Droste & Snyder, Paterson.	10 lbs. of chicken.	Decomposed.	Destroyed.
Merchants' Refrigerating Co., Jersey City.	Merchants' Refrigerating Co.	150 lbs. fish 60 lbs. butter.	Decomposed. Filthy—rancid.	Destroyed.
Ocean Pier Fish Market Co., Atlantic City.	Ocean Pier Fish Co.	60 lbs. fish.	Decomposed.	Destroyed.
Merchants' Refrigerating Co., Newark.	S. Murray.	3,700 lbs. poultry.	Decomposed and putrid.	Destroyed.
Joseph R. Shimer, Phillipsburg.	J. R. Shimer.	130 baskets of grapes.	Decayed.	Destroyed.
Union Terminal Cold Storage Co., Jersey City.	Wescott, Wink & Summer, Iowa.	600 lbs. of egg yolk.	Decomposed and filthy.	Destroyed.
Merchants' Refrigerating Co., Newark.	Meyer & Bush, Newark.	1,500 lbs. hog livers.	Decomposed.	Destroyed.
Merchants' Refrigerating Co., Jersey City.	J. M. Kline, 311 Washington St., New York.	10,477 lbs. poultry.	Decomposed.	Destroyed.

During the year 309 inspections have been made of cold storage warehouses for the purpose of investigating sanitary conditions and to determine the quality of the goods stored therein. Thirteen applications for permission to store goods beyond the time limit of twelve months have been received during the year. The action taken with respect to such applications will be found in detail in the report of the Director.

Egg Breaking Establishments—There are seven egg breaking establishments now operating in this state under a license from the Department. Forty-five inspections made of these places during the year indicated that, with one exception, they were being operated in substantial compliance with the law and rules of the Department governing such establishments. The license of one operator was revoked during the year for failure to comply with the regulations.

The following summary gives the names of concerns, addresses, kinds of business for which license was granted and the condition of the establishments at the time of last inspection:

OWNER.	Address.	License granted to break eggs for.	Condition of establishment.
Great Atlantic and Pacific Tea Co.	Jersey City..	Food purposes only..	Good.
Morris Meyer	Jersey City..	Food purposes only..	Fair.
B. Titman	Jersey City..	Food purposes only..	Good.
Philip Weber	Jersey City..	Mfg. purposes	Good.
Drosté & Snyder	Newark	Food purposes only..	Good.
Swift & Co.	Newark	Food purposes only..	Good.
Holcombe & Wilson	Trenton	Food purposes only..	Good.

Canning Factories—During the year 207 inspections have been made of seventy-eight canning factories in the state, of which number five were new places which had not previously operated. As the preliminary inspections indicated that the majority of the factories were being operated in substantial conformity to the sanitary requirements for food establishments, most of the work of inspection was, therefore, devoted to obtaining information regarding the factory methods employed in the manufacture of tomato pulp, soup stock and similar products.

The industry has been seriously hampered this year by the quality of the stock and the difficulty in securing competent labor. These factors with a desire on the part of the canner to conserve food products and to make a large pack has made it extremely difficult to produce a product that would conform to the state and federal standards.

With a realization that the above mentioned conditions would prevail, a notice together with a bulletin of information was sent to each packer of tomato pulp and similar products in this state, before the opening of the canning season, advising them of the importance of thorough sorting so as to remove all unsound stock preparatory to the manufacture of their finished product.

This year data was obtained regarding the general manufacturing methods employed together with the results of microscopical examinations of the finished products. The microscopical results indicated that there is a direct relationship between the care exercised in sorting the material, the manner in which stock is handled in the factory and the number of micro-organisms found upon laboratory examination.

The average of the counts on tomato pulp, soup stock or catsup taken from stock which appeared to be acceptable from a visual inspection, are as follows: Molds in 19 per cent. of fields; yeasts and spores 20 per 1/60 c.m.m.; bacteria, 34,000,000 per c.c.

The following summary shows the results of examinations of tomato pulp, catsup, soup stock or puree, made from stock approved by visual inspection:

Sample No	Fields with molds.	Yeasts and spores.	Bacteria per c.c.	Sample No.	Fields with molds.	Yeasts and spores.	Bacteria per c.c.
L 5787.....	18	10	28,800,000	L 5817.....	18	72	21,600,000
5789.....	30	26	48,000,000	5768.....	18	16	36,000,000
5719.....	18	22	24,000,000	5815.....	6	8	24,000,000
5788.....	8	30	48,000,000	5816.....	2	3	2,400,000
5780.....	16	12	48,000,000	5801.....	16	11	36,000,000
5783.....	16	12	48,000,000	5688.....	6	8	24,000,000
5011.....	4	12	72,000,000	5710.....	10	11	14,400,000
5012.....	12	40	38,400,000	5025.....	6	8	14,400,000
5020.....	28	32	48,000,000	5010.....	10	22	72,000,000
5731.....	22	16	24,000,000	5689.....	10	16	24,000,000
5732.....	18	22	14,400,000	5698.....	6	21	19,200,000
5733.....	18	34	36,000,000	5007.....	19	21	52,800,000
5734.....	42	16	48,000,000	5021.....	8	34	72,000,000
5735.....	16	26	28,800,000	5694.....	6	11	38,000,000
5736.....	32	28	24,000,000	5696.....	10	11	48,000,000
5737.....	30	11	9,600,000	5786.....	36	24	14,400,000
5738.....	34	20	48,000,000	5819.....	18	12	36,000,000
5739.....	22	27	28,800,000	5790.....	20	22	12,000,000
5678.....	28	40	38,000,000	5803.....	20	12	24,000,000
5679.....	22	28	72,000,000	5804.....	28	17	14,400,000
5704.....	12	48	60,000,000	5805.....	14	11	24,000,000
5680.....	26	20	57,600,000	5806.....	28	24	16,400,000
5681.....	28	50	48,000,000	5807.....	24	12	24,000,000
5677.....	24	62	36,000,000	5808.....	12	9	14,400,000
5684.....	16	14	36,000,000	5809.....	38	17	36,000,000
5722.....	28	8	9,600,000	5810.....	16	11	21,600,000
5725.....	12	12	48,000,000	5811.....	14	17	67,200,000
5802.....	8	11	60,000,000	5812.....	28	9	28,800,000
5969.....	20	16	40,800,000	5767.....	14	22	12,000,000
5705.....	22	12	36,000,000	5821.....	18	24	48,000,000
5724.....	44	24	48,000,000				

The average of the counts on tomato pulp, catsup, soup stock or puree, made from bad or questionable stock as determined by visual inspection is as follows: Molds in 41 per cent. of fields; yeasts and spores, 63 per 1/60 c.m.m.; bacteria, 72,000,000 per c.c. The following summary shows the results of examination of tomato pulp, catsup, soup stock or puree, made from stock not approved by visual inspection:

Sample No.	Fields with molds.	Yeasts and spores.	Bacteria per c.c.	Sample No.	Fields with molds.	Yeasts and spores.	Bacteria per c.c.
L 5753	36	30	108,000,000	L 5776	62	26	26,000,000
5756	34	30	86,000,000	5777	44	14	42,000,000
5754	44	60	144,000,000	5778	28	48	36,000,000
5758	28	24	72,000,000	5779	30	19	48,000,000
5759	44	24	72,000,000	5023	38	62	52,800,000
5757	24	33	36,000,000	5024	54	34	60,000,000
5760	30	18	108,000,000	5741	28	16	86,000,000
5761	18	12	72,000,000	5713	78	88	72,000,000
5762	16	120	144,000,000	5730	14	18	60,000,000
5763	18	84	72,000,000	5703	34	59	86,400,000
5764	24	66	79,000,000	5825	40	32	16,800,000
5821	16	48	100,000,000	5717	68	80	96,000,000
5822	16	18	72,000,000	5022	70	96	108,000,000
5823	32	24	36,000,000	5740	20	36	72,000,000
5824	12	12	50,000,000	5005	30	110	96,000,000
5876	44	22	60,000,000	5006	44	64	48,000,000
5745	70	200	96,000,000	5008	70	123	26,000,000
5796	42	34	84,000,000	5009	82	90	108,000,000
5791	50	46	60,000,000	5019	94	96	72,000,000
5792	46	62	84,000,000	5683	50	31	60,000,000
5793	34	42	48,000,000	5686	18	30	26,400,000
5794	42	54	60,000,000	5687	32	32	60,000,000
5795	38	54	60,000,000	5690	30	24	24,000,000
5716	60	208	120,000,000	5691	40	42	120,000,000
5726	70	69	72,000,000	5693	32	20	72,000,000
5727	82	58	96,000,000	5695	12	72	72,000,000
5728	52	69	96,000,000	5697	18	4	120,000,000
5729	56	72	144,000,000	5700	70	48	84,000,000
5770	50	24	60,000,000	5701	34	98	160,000,000
5771	48	34	48,000,000	5702	56	108	36,000,000
5772	34	36	62,000,000	5706	82	172	72,000,000
5773	22	16	26,000,000	5707	34	68	38,400,000
5774	30	22	24,000,000	5708	32	32	81,600,000
5775	18	14	60,000,000	5709	12	7	96,000,000

Our experience has been similar to that of B. J. Howard of the Bureau of Chemistry, United States Department of Agriculture, that in factories where sufficient sorting is in effect, thorough washing is employed and where promptness in handling is observed, the mold count is of greater importance in judging the condition of the raw stock than the counts on the other organisms. High counts of yeasts and spores usually indicate secondary spoilage.

As pointed out in reports of other years, tomato trimmings properly manufactured into tomato pulp is a good food product. The utilization of such materials is dependent almost entirely upon the care which is employed in sorting out unsound stock, thorough washing and prompt handling. Failure to meet these conditions is due to a lack of knowledge of the importance of this work and is almost directly responsible for the lack of success in making a product from the by-products above mentioned.

Shellfish—The distribution of shellfish grown or floated in polluted water is a potential source of danger to persons consuming them. It is, therefore, of the utmost importance that the waters, in which shellfish are grown or placed, shall be pure. Samples of oysters and of the waters in which they are grown are collected and examined

bacteriologically to determine their freedom from contamination and sanitary surveys of lands adjacent to these waters are also made for the purpose of eliminating sources of pollution.

Maurice River Section: The investigation in this section has been continued along the lines indicated in the report of previous years. The total number of water samples collected from the Maurice river was 246, of these 20 were collected between the dam at Millville and a point about two miles below the sewage disposal plant—section 4. The bacteriological results were as follows:

Number of samples collected.....	20
Number showing B. coli present in 1 c.c.....	20= 100%
Number showing B. coli present in 0.1 c.c.....	20= 100%
Number showing B. coli present in 0.01 c.c.....	17= 85%

In section 3 which extends from a point approximately two miles below the sewage disposal plant to about a mile north of Manumuskin, 20 samples were collected. The results of these samples were as follows:

Number of samples collected.....	20
Number showing B. coli present in 1 c.c.....	20= 100%
Number showing B. coli present in 0.1 c.c.....	20= 100%
Number showing B. coli present in 0.01 c.c.....	12= 60%

In section 2, which includes Manumuskin creek and extends to a point just above Leesburg, 20 samples were collected with the following results:

Number of samples collected.....	20
Number showing B. coli present in 1 c.c.....	20= 100%
Number showing B. coli present in 0.1 c.c.....	12= 60%
Number showing B. coli present in 0.01 c.c.....	2= 10%

From Leesburg to the northern end of Long Reach 20 samples were collected—section 1. The results of the examination of these samples follows:

Number of samples collected.....	20
Number showing B. coli present in 1 c.c.....	14= 70%
Number showing B. coli present in 0.1 c.c.....	5= 25%
Number showing B. coli present in 0.01 c.c.....	0= 0%

In Long Reach 88 samples were collected on ebb tide and 70 on flood tide. The bacteriological results obtained on these samples were as follows:

<i>Ebb Tide.</i>	
Number of samples collected.....	88
Number showing B. coli present in 1 c.c.....	54=61.4%
Number showing B. coli present in 0.1 c.c.....	20=22.7%
Number showing B. coli present in 0.01 c.c.....	2= 2.3%

Flood Tide.

Number of samples collected.....	70
Number showing B. coli present in 1 c.c.....	23=32.9%
Number showing B. coli present in 0.1 c.c.....	1= 1.4%
Number showing B. coli present in 0.01 c.c.....	1= 1.4%

During the year 80 samples of oysters were collected in the Maurice river section of which fifteen were salt and sixty-five were floated for various periods of time. The results of these examinations are summarized as follows:

Number of samples collected.....	15
Number of samples having a score under 23.....	15= 100%
Number of samples of "floated" oysters collected.....	15
Number having a score under 23.....	51=78.5%
Number having a score between 23 and 50.....	8=12.3%
Number having a score above 50.....	6= 9.2%

The table shows that over 78 per cent. of the floated oysters have scores of less than 23, and that in six instances scores were obtained in excess of fifty. The oysters found to have high scores were all collected near one point, on the Maurice river side of the stream, and were caused by a pollution which upon discovery was promptly eliminated. After the abatement of the pollution no oysters were found which scored in excess of 23. With the exception of the case previously noted, the sanitary surveys made this year have indicated no sources of pollution in the vicinity of Long Reach, which is that portion of the river in which shellfish are floated.

The Millville sewage disposal plant which empties its effluent into the Maurice river, approximately twenty-five miles from the nearest oyster float, is now the only important remaining source for organisms of human intestinal origin to gain access to the river. Arrangements have now been completed so that the sewage from the few remaining houses at Millville which had not previously been connected to the city sewer, will pass through the disposal plant. The city commission of Millville has agreed to provide a laboratory where tests will be made of the settled and disinfected sewage, and to appoint a representative, one of whose duties will be to supervise the operation of the sewage disposal plant. Properly operated the plant is capable of producing an effluent which if dosed with a sufficient amount of chlorine can be emptied into the river without detriment to the shellfish business at Bivalve.

Cohansey River Section: For the purpose of determining the effect of the waters of the Cohansey river on the oysters floated therein, the following experiment was conducted at Greenwich pier. Two hundred salt oysters were collected and four samples or twenty oysters were examined bacteriologically. The remaining 170 oysters were placed in the river and representative samples removed from time to time and tested. The results of these experiments showing the scores of salt and floated oysters of the same lot follow:

Scores Salt Oysters.	Score After Floating 2 Low Water.	Score After Floating 4 Low Water.	Score After Floating 6 Low Water.
0	2	3	0
0	3	1	0
0	1	5	0
1	0	3	2

In the vicinity of Greenwich pier 60 samples of water and 20 samples of oysters were collected with the following results:

Ebb Tide-Water.

Number of samples collected.....	30
Number showing B. coli present in 1 c.c.....	17=56.5%
Number showing B. coli present in 0.1 c.c.....	1= 3.3%
Number showing B. coli present in 0.01 c.c.....	0= 0%

Food Tide-Water.

Number of samples collected.....	30
Number showing B. coli present in 1 c.c.....	14=33.4%
Number showing B. coli present in 0.1 c.c.....	1= 3.3%
Number showing B. coli present in 0.01 c.c.....	0= 0%

Floated Oysters.

Number of samples collected.....	16
Number having a score under 23.....	16= 100%

Salt Oysters.

Number of samples collected.....	4
Number having a score under 23.....	4= 100%

A sanitary survey of the stream and its banks show that it is not receiving any appreciable pollution at Greenwich pier. This fact together with the information gained last year, that it will take not less than two weeks for the disinfected effluent from the Bridgeton disposal plant to reach Greenwich pier leads to the conclusion that oysters can be floated in the waters of the Cohansey river near Greenwich pier, and be safe for human consumption.

Atlantic City Section: This section includes all the thoroughfares, channels and bays, from Great Bay to Longport inlet. Sewage, from Atlantic City, Ventnor, Margate City and Longport, discharges in the waters above mentioned. Most of the sewage, however, enters the Beach thoroughfare, which is an inside thoroughfare in the vicinity of Atlantic City. Within this area clams grow abundantly, and until this year a flourishing business was conducted in this commodity by persons residing in Atlantic City or its environs.

With the rapid growth of Atlantic City there has been a corresponding increase in the menace to the public health occasioned by the eating of shellfish taken from the polluted waters in that vicinity. In the past the Department found it advisable to condemn certain of these waters for the taking of shellfish which included Beach thoroughfare and its tributaries beginning at a point where such thoroughfare enters Shelter Island bay and ending at a point where

said thoroughfare enters Absecon inlet, also all of Great thoroughfare and its tributaries, Clam creek and its tributaries, Clam thoroughfare and its tributaries, together with Inside thoroughfare and its tributaries and all of the Ventnor canal, and to prohibit the taking of oysters, clams, or other shellfish from these waters.

It has been the object of investigations made this year to determine whether or not polluting material from Atlantic City extends to Absecon channel, bay and creek, and if so to what extent the shellfish are affected. The further purpose of the work was to investigate the waters south of Persimmon Point, including Shelter Island bay and Beach thoroughfare, and in general, to determine if the already existing area of condemnation should be extended.

The main volume of sewage from Atlantic City approximating 15,000,000 gallons per day in summer is discharged into Beach thoroughfare near the mouth of the Penrose canal, a distance of about two miles from Absecon channel and four miles from the ocean at Absecon inlet. On the last of the ebb tide the water extending from Mankiller Island to the inlet is grossly polluted by Atlantic City sewage. The returning flood tide sweeps a large portion of this water up Absecon channel and Mankiller thoroughfare towards Absecon bay.

Absecon Channel: Floats placed in Absecon channel or Mankiller thoroughfare at Beach thoroughfare, will reach Absecon bay in less than two hours. Water samples taken at five minute intervals following the floats on the first of the flood tide, show that the water in Absecon channel at this time is unsafe for the taking of shellfish for food purposes.

RESULTS OF ANALYSES—ABSECON CHANNEL, BEACH THOROUGHFARE TO ABSECON BAY (2 MILES).

	Ebb tide.	3 hr. flood.	½ hr. flood.	Flooding.
No. of samples.....	7	8	7	31
Present in 1 c.c.....	1	8	4	20
Present in 0.1 c.c.....	0	0	2	15
Present in 0.01 c.c.....	0	0	0	8

Absecon Bay: There is a dredged channel, following a nearly straight course across Absecon bay, from the mouth of Absecon channel to Absecon creek, otherwise the bay is very shallow. There are a few oysters planted on the bar along the edge of the channel and in various parts of the bay, but the total industry in the bay is small and from a sanitary standpoint they are to be looked upon with suspicion, especially the few oysters on the bars nearest the channel. In carrying out floating experiments it was noticed that after entering Absecon bay the flow of the tide is more across the bay toward Reed's bay, than towards Absecon creek. However, on account of the remoteness of the oysters in Reed's bay, they are unaffected.

RESULTS OF EXAMINATION OF WATER SAMPLES—ABSECON BAY.

	Ebb.	3 hr. flood.	1 hr. flood.	High water.	Flooding.
No. of samples....	8	7	8	10	32
Present in 1 c.c....	6	7	5	0	13
Present in 0.1 c.c..	3	5	5	0	8
Present in 0.01 c.c.,	0	1	0	0	2

Ten samples of salt oysters were collected and examined from Absecon bay the scores of which were under 50.

Absecon Creek: Absecon creek is a tributary of Absecon bay, having its source in a fresh water lake and flowing through meadow land for a distance of some five miles. It runs through the town of Absecon for a short distance, parallel to Ohio avenue. The first oyster floats, which are the ordinary wooden type fitted with hinged lids, are located about one-half mile from the mouth and extend about three-quarters of a mile up stream. The lower floats are used in the winter and the upper ones during the summer. During the spring and summer the oysters handled are brought almost exclusively from Great bay, while in the fall and winter they are brought from Reed's bay and Brigantine.

An exhaustive sanitary survey was made of the creek, and no evidences of direct pollution could be found. The creek receives practically all the surface wash water from the town and surrounding farm lands at times of heavy rains. During periods of extreme high tides the cellars of the properties along Ohio avenue are flooded. Since the town has no sewage system, the common type of leaching cesspools is in use, and during high tides the creek undoubtedly receives a portion of the contents of these cesspools.

Floating experiments show that it requires between four and five hours for floats placed in Absecon channel at Beach thoroughfare, to reach the first oyster houses on Absecon creek. However, on account of the great dilution and the natural course of the currents to flow across Absecon bay into Reed's bay it is doubtful if the sewage from the Atlantic City outlet, six and one-half miles distant, will seriously contaminate oysters floated in this creek, except under certain unusual conditions of wind and tide. Strong east or northeast winds cause high tides and have a tendency to sweep water into Absecon creek in preference to Reed's bay. These conditions would also bring about the flooding of the cesspools mentioned above.

In Absecon bay twenty-five samples were collected on the ebb tide and forty-two on the flood tide. The bacteriological results obtained on these samples were as follows:

	Ebb Tide.	Flood Tide.
Number of samples collected.....	25	42
Number showing B. coli in 1 c.c.....	24	31
Number showing B. coli in 0.1 c.c.....	25	18
Number showing B. coli in 0.01 c.c.....	1	*15

*Set of 15 samples collected after two days of heavy rain.

Thirty-seven samples of oysters were taken from Absecon creek, twenty-one of which were collected at ebb tide and sixteen on flood tide. The results of these examinations are summarized as follows:

Number of samples of oysters collected on ebb tide.....	21
Number having a score under 50.....	18
Number having a score above 50.....	3
Number of samples of oysters collected on flood tide.....	16
Number of samples having a score under 50.....	12
Number of samples having a score above 50.....	4

With the exception of one set of oyster samples collected on the ebb tide and one lot collected on the flood tide, the oyster scores of the samples examined were consistently below fifty.

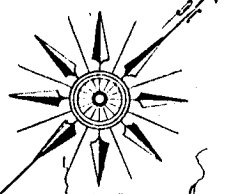
The sanitary survey of waters between Atlantic City and Absecon corroborated by floating experiments and bacteriological results, show that shellfish removed from Absecon channel, from its mouth at Absecon inlet to an imaginary line drawn from Steelmans thoroughfare to Jonathans thoroughfare in Absecon bay, are unfit for human consumption. Absecon bay is to be looked upon with suspicion. If the contemplated disposal system for Pleasantville materializes, this additional sewage effluent will enter Beach thoroughfare, charging its waters still more heavily with sewage and will prove an additional menace to Absecon bay. On the other hand, if the Atlantic City sewage receives the contemplated treatment of screening and disinfection, the waters of Absecon bay will be less liable to pollution. Our findings do not warrant the discontinuance of Absecon creek for the floating of oysters at this time.

As previously stated bacteriological examinations and sanitary surveys have been made of the waters of Beach thoroughfare, from the Ventnor disposal plant to the Longport bridge, a distance of approximately three miles and also of the thoroughfares adjacent thereto which were liable to be polluted, caused by water from Beach thoroughfare backing into them on flood tide. Within the area mentioned five sewage disposal plants empty their effluents; one at Ventnor, two at Margate City and two at Longport. The Ventnor plant discharges into the thoroughfare approximately 500,000 gallons of effluent daily. Repeated tests made on this effluent during the period of the investigation showed the bacillus coli communis to be constantly present in dilutions of 0.00001 cubic centimeter. In addition to the pollution derived from the above mentioned sources the thoroughfare receives toilet and kitchen wastes from many houses on the beach side of the thoroughfare, which are not connected to the disposal plant.

When the gates of the Ventnor disposal plant are opened on the ebb tide a large quantity of strong sewage enters Beach thoroughfare and proceeds toward Great Egg inlet. Float experiments show that this sewage although more and more diluted, will reach Risley's channel in two hours. Bacteriological samples collected over this area show *B. coli* usually present in 0.01 c.c. to the straits, when the

74°34'

39°16'



SOMERS POINT

STEELMAN'S BAY

THORO

SCULL'S BAY

DOCK THOROFARE

BROAD THOROFARE

CHANNEL

WHIRLPOOL

STEEPER IS. THOROFARE

EGG HARBOR

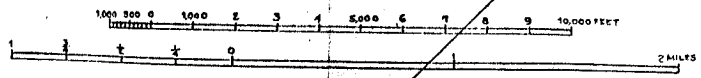
RISLEY'S

INLET

LONG POINT

MARGATE CITY

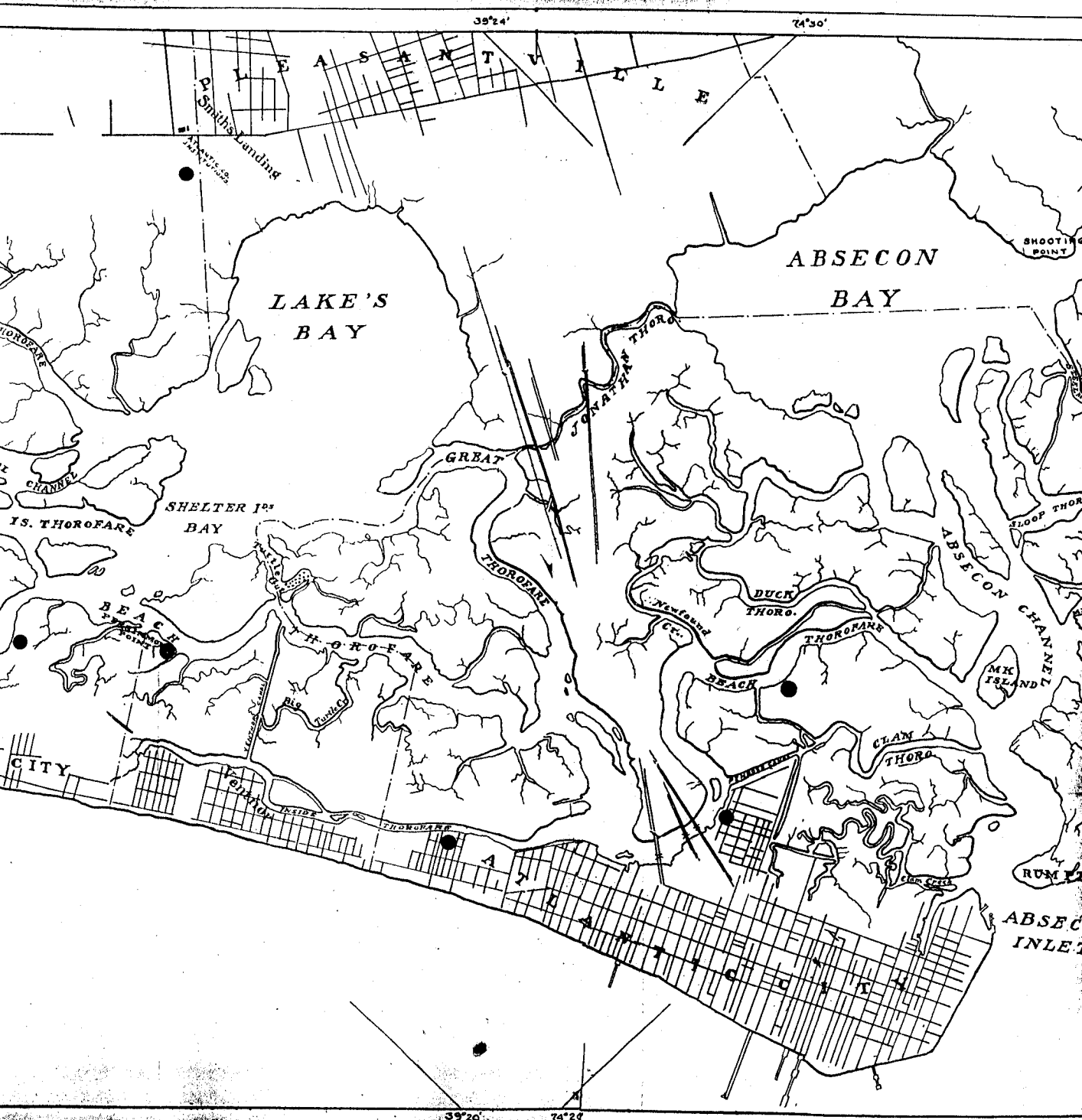
CITY



39°16'

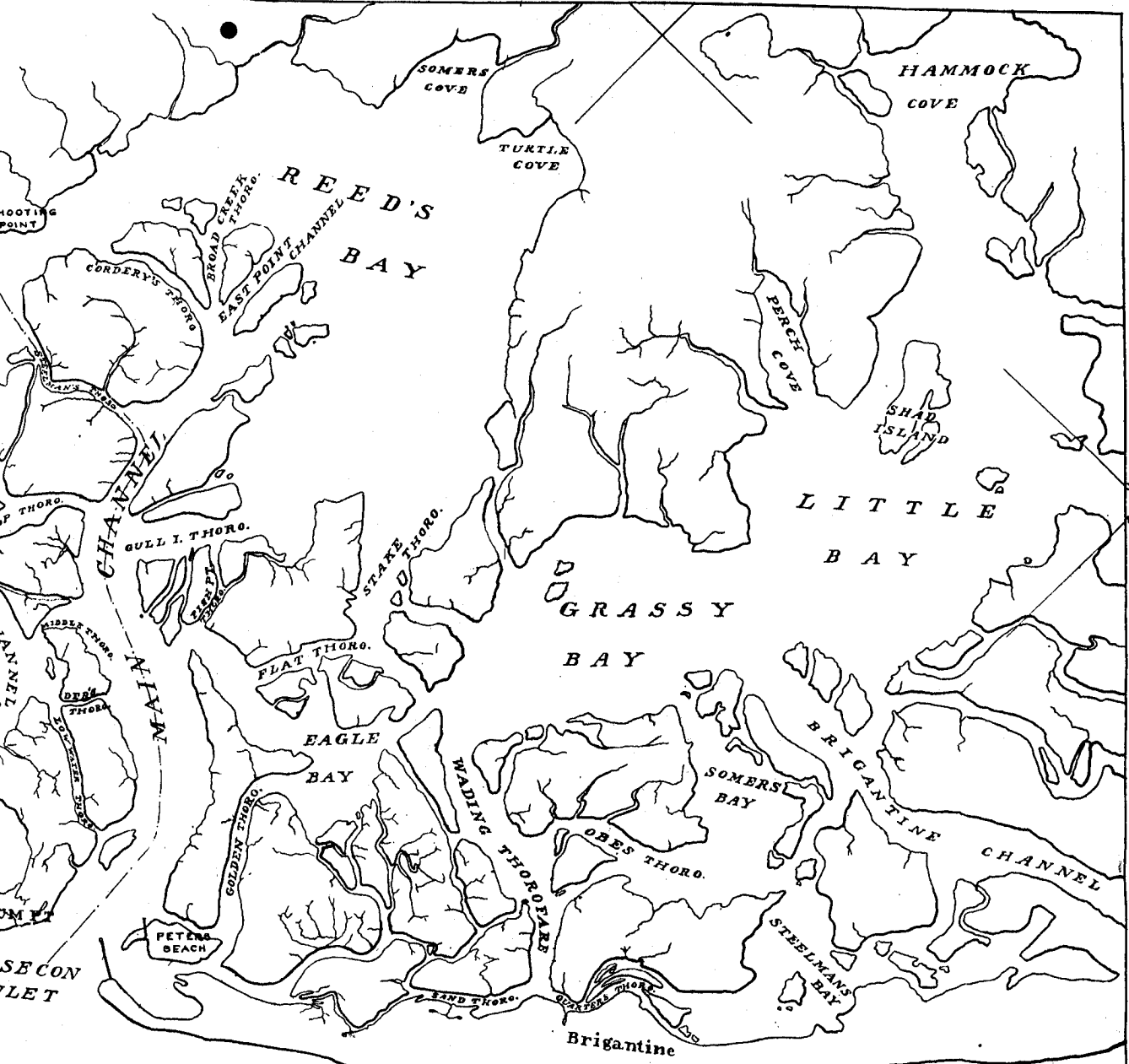
74°30'

Part 1 (left)



ATLANTIC CITY AND VICINITY, SHOWING LOCATION OF SEWAGE PLANTS

Part 2 (middle)



PREPARED BY THE
 BUREAU OF ENGINEERING
 N.J. DEPARTMENT OF HEALTH
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water from Shelter Island thoroughfare causes considerable dilution. From this point to Risley's channel the coli organism is invariably present in 1 c.c. and occasionally present in 0.1 c.c. dilutions. At Risley's channel large quantities of pure water from Scull's bay, Dock thoroughfare and Whirlpool channel enter Beach thoroughfare and the already diluted sewage becomes so greatly diluted as to cause the *B. coli* to be frequently absent in 1 c.c. dilutions.

As the effluent from the Margate City and Longport plants are small in volume and are well disinfected, the dangers to the thoroughfares west of Beach thoroughfare is in the accumulated sewage in Beach thoroughfare being pushed back into the connecting thoroughfare on the first of flood tide. The map will show that the straits, the northern part of Shelter Island thoroughfare from the straits to Shelter Island bay, the small channels connecting Shelter Island bay with Beach thoroughfare, and Shelter Island bay are likely to pollution from this source. Bacteriological samples and float experiments bear out these deductions.

By referring to the map of this section it will be seen that there is very little probability of Risley's channel, Scull's bay, Dock thoroughfare or Whirlpool channel becoming polluted, as even on the end of the ebb tide the waters from Risley's channel to the ocean have become so greatly diluted as to render them comparatively safe for shellfish culture. On the returning flood tide this water would be further diluted by ocean water and would flow through Risley's channel and feed the thoroughfares above mentioned. Bacteriological samples collected over this area show that Risley's channel, Scull's bay, Dock thoroughfare, Whirlpool channel and the southern portion of Shelter Island thoroughfare to be unpolluted.

The results of investigations made in the vicinity of Atlantic City, during the past year, led to the conclusion that oysters or clams taken from the area indicated on the accompanying map are subject to pollution and conditions which render such shellfish taken therefrom dangerous to health.

It was, therefore, recommended to the Department that this area be condemned. The notice of condemnation will be found in the report of the Director.

Lakes Bay: In Lakes bay fifteen samples of water were collected on ebb tide and sixteen on flood tide. The bacteriological results obtained upon these samples were as follows:

Ebb Tide.

Number of samples collected.....	15
Number of samples showing <i>B. coli</i> in 1 c.c.....	6
Number of samples showing <i>B. coli</i> in 0.1 c.c.....	0
Number of samples showing <i>B. coli</i> in 0.01 c.c.....	0

Flood Tide.

Number of samples collected.....	16
Number of samples showing <i>B. coli</i> in 1 c.c.....	0

Twenty-two samples of oysters were collected of which seven were salt and fifteen floated for various lengths of time. The results of the examination of these samples follow:

Number of samples of salt oysters examined.....	7
Number of samples having a score of 5 or under.....	7
Number of samples of floated oysters examined.....	15
Number of samples having a score of 23 or under.....	11
Number of samples having a score of 32 to 50.....	3
Number of samples having a score above 50.....	1

The oysters gathered in the bay are transferred to floats which are built on the beds of small ditches and under cover of the oyster houses, the water from the ditches passing through the oyster houses. Sanitary surveys made this year indicate that it will probably become necessary for the Department to condemn certain of these ditches as floating places for shellfish.

Oceanville: From Oceanville to Conoverville an unusual method of floating oysters prevails. Small ditches either natural or dug, lead from Reed's bay to the edge of the meadows. Here small houses are built over diminutive springs. At low water the ditches are dry, but on flood tide the water from the bay comes into the oyster house and mingles with the fresh water from the springs. All the houses are equipped with devices for retaining the water when the tide begins to ebb. This condition causes a varying degree of salinity and the longer the water is detained the fresher it becomes. The houses are tightly roofed and equipped with board floors which are kept clean. The number of oysters which can be handled in this manner is surprisingly large.

Doughty's creek, at Oceanville, although it receives enough fresh water to make it desirable for floating is not used, as the oystermen find the spring houses more convenient. Beginning at Oceanville at a point where the old Brigantine railroad crosses the meadows and going southward, the oyster houses are located in the following manner:

Somers Creek.....	F. W. & C. B. Somers
Smith's Creek.....	Mark Somers & W. J. Smith
Doughty's Creek.....	Daniel & George Mathews

All of these dealers cart their oysters to Absecon, a distance of two to six miles. Following are the scores obtained on these oysters:

Somers Ditch	0.0
Leeds & Doughty	1

Conoverville: This village is located along the shore boulevard about two miles from Absecon and two miles distant from Reed's bay. Oysters are floated in Conover's creek (Dordery's brook), a tributary of Reed's bay. This stream has its source in springs located one-half mile in back of Conoverville and flows through a portion of the

village. The land slopes sharply to the creek which receives drainage from the houses and gardens of the various properties adjacent to it. The floating of the oysters is conducted about one-half mile from the mouth of the creek, where the bottom is in most cases boarded. On the last of the ebb tide the water runs practically fresh. Most of the oysters handled here are procured from Reed's bay and Great bay; the shipping point being Absecon. The volume of business in the busy season will average 2,500 bushels per week. Among the largest dealers here are: William Conover, Ward Conover, Enoch Giberson and H. B. Conover. The rather high results obtained by analyses may be attributed largely to surplus drainage due to heavy rains. Following are the results of examinations of samples of water and oysters collected in this section:

<i>Oysters.</i>	
Number of samples collected on ebb tide.....	4
Score	4
Score	23
Score	23
Score	50

<i>Water.</i>	
Number of samples collected.....	11
Number showing B. coli present in 1 c.c.....	10
Number showing B. coli present in 0.1 c.c.....	7
Number showing B. coli present in 0.01 c.c.....	0

Reed's Bay: With the exception of a few natural oyster grounds in various parts of the bay, the oysters in Reed's bay are located in Gull Island thoroughfare, or the bay within a radius of one mile from this thoroughfare and in Broad Creek thoroughfare. Seed is usually planted in April or May and on account of the rapid growth are ready for marketing as culls in the fall. Very few oysters are allowed to remain upon the grounds over the winter, as the bay is shallow and ice would destroy them. In view of this fact oyster dealers in this section obtain oysters for the spring and summer trade from Great bay and Brigantine.

The Gull Island oyster grounds are about two miles and one-half from the badly polluted waters of Beach thoroughfare. On the flood tide polluted water enters Absecon channel, a portion of it continuing up Absecon channel and the remainder passing through Debs and Middle thoroughfare, where it is greatly diluted by mingling with the large volume of ocean water in Main channel. This dilution is sufficiently great to render these oysters comparatively safe for food purposes. All oysters from this vicinity are subjected to a floating process during which contamination will be further minimized. All Reed's bay oysters are shipped from Absecon, after being floated either in Absecon creek or the various creeks previously mentioned under Oceanville. Following are the results of examinations of Reed's bay salt oysters:

Location.	Scores.
Broad Creek Thoroughfare.....	2
Broad Creek Thoroughfare.....	0
Main Channel, opposite Debs Thoroughfare.....	23
Main Channel, opposite Debs Thoroughfare.....	32
Gull Island Thoroughfare, near Fish Point.....	41
Gull Island Thoroughfare, near Fish Point.....	41
Gull Island Thoroughfare, near Fish Point.....	14
Gull Island Thoroughfare, near Fish Point.....	4
Reed's Bay, 200 yards from mouth of Gull Island.....	32
Reed's Bay, 200 yards from mouth of Gull Island.....	14
Reed's Bay, 200 yards from mouth of Gull Island.....	1
Reed's Bay, 200 yards from mouth of Gull Island.....	4
Reed's Bay, 100 yards from mouth of Gull Island Thoroughfare.....	32
Reed's Bay, 100 yards from mouth of Gull Island Thoroughfare.....	14
Reed's Bay, 100 yards from mouth of Gull Island Thoroughfare.....	0
Reed's Bay, 100 yards from mouth of Gull Island Thoroughfare.....	2

Brigantine: The oyster business at Brigantine is confined almost exclusively to Steelmans bay and Widgeon bay. There are a few oysters planted in Somers bay and at various points along the thoroughfare. Brigantine, once a popular resort, is now utterly deserted, except for the members of the two coast guard stations which include about fifteen persons. An inspection of the waters behind Brigantine beach showed that there is a tide meet near the line of the old Brigantine railroad. All of the oysters are so situated that they receive water from Brigantine inlet and it is impossible for any pollution from Absecon inlet to reach them on account of the tide meet. The total number of oysters planted in Widgeon and Steelmans bay is not large. All of the oysters are taken to Absecon or Tuckerton, by boat, and are floated at and shipped from these places. Among the persons engaged in planting in these waters are the following: Arnold Cramer, Tuckerton; Giberson & Conover and Samuel Giberson, of Absecon, and Ed. Holscom, Brigantine.

RESULTS OF ANALYSES.

	Score.
Sample of salt oysters from Widgeon bay	0
Sample of salt oysters from Widgeon bay	0
Sample of salt oysters from Steelmans bay	0
Sample of salt oysters from Steelmans bay	1

Leeds Point: There are three creeks at Leeds Point—Oyster creek, Landing creek and Mott creek—all tributaries of Great bay. Of these the most important is Oyster creek, in which practically all the floating is done. There are few floats, as the oysters are thrown on the bottom of the creek about one mile from the mouth. It is only during excessively heavy rains that the creek becomes brackish at low water. All oysters brought to Leeds Point are carted to Absecon for shipment. Very little summer business is done here, but during the cooler

months the amount of business is considerable. The largest of the dealers at this point are: John and Somers Higbee, Charles and Lan-ner Leeds, Clark and Baker Baun and Frank and Charles Mathews. In the ten samples examined from this section the *B. coli communis* was not detected.

Great Bay: Great bay receives large quantities of salt water from Little Egg inlet, as well as the fresh water from the Mullica river. There is a large rise and fall of tide here and the oystermen claim that it is one of the best areas in New Jersey for the growing of oysters. Most of the oysters grown in this bay are shipped from Tuckerton or Absecon. These long hauls by boat tend to restrict the oyster business in Great bay, as the oystermen prefer to use the bays which are more readily accessible from the above-mentioned towns. The sanitary survey of the bay indicates that the possibility of this bay becoming polluted is exceedingly remote. Ten samples of water were examined from this section, the *B. coli communis* being absent in each case.

Mullica River: This large stream is a tributary of Great bay and is nearly three-fourths of a mile wide at its mouth and about one-third of a mile wide at a point six miles from its mouth. Its course is mostly through uninhabited low lands. The river is very deep and the current particularly swift and seems well adapted for the propagation of oysters. For these reasons seed is the principal business. Grounds are leased in the Mullica river by the Shellfish Commission to the sixteen-foot mean low water at the rate of \$7 per 100 feet of shore line. A number of oystermen have availed themselves of this opportunity and lease as far west as Chestnut creek. Seed oysters from Mullica river are shipped to all parts of the state and a large number are transplanted in Great bay. An extensive business in raising seed oysters is being conducted by the Sooy Oyster Company. They have secured from the state large riparian grants near the mouth of the Mullica river, and in addition have expended considerable sums of money in dredging ditches through the adjacent meadows. These ditches are about thirty feet wide and three feet deep at low water and vary in length from one hundred yards to one-half mile. Shells are placed in these ditches to a considerable depth and seem to be well suited for catching spat as the swift current in the ditches keep the shells clean and make for large strikes. This is practically the only place in the state where the cultivation of oysters is carried out along carefully controlled lines. Ten samples of water examined from this section failed to show the presence of the *B. coli communis*.

Barnegat to Mullica River: The northern limit for the leasing of oyster grounds in Barnegat bay was until March of this year, the line from Cedar creek to Cedar Creek Life Saving Station. North of this area grounds were open to the public at all times for the taking of oysters. On March 24th, 1917, the Legislature passed an act entitled "An act relating to the propagation, planting, preservation and gathering of clams and oysters in the tidal waters of the state and enlarg-

ing and defining the powers and duties of the Board of Shell Fisheries." Under the power conferred by this act the Board of Shell Fisheries extended the leasing area in Barnegat bay northward from Cedar creek to Barnegat pier bridge. The Sloop creek beds, Cedar creek beds and Forked river beds are not open to lease, as they are known as public seed grounds, and during the months of May and June seed oysters may be taken from sunrise to sunset.

Barnegat bay receives ocean water from Barnegat inlet only, there being no inlet at Bay Head. Fresh water enters the bay from various small creeks and from Toms river, Cedar creek, Forked river and Metedeconk river. The effect of this fresh water is to reduce the salinity of the bay water to such an extent that above Barnegat pier bridge the water is so fresh that shellfish do not propagate to any considerable extent. Barnegat inlet is shallow and the rise and fall of the tide on the west side of the bay averages less than one foot. The salinity of the bay at Barnegat is over 2 per cent. salt, while above Barnegat pier bridge it is below 0.9 per cent. salt.

The new area made possible by the act of the Legislature is essentially a seed ground, as the water is too fresh for oysters to mature rapidly to marketable size. A good strike, however, is the rule, and these facts explain the reason for the removal of the seed oysters further south to Little Egg Harbor and Great bay.

If the contemplated project of cutting through an inlet at Manasquan materializes, a considerable increase in the volume of salt water entering Barnegat bay should result. This would mean a greater rise and fall of the tide in the bay and higher salinity of the water over the northern area just thrown open for leasing. Under these conditions the upper portion of Barnegat bay should be excellent propagation grounds for shellfish.

The work done from Toms River south to Mullica river consisted of sanitary surveys of creeks in which oysters are floated and the collecting of samples of both oysters and water for bacteriological examination from these creeks and bays. For purposes of information the amount of oyster business was ascertained, and as far as possible data was obtained concerning the method of handling oysters in this section.

Toms River: This river is a tributary of Barnegat bay and is navigable to the town of Toms River, a distance of about five miles. The river is wide and fairly deep to Island Heights. Toms River, at the head of navigation, has a winter population of about 1,700, and a summer population of about 3,000 people. The town has no sewage disposal plant and the cesspool system of taking care of household wastes is in general use. The soil is sandy and low and cesspool pollutions undoubtedly reach the river by seepage. Island Heights, about two miles from the mouth of the river, has a winter population of about 375, and about 1,500 during the summer. A disposal plant consisting of screens and sand filters takes care of the sewage from the western part of the town, but the eastern portion of the town is too low to be connected with this system and cesspools are in use. No

oysters are floated in Toms river, and with the exception of fifteen to twenty bushels of salt oysters shipped from Island Heights, by W. E. Clayton, there is no oyster business.

RESULTS OF EXAMINATIONS OF SAMPLES OF WATER COLLECTED BETWEEN TOMS RIVER AND THE MOUTH OF THE RIVER.

Number of samples collected (ebb tide)	20
Number of samples showing B. coli in 1 c.c.	16
Number of samples showing B. coli in 0.1 c.c.	2
Number of samples showing B. coli. in 0.01 c.c.	1

There are a considerable number of pleasure boats anchored upon Toms river, which are all sources of pollution. However, on account of the sluggish current, and the tremendous dilution of Toms river before it reaches the oyster grounds at Barnegat pier bridge, contamination of the oysters at the northern limit of the leasing grounds is improbable from this source. The bacillus coli communis was repeatedly found absent in 1 c.c. dilutions from waters over the above-mentioned grounds.

Seaside Park: Seaside Park is a settlement with a winter population of about 275, and a summer population of about 1,500, and is located on the eastern part of Barnegat bay, near Barnegat pier bridge. The town has a sewage disposal plant consisting of an Imhoff tank and apparatus for liquid chlorine disinfection. The treated effluent enters the bay at the bridge about two hundred feet from the shore. An inspection of the plant in May showed that liquid chlorine was not being used and B. coli was found to be present in the effluent from the Imhoff tank in dilutions of 0.0001 c.c. No oysters are handled from this point, but until such time as floating experiments may be attempted, the area within a radius of one-half to three-quarters of a mile from this effluent outlet should be condemned for taking of shellfish for other than seed purposes.

Sloop Creek: Sloop creek is a tributary of Barnegat bay and is about two miles in length and is the first creek south of Toms River, from which oysters are marketed. It receives so little fresh water from the inland that no floating of oysters is attempted. The creek serves as a harbor for oyster boats over night and during stormy weather. The shipping station is Bayville, about two miles from the landing, and all freight shipments are carted there. Approximately 350 bushels of oysters are handled from Sloop creek each week. The bulk of this business consists in supplying peddlers who come to the landing in wagons and automobiles. They, in turn, supply restaurants and retail trade in neighboring towns. The sanitary survey shows the creek to be free from pollutions. Among the oystermen doing business from this creek may be mentioned: Messrs. Vandever, Newell Potter, Hubert Potter, James Cornelius and Philip Grant.

Potter Creek and Clam Creek: These creeks are tributaries of Barnegat bay and are about two miles in length. They flow through meadow lands and contain very little water. The chief reason they

are not used in connection with the oyster industry is the lack of shipping stations.

Cedar Creek: This creek is an estuary of Barnegat bay and is navigable for a distance of one mile from the mouth to Landings. The creek receives considerable quantities of fresh water from large mill ponds at Bamber, Dover Forge and Double Trouble. It is the practice to place the oysters on the hard gravel bottom of the creek about one mile from the mouth. The shipping point from the north side of the creek is Bayville and the south side Lanoke. The few shipments made are carted to these two points by wagons, and here again the trade consists in supplying wagons. Approximately 200 bushels of oysters per week are handled from Cedar creek. The sanitary survey shows the creek to be in excellent condition. A minor pollution was taken up with the party responsible and it was abated. The dealers at this point are: John and Jessie Grant, Martin Bonnell, Lewis and Benjamin Vaughan and Hamilton Worth.

RESULTS OF EXAMINATIONS OF SAMPLES OF WATER COLLECTED AT LANDINGS AND OVER FLOATING GROUNDS.

Number of samples collected..... 10
Number containing B. coli in 1 c.c..... 1

Forked River: This river is a tributary of Barnegat bay and is navigable for a distance of probably three miles to the town of Forked River. Here the river branches and each branch continues some distance into the mainland. This town has no sewage disposal plant and the method of taking care of household wastes by means of cesspools prevails. Forked River sends out a considerable number of fishing parties and these boats are naturally a source of pollution to the river. No floating of oysters is done in this river, nor are any shipped.

RESULTS OF EXAMINATIONS OF SAMPLES OF WATER COLLECTED AT FORKED RIVER TO THE MOUTH OF THE RIVER.

Number of samples collected (flood tide)..... 10
Number showing B. coli in 1 c.c..... 3
Number showing B. coli in 0.1 c.c..... 1

Oyster Creek: This creek is a tributary to Barnegat bay and is from two to three miles in length. On account of the fact that it is impossible to get a shipping station from this creek no oysters are floated or shipped from there.

Waretown Creek: This creek is a very small tributary of Barnegat bay, and since the creek is not navigable it is not used as an oyster centre.

Barnegat Creek: This creek is a tributary of Barnegat bay, is about three miles long and is navigable as far as the upper dock, a distance of about one mile. From here the creek curves and flows through meadow lands to the north of Barnegat. All oysters are carted from the upper landing where the floats are located, to Barnegat, by wagon,

a distance of two miles. The volume of business amounts to approximately 200 bushels per week. The chief dealers are: George Hollingsworth, Charles Soper and E. B. and J. K. Ridgway. It is only during the periods of heavy rain that the creek becomes brackish, as under normal conditions very little fresh water comes from the inland, due to the short length of the creek. In general, sanitary conditions along the creek are satisfactory. No dwellings are located directly on the creek banks and pollution would only occur during periods of storms.

RESULTS OF EXAMINATIONS OF SAMPLES OF WATER COLLECTED FROM UPPER LANDING TO LOWER LANDING.

Number of samples collected (ebb tide)..... 10
Number of samples showing B. coli in 1 c.c..... 2

Scores of Floated Oysters.

Length of time floated..... 2 low tides
Number of samples examined..... 4
Score 0
Score 0
Score 0
Score 1

RESULTS OF EXAMINATIONS OF SAMPLES OF WATER COLLECTED FROM BARNEGAT PIER BRIDGE TO BARNEGAT.

Number of samples collected..... 40
Number of samples showing B. coli in 1 c.c..... 2

Gunning River and Flat Creek: These streams are tributaries of Barnegat bay, but on account of the fact that there is no shipping point within a reasonable distance, and Barnegat is more convenient, no oyster business is carried on in these two streams.

Hilliard Station: Hilliard Station is a shipping point for Manahawkin bay. Mr. Thomas Cramer does most of the oyster business from this station. He leases from 150 to 200 acres of ground in Manahawkin bay and ships from 100 to 150 bushels of oysters per week. All oysters are sent to market without floating, and it is Mr. Cramer's practice to place his oysters on a float near the bridge over night and allow them to remain there to cleanse themselves. It would be possible to use Cedar creek and Manahawkin creek, which are located very close to Hilliard Station, as they are very short creeks and contain no fresh water. Mill creek, to the south of Hilliard Station, receives large quantities of fresh water from Manahawkin lake and tributaries. It is impracticable to use this creek for the floating of oysters, as a draw-bridge is located on the eastern side of Manahawkin bay, and since the oysters are in the northern part of the bay, it would necessitate a run of ten miles, by boat, from the oyster grounds to Mill creek and return to Hilliard Station. Outside of the one pollution, which has been taken up with the party responsible, sanitary conditions at Hilliard Station are good.

Cedar Run Creek: This creek is a tributary of Little Egg Harbor and runs through meadow lands for a distance of five or six miles. The creek receives large quantities of fresh water. A sanitary survey which was conducted showed it to be free from pollution. The oyster floats are located about one mile from the mouth, and the oysters after being taken from the floats are carted by wagon to Mayetta, or Cedar Run, a distance of one mile. Mr. M. L. Cramer is the largest dealer and usually buys from other smaller dealers in the vicinity. Shipments are made to Trenton, Mt. Holly and Burlington, and average forty to fifty bushels per week.

West Creek: This stream, which is a tributary of Little Egg Harbor bay, originates in Cedar swamps, several miles inland from West creek and flows through a comparatively uninhabited section. The stream is tidal and navigable to the oyster wharves at West Creek, a distance of about three miles. The oyster floats are located from one to two miles from the mouth of the creek. During the fall and winter the upper floats are used. After May, due to the drainage of cranberry bogs into the creek, the water in the creek becomes very fresh and it is not necessary to use the lower floats. All the oyster houses are located on Dock road, near the creek, and it is evident that toilet facilities should be provided for men engaged in the oyster business. This matter has been brought to the attention of the largest oyster dealers, and it has been suggested that two or three toilets be built at convenient places along the road, and that such toilets be equipped with tight containers.

Considerable business is done from West creek, and, excluding Tuckerton, it is the most important oyster centre in Ocean county.

RESULTS OF EXAMINATIONS OF SAMPLES OF WATER COLLECTED FROM THE OYSTER HOUSES TO THE MOUTH OF THE CREEK.

Number of samples of water collected (ebb tide).....	20
Number of samples showing B. coli in 1 c.c.....	14
Number of samples showing B. coli in 0.1 c.c.....	2
Number of samples showing B. coli. in 0.01 c.c.....	1

Oyster Samples.

Number of samples collected.....	8
Scores	0 (floated 2 low tides)
Scores	0 (floated 2 low tides)
Scores	5 (floated 2 low tides)
Scores	5 (floated 2 low tides)
Scores	0 (floated 2 low tides)
Scores	0 (floated 2 low tides)
Scores	0 (floated 4 low tides)
Scores	2 (floated 4 low tides)

Parker Run: This small stream is a tributary of Little Egg Harbor bay and has its source in Cedar swamps, about three miles inland. The creek is used by two oyster dealers in which to float oysters. Shipments are made from Parkertown, principally to Philadelphia markets.

It is necessary to take oysters up this creek when the tide is about half flood, as there is very little water in the creek at low tide. Approximately, seventy-five to 100 bushels per week are handled from this place by Norwood Parker and Isaac Horner. No dwellings border on this creek and the sanitary conditions appear to be satisfactory.

Sapps Creek: This creek is a tributary of Little Egg Harbor bay and is about three miles in length. This stream is very shallow at low water, and it is necessary to wait for the tide to be about half flood before the oystermen can get to the oyster houses with their garvies. About one and one-half miles from the mouth the creek has two branches. Near the head of one of these branches the oyster houses of Sapp Brothers is located. At the head of the other branch is located the oyster house of Joseph Sawyer. All shipments of oysters are made from Tuckerton. This creek is isolated and inspection showed that no pollution from human sources is likely to reach it.

Tuckerton Creek: The oyster situation at Tuckerton creek has been thoroughly discussed in previous reports. Bacteriological samples of the water from the creek in May, 1917, showed that the improvements which had been made since our last investigation had benefited the quality of the water. During the month of June, however, additional samples of water were collected which showed that the creek was receiving polluting matter. Investigation brought out the fact that large quantities of extracted garbage from the garbage plant at Crab island were being brought to Tuckerton and some portions of the same were stored along the banks of the creek. The local board of health took the matter in hand and now refuse to issue permits to bring in this fertilizer unless the same is handled in containers and immediately taken from the boats on arrival at Tuckerton. This garbage as taken from the vats at Crab island is sterile, but on handling and standing it apparently becomes contaminated. A reinspection made of the creek in July, 1917, did not disclose any visible evidence of pollution. The Bureau was informed that at a later period one pollution was disclosed by representatives of the local board of health at Tuckerton. The persons responsible for the pollution was prosecuted and the pollution was abated.

VETERINARY EXAMINATION OF DAIRY ANIMALS.

The following table shows the information obtained by a veterinary examination of dairy animals, the milk from which was supplied to the cities of Rahway and Elizabeth:

Towns.	Kind of examination.	No. of herds.		Suspected cases of tuberculosis.	Reactors reported.	Acute mastitis.	Abscesses in udder.	Open sores in udder.	Tumorous growths in udder.	Simple induration of the udder.	Enlarged lymphatic glands.	Actinomycosis.	Other diseases.	No. of cattle slaughtered under inspection.	No. found tubercular at post mortem.	No. condemned for fertilizer.	No. passed for food.
		No. of herds.	No. of cattle in herds.														
Elizabeth	Physical...	33	712	24	..	3	6	3	15	8	3	2	6	.....	.....	.....	.....
	Tuberculin test....	12	212	.....	32	.....	.....	.....	.....	.....	.....	.....	.....	26	24	6	20
Rahway	Physical...	19	255	4	..	0	1	0	6	4	1	0	5	.....	.....	.....	.....
	Tuberculin test....	11	153	.....	19	.....	.....	.....	.....	.....	.....	.....	.....	27	27	4	23
Totals	Physical...	52	967	28	..	3	7	3	21	12	4	2	11	53	51	10	43
	Tuberculin test....	26	365	.....	51	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

By consulting the above table it will be seen that of the 967 cattle located in fifty-two herds, twenty-eight showed symptoms of tuberculosis on physical examination. Following the physical examination, a tuberculin test of 365 cattle in twenty-six herds resulted in the discovery of fifty-one cows which reacted to the test. In addition to the fifty-one cases of tuberculosis, two cows affected with actinomycosis were slaughtered under inspection.

On post-mortem examination of the fifty-three slaughtered cattle, ten cows, or 20 per cent. of the lot, were so extensively affected with tuberculosis as to necessitate the destruction of the entire carcass. Of the other forty-three cattle slaughtered, forty-one showed some lesions of tuberculosis and two showed lesions of actinomycosis.

In connection with this report it is of interest to note that the ordinances of the cities where the milk is sold, require the tuberculin test of all cattle supplying milk to the city. In the cases of most herds the tuberculin test had been applied, but the evidence obtained by this investigation seems to show very clearly that the tests in some instances were made by ignorant or unscrupulous veterinarians.

In one herd of eighteen cows, supposedly free from tuberculosis, fourteen reactors were found. Two of these were detected by a physical examination prior to the test. The owner admitted that these two cows had previously reacted to the tuberculin test, but no record of such reaction was filed by the veterinarian with his report to the

local board of health. In one other instance, ten cows which had reacted to the test in 1915, had been kept in the herd supplying raw milk practically a year after they had reacted—one cow in the lot having developed an extensive case of tuberculosis of the udder. A retest of these ten cows resulted in eight of them being passed by the veterinarian as healthy. However, the eight cows having once reacted to the tuberculin test were regarded by this Department as being tubercular. The owner, not desiring to pasteurize his milk, had these eight cows slaughtered. Post-mortem examinations revealed lesions of tuberculosis in every one. In a few instances where cattle had reacted to the tuberculin test, and where no evidences of disease could be found on physical examination, the owners elected to have their milk pasteurized.

It appears that in many cases dairymen who had the tuberculin test applied to their herds were unable to replace the reacting animals with cows known to be free from tuberculosis, because of the practices of the dealers and certain veterinarians in the past. Cows which have reacted to the tuberculin test are held over for retest, and upon protest certain veterinarians have presented a record which would indicate that the cattle were free from tuberculosis. The sale of these diseased cattle to dairymen whose herds are otherwise healthy, results in the spread of disease to other cattle, and, subsequently, discourages the dairymen who depends upon the test of his own cattle and the certificates of veterinarians for cattle which is purchased to keep his herd free from disease.

Information obtained during the past year indicates that certain veterinarians in the state who conduct physical examinations of dairy herds and issue certificates in accordance with the provisions of Chapter 78 of the Laws of 1914, have misrepresented conditions in dairy herds. Certain of these veterinarians have been accustomed to making physical examinations of dairy herds by simply working through the herds while located in the field. Such veterinarians would do well to inform themselves as to what constitutes a physical examination and to make their examinations more thorough in the future.

Report of Division of Milk Control.

GEO. W. MC GUIRE, CHIEF.

At the close of the year there were in the state, subject to license by the Department of Health, 231 creameries, 136 of which pasteurize milk; ninety-two are non-pasteurizing plants or places where milk is received and handled for public distribution. There are also 626 ice cream factories in the state.

There have been 3,755 inspections made during the year, as follows:

Dairies, 2,296; Ice Cream Factories, 925; Pasteurizing Plants, 318; Non-Pasteurizing Plants, 107; Milk Depots, 109.

There were also received for filing 3,006 reports of veterinarians, showing the physical condition of about 39,000 cows. When these certificates were received they were scrutinized, and if the reports showed that suspicious animals were in the herd, the report was referred to the state's veterinarian for further investigation. The operation of this feature of the act of 1914 has been of great value in showing the health of the animals supplying milk for public distribution, and while the reports may not always be complete, valuable information is obtained regarding the history of the dairy.

During the year thirty-one dealers in milk and its products were notified to appear before the Director to account for their failure to meet the requirements of the Department relative to handling their goods in a sanitary manner.

During the year the following local boards of health applied to the Department for either a partial or a complete investigation of their milk supplies: Asbury Park, Atlantic City, Beverly, Bloomfield, Bordentown, Burlington, Collingswood, Dover, Freehold, Haddonfield, Jersey City, Keyport, Lakewood, Long Branch, Morristown, New Brunswick, Ogdensburg, Passaic, Paterson, Princeton, Trenton, Vineland, Woodbine and Woodbridge.

In most cases the investigation of these supplies involved the scoring of dairies many miles distant from the municipality making the request, for the reason that their supplies were delivered to creameries or milk shipping stations in the country.

After inspecting all the local dairies supplying the city of Passaic, the local board asked that our inspector score all the dairies at May Brook, Orange County, N. Y., and at Ararat, Susquehanna County, Pa., supplying some of their local dealers.

It has been the policy of the Department to grant such requests when the local board making the request defrayed all expense incurred

outside of the borders of this state, consequently, Inspector Robertson visited these places and inspected seventy-one dairy premises and scored them. Copies of the reports of these investigations will be sent to the Passaic board of health.

The following statements will show the results of the inspections of the dairies producing milk and distributing it to the above-named cities and towns:

ASBURY PARK.

This supply has been annually inspected by our inspectors since 1909 and is drawn from several sources; first, nearby dairies within driving distance of the city, consisting of from 2 to 12 cows each. The milk from these dairies is mostly delivered to the dealers twice daily during the summer. The essential requirements of the Department have been met by dairymen; most of them have provided small mouth milking pails, their cows have been examined by veterinarians, milk houses have been provided, and in most cases the milking and the handling of the milk is done by the members of the dairyman's family in a cleanly manner. The bulk of the supply is drawn from scattering farms and creameries in Burlington, Monmouth and Ocean counties. This milk is shipped over the Union Transportation Company's railroad in refrigerating cars. About 70% of the milk received by dealers is pasteurized in Asbury Park.

During the past year there have been inspected for the Asbury Park board of health, 339 dairies located as above mentioned.

In 1915 there were eighty-eight producers of milk shipping their product direct to Asbury Park dealers. These eighty-eight producers have continuously shipped their milk to Asbury Park during the years of 1915, 1916 and 1917. The following table will indicate the degree of perfection existing on the date of the inspections:

DIRECT SHIPPERS.			
	<i>Eq.</i>	<i>Me.</i>	<i>Total.</i>
1915—Average score of 88 dairies.....	22.18	40.10	62.28
1917—Average score of 88 dairies.....	24.51	40.97	65.48

In addition to the above, forty-seven dairies were inspected for the first time during the past three years. These temporary supplies were given permission to sell their product in Asbury Park after meeting essential requirements. Their product was withdrawn after the height of the season.

During the height of the summer season a large part of the milk supply of this city is drawn from the creameries located at New Egypt, Davis Station and Wrightstown. Previous to this year there was considerable complaint concerning the milk shipped from the New Egypt creamery on account of its souring or possessing a bad taste. As the milk is handled properly at the creamery, being immediately cooled to 34° or 36° Fahrenheit on its arrival and shipped in refrigerator cars, the trouble was traced to the source of the supply at the dairy. Since the dairymen in this particular section have always been more or less antagonistic to meeting sanitary requirements, the Department made a ruling that these dairymen must score 60% of 100 points or be prohibited from selling milk for human consumption. After being notified of the Department's ruling these dairymen assumed an entirely different attitude and reinspections showed much better results and there have since been no complaints from consumers concerning this milk. It was only necessary to prohibit the sale of milk from one dairy during this investigation.

The following table will show the scores of the New Egypt, Davis Station and Wrightstown creameries' supplies during the years of 1915 and 1917:

NEW EGYPT.

	<i>Eq.</i>	<i>Me.</i>	<i>Total.</i>
1915—Average score of 63 dairies.....	17.71	35.70	53.41
1917—Average score of 63 dairies.....	21.79	41.15	62.94

DAVIS.

1915—Average score of 39 dairies.....	21.51	39.24	60.75
1917—Average score of 39 dairies.....	22.32	40.70	63.02

WRIGHTSTOWN.

1917—Average score of 59 dairies.....	19.71	39.13	58.84
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ATLANTIC CITY.

This city's supply varies greatly in quantity with the seasons, ranging from 15,000 to 40,000 quarts daily. Five creameries and two depots handle the city distribution. All but about 1,700 quarts are pasteurized.

This supply was inspected during the past year and included 451 dairies. The following table will show the improvement of this supply from 1913 to 1917:

Four hundred and fifty-one dairies inspected in 1917, averaged 60.3%. Of the above mentioned 451 dairies, 361 have been annually inspected for three years. Ninety of them are dairies inspected this year for the first time.

The 361 dairies before inspected, averaged, 1917.....	60.4%
The 90 dairies inspected for the first time, 1917.....	57.6%
The 320 of the above 361 inspected in 1914 averaged.....	56.7%
104 of them scored 60% or over.	
302 of the above 361 inspected in 1913 averaged then.....	54.6%
64 scored 60% or over.	
In 1917, 271 of the entire 451 scored 60% or over.	

BAYONNE.

Several requests have been made by the Bayonne board of health during the last two years for inspections of the seven large dairies located within their city limits.

This Department recommended the abolishment of most of the dairies, and the local board passed a resolution to that effect, giving them a limited time to stop producing milk for public use. Later a hearing was held by the local board at which a representative of the State Department was present. An appeal was made by counsel for the dairymen for a continuance of the dairies under a weekly inspection by the local health officer. This was granted finally and our later examinations have shown high scores, as illustrated by the following table. This supply, however, will need close local supervision to keep it in a fit condition.

	<i>Eq.</i>	<i>Me.</i>	<i>Total.</i>
1916—Average score of 7 dairies.....	12.01	27.71	39.72
1917—Average score of 7 dairies.....	25.6	48.4	74.10

BEVERLY.

Ten dairies supply the milk from Beverly, which were inspected twice during the year. The milk is all sold in bottles and none is pasteurized. The following table shows the result of the two inspections made in 1917:

<i>No. Inspections.</i>	<i>Equipment.</i>	<i>Methods.</i>	<i>Total Score.</i>
First	18.60	31.20	49.80
Second	24.40	37.80	58.20

BRIDGETON.

A recent inspection of Bridgeton's dealers disclosed the fact that several dealers were misbranding their product as pasteurized. Only one was pasteurizing legally, while the others sold a milk heated to 160-170° Fahrenheit for one minute as pasteurized milk. This misbranding has been stopped and an inspection of the dairies is being made.

BURLINGTON.

Twenty-eight dairies were inspected for Burlington city during the year. This supply is all sold in the raw state. The average score of the twenty-eight dairies is as follows:

Equipment, 26.05. Methods, 38.05. Total score, 59.10

COLLINGSWOOD.

Collingswood's supply consists of the product distributed by three creameries, one in Camden, one in Audubon and another in Wrightstown. One hundred and nine dairies supplying the Camden creamery averaged in 1917, 64.6, and in 1915, 63. Twenty dairies supplying the Audubon creamery averaged 64 in 1917, 60.5 in 1915 and 57.5 in 1914.

Twenty-two dairies supplying the Wrightstown creamery in 1917 averaged 60.7. In all 151 dairies contributing to the supply of Collingswood averaged in 1917, 63.7.

DOVER.

One hundred and seventeen dairies were inspected at the request of the local board of health of Dover with the following results:

1917.		<i>Equipment.</i>	<i>Methods.</i>	<i>Total Score.</i>
<i>No. Local Dairies.</i>				
First inspection, 25.....	24.99	44.08	69.07	
Second inspection, 25.....	26.47	45.32	71.79	

DOVER MILK AND CREAM COMPANY.

First inspection, S.....	23.75	41.19	64.94
Second inspection, S.....	24.75	44.81	69.56

FLANDERS CREAMERY.

First inspection, 27.....	19.95	41.59	61.54
Second inspection, 27.....	24.42	43.35	67.77

FULBOAM DAIRY COMPANY.

2	27.5	43.	70.5
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LAFAYETTE CREAMERY.

55	26.19	45.06	71.25
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FREEHOLD.

This supply is derived from twenty-two dairies which were inspected for the first time this year. The sanitary condition, with three exceptions was fairly good, as the following table will show. It was, however, necessary to exclude the sale of milk of two of the dairies since the requirements of the Department could not be met.

	<i>Eq.</i>	<i>Me.</i>	<i>Total.</i>
Average score of 22 dairies.....	17.47	34.86	52.33

HADDONFIELD.

The supply of Haddonfield consists of the product of twelve local dairies and the milk from one creamery.

The twelve dairies averaged in 1917, 65.7, and 64.2 in 1915, and 58.5 in 1914.

The creamery supply averaged 64 in 1917, 60.5 in 1915, and 57.5 in 1914.

The average for the entire supply in 1917 was 64.6.

KEYPORT.

Seven local dairies produce the entire local supply of Keyport, except when there is an occasional shortage. All of the milk sold in Keyport, with the exception of that of one dairy is pasteurized. During the last year an inspection of all the dairies was made, with the following results:

<i>No. Dairies.</i>	<i>Equipment.</i>	<i>Methods.</i>	<i>Total Score.</i>
7	22.62	37.64	60.26

LAKEWOOD.

This supply is derived from seventeen dairies and handled by two dealers who are located in Lakewood. This is all bottled and sold in the raw state. The average score of the seventeen dairies for 1917 is as follows:

<i>Equipment.</i>	<i>Methods.</i>	<i>Total Score.</i>
25.12	44.	69.12

LONG BRANCH.

About seventy per cent. of the milk of Long Branch is pasteurized. The city ordinance requires that all milk which is sold in a raw state shall be the product of tuberculin tested cows. The average score of all dairies examined in 1917 was as follows:

<i>No. of Dairies.</i>	<i>Equipment.</i>	<i>Methods.</i>	<i>Total Score.</i>
34	23.35	41.15	64.50

MORRISTOWN.

At the request of the local board of health twenty dairies contributing to this city's milk supply were examined. The dairies comprising the supply are all of a high class. The cattle are all annually tuberculin tested and the

milk in each case is handled in a careful manner. The local board of health inspects these dairies monthly. The score awarded these dairies in 1917 is as follows:

Average score of 20 dairies.....	85.5
Average score of 20 dairies, equipment.....	31.4
Average score of 20 dairies, methods.....	54.1

NEW BRUNSWICK.

Seventy-four dairies were examined for the city of New Brunswick showing an average score of 56.9. This average score is somewhat lower than at the last inspection, due to lack of the proper barn equipment of a number of dairies. The score of methods, however, shows that the milk is carefully handled in most cases. About seventy per cent. of the supply is pasteurized.

Total average score.....	56.9
Average score, equipment.....	13.6
Average score, methods.....	43.3

PASSAIC.

This supply consists of the product of twenty-nine local dairies and seventy-one dairies in Ararat, Susquehanna County, Pa., and Maybrook, Orange County, N. Y. The New York and Pennsylvania milk comes from creameries and is shipped to Passaic in refrigerator cars. None of this milk is pasteurized. These dairies receive a bonus from the milk company based on the score awarded above a certain point. In addition to the above supply one or two large milk corporations supply pasteurized milk to this city. The following table shows the score of the dairies inspected this year by our inspectors:

Average score of Passaic local dairies, 1917.....	71.10
Average score of Passaic local dairies, equipment.....	23.84
Average score of Passaic local dairies, methods.....	47.35
Average score of Ararat dairies, 1917.....	60.31
Average score of Ararat dairies, equipment.....	18.31
Average score of Ararat dairies, methods.....	42.00
Average score of Maybrook dairies, 1917.....	71.1
Average score of Maybrook dairies, equipment.....	20.7
Average score of Maybrook dairies, methods.....	50.4

PATERSON.

The first general inspection of the dairies supplying Paterson was made in 1910. The average score of all the dairies that year was 58.75. The following table shows the result of this year's inspection of 145 dairies:

No. of Dairies.	Equipment.	Methods.	Total Score.
145	24.33	42.18	66.51

Thirty-eight of the above were reinspected owing to inferior conditions, but on the next inspection showed the desired improvement.

REINSPECTION.

No. of Dairies.	Equipment.	Methods.	Total Score.
38	25.40	43.05	68.45

PRINCETON.

The dairies of Princeton have been regularly inspected by the inspectors of this Department since 1907, and a steady improvement in the supply has been made, as the following table will show. None of the supply is pasteurized:

1907—Average score of all dairies.....	41.25
1917—Average score of all dairies.....	71.08

TRENTON.

During the past year 342 dairy premises were visited by our inspectors for the Trenton Municipal Commission and the scores are on file in the Department.

This supply comes from nearby farms and adjacent counties, as well as from several creameries in Hunterdon and Warren Counties and also from Pennsylvania. The supply is constantly changing by the addition of new producers and the retirement of others. The following table shows the result of the investigation of this supply:

DIRECT SHIPPERS.

No. of Dairies.	Equipment.	Methods.	Total Score.
180	19.37	38.27	58.14

On account of the low score awarded to 30 of the above dairies they were ordered to improve conditions and a re-inspection showed the following:

No. of Dairies.	Equipment.	Methods.	Total Score.
First inspection, 30.....	16.52	27.81	44.33
Second inspection, 30.....	21.17	39.92	61.09

MILK FROM BELVIDERE CREAMERY.

No. of Dairies.	Equipment.	Methods.	Total Score.
85 in 1915.....	18.50	34.31	52.81
85 in 1917.....	22.07	39.60	61.67

MILK FROM HOPE CREAMERY.

No. of Dairies.	Equipment.	Methods.	Total Score.
77 in 1917.....	17.98	32.68	50.66

Twenty-three of the above dairies were reinspected and conditions improved as follows:

No. of Dairies.	Equipment.	Methods.	Total Score.
Reinspection, 1917.....	20.82	37.12	59.94

Sixty per cent. of the Trenton milk is pasteurized.

VINELAND.

Fifteen dairies supplying Vineland averaged 64%. In early 1917 an inspection was made of Vineland supply and conditions on several premises were poor. Two depots were given a specified time in which to improve conditions.

One dealer moved into Vineland and erected a new depot and the other greatly improved his premises and methods. Four dairies were given a specified time in which to correct defects on their premises, one was requested to appear before the Hearing Committee of the Department, and the sale of his milk was prohibited. The three others improved conditions on their premises. The supply of Vineland is now considerably improved, every dairy on the list scoring 60 or over. About 1,500 quarts of pasteurized and 600 quarts of raw milk are sold in Vineland.

WOODBINE.

The supply of Woodbine is like no other in the state. It is composed entirely of small dairies of one to four cows each. The milk is sold warm to suit the preference of the customers, the population of the town being Jewish. The milk is sold warm and they boil it almost immediately upon receiving it. Cold milk would find no sale. The conditions on four dairies were poor, and they quit the sale of milk rather than improve their methods.

Two inspections were made of this supply during the past year at the request of the local board of health, once in March and again in August. On the first inspection twenty-three dairies scored an average of 47.1 and on second inspection 57.3. All milk is now delivered twice daily and within one hour of milking time as all dairies are in the city limits. Most customers come to the dairies for their milk.

ICE CREAM.

There were 636 ice cream factories operated in this state during the past year and 925 inspections made by inspectors of the Division. The following list shows the location of these factories and the number in each town:

Atlantic City, 16; Arlington, 3; Asbury Park, 15; Alloway, 1; Allenhurst, 1; Bayonne, 12; Belvidere, 2; Belleville, 2; Beverly, 4; Blairstown, 1; Bloomsbury, 1; Bordentown, 3; Branchville, 1; Burlington, 5; Bloomfield, 3; Bloomingdale, 1; Bogota, 1; Boonton, 7; Bound Brook, 2; Bradley Beach, 1; Bridgeton, 5; Caldwell, 1; Camden, 14; Cape May, 3; Carteret, 1; Clifton, 9; Collingswood, 2; Columbus, 1; Cranford, 2; Dover, 5; East Orange, 6; Edgewater, 1; Ellisdale, 1; Egg Harbor, 2; Elmer, 1; Elizabeth, 9; Englewood, 5; Flemington, 5; Freehold, 3; Frenchtown, 2; Glassboro, 1; Glen Ridge, 1; Gloucester, 2; Guttenberg, 2; Hackensack, 4; Hawthorne, 1; Hillsdale, 1; Hackettstown, 3; Haddon Heights, 1; Haddonfield, 1; Hamburg, 3; Hammonton, 2; Harrison, 3; Hightstown, 2; Hoboken, 16; Irvington, 3; Jersey City, 80; Keansburg, 1; Kearney, 1; Keyport, 1; Lakewood, 4; Long Branch, 7; Madison, 1; Metuchen, 2; Manasquan, 1; Montville, 1; Merchantville, 2; Medford, 1; Millville, 4; Montclair, 4; Morristown, 7; Mount Holly, 6; New Brunswick, 2; New Egypt, 2; Netcong, 1; Newton, 5; North Plainfield, 1; North Paterson, 1; North Arlington, 2; Newark, 60; Ocean Grove, 1; Ocean City, 4; Orange, 7; Perth Amboy, 6; Paulsboro, 1; Point Pleasant, 2; Pitman, 1; Park Ridge, 1; Pennsgrove, 4; Plainfield, 4; Phillipsburg, 9; Passaic, 15; Paterson, 46; Ridgewood, 3; Riverdale, 1; Riverside, 2; Red Bank, 3; Ridgefield Park, 1; Rockaway, 3; Rahway, 2; Rutherford, 2; Riverton, 1; Salem, 1; Spring Lake, 1; Singac, 1; Stanhope, 1; South River, 1; South Orange, 2; Sussex, 3; Secaucus, 1; Somerville, 1; Swedesboro, 1; Trenton, 48; Toms River, 1; Tuckerton, 1; Union Hill, 10; Upper Montclair, 2; Vineland, 5; West Hoboken, 10; West New York, 5; Wildwood, 6; Waldwick, 1; Westwood, 2; Westfield, 1; Wyckoff, 1; West Orange, 1; Washington, 2; Woodbury Heights, 1; Wharton, 1; Westgrove, 1; Woodbridge, 1; Woodbury, 1.

The sanitary condition of these places has been much improved during the past few years, our efforts having been directed toward improving the methods in handling the product. The quality of the product, however, has been gradually lowered in order to cheapen the cost, where formerly 20 per cent. cream and whole milk was used by most manufacturers, condensed milk, and in many instances condensed skimmed milk has taken its place. This business has grown extensively during the past few years and is rapidly getting into the hands of large manufacturers or corporations who manufacture the product after their own formulas without regard to any fixed standard as to the quality of whole milk or cream. The standardization of ice cream has met with the approval of the federal government and of a number of states, but manufacturers in this state have heretofore opposed legislation, looking to the establishment of a definite standard for the product. The time has come, however, when steps should be taken, in the interest of the consumer, to fix such a standard, and a form is herewith submitted with the suggestion that it be referred to the State Association of Ice Cream Makers, with a request that they give it their consideration, with a view to having it enacted into law, either as it is or with such changes as they and the State Health Department may agree upon.

PROPOSED ACT RELATIVE TO THE MANUFACTURE OF ICE CREAM.

1. It shall be unlawful for any person, by himself, or by his agents, servants, employees, to distribute or sell, or offer or expose for sale, or have in possession with intent to distribute or sell as such, any ice cream that does not conform to the requirements of this act for such substance and the standard herein fixed for such product.

2. Ice cream, nut ice cream, fruit ice cream and other forms of ice cream shall be made from wholesome milk or such products and shall contain not less than 8% of milk fat, and may also contain harmless substances used for flavoring or coloring and not more than seven-tenths of one per cent. of gelatin, gum arabic or other harmless stiffening agent.

3. Any preparation which does not conform in composition to the standard fixed by Section 2 of this act shall not be labelled "ice cream" nor shall such preparation be offered or exposed for sale, or sold under the name of "ice cream," but such preparation shall be offered for sale or sold under some other designation and shall be plainly labelled to show the kind and quality of each ingredient thereof.

4. All milk and cream, except condensed or evaporated milk, used in the manufacture of ice cream shall be pasteurized before use.

5. No ice cream returned to the manufacturer for whatever cause shall be used in the preparation of ice cream unless returned in the frozen state and in the original container.

CREAMERIES.

There were operated in the state during the past year 199 creameries, which were subject to license by the Department, classified as follows: Pasteurizing plants, 136; receiving and distributing stations, 52; butter factories, 5; cheese and Kumyss factories, 6.

All the distributing or receiving stations have been visited, and while minor defects in the equipment or methods of some of these places have been detected, in most cases it has only been necessary to direct the attention of the owners to the trouble to have it remedied.

The conditions in one creamery, which was being operated without a license, were of such an insanitary character that the owner was summoned to appear before the Director to show cause why he should not be prosecuted; as a result of this hearing the matter was placed in the hands of the Attorney-General for prosecution for the collection of the penalty prescribed by law for a violation of the Sanitary act.

Epidemiological studies have led to the conclusion that milk is often a vehicle for carrying the infective material in typhoid fever, scarlet fever, diphtheria, gastro-intestinal infections, septic sore throat, bovine tuberculosis. The efficacy of commercial pasteurization in the destruction of the organisms of the diseases enumerated is no longer doubted provided the process is carried out in the proper manner. Continual inspections and tests are necessary to be reasonably assured that the process of heating milk to destroy bacteria is carried on in the proper manner and that the milk is not contaminated by dirty apparatus or careless handling. Experience has shown that the observations of an inspector while at the plant are not always sufficient to judge the quality or grade of the milk handled or the cleanliness of the utensils. The results obtained from the bacteriological examination of samples collected at each step, in the milk-handling operations, usually gives more reliable information as to the efficiency of the plant.

A beginning was made in 1916 when seventy-seven establishments were visited and samples collected for examination. By this investigation information was obtained which proved of value in detecting certain defects in the methods employed. Similar work was undertaken this year for the purpose of bringing every pasteurizing plant in the state to a well-defined standard of efficiency. It is a time-consuming process to properly test the efficiency of the apparatus in use at every pasteurizing plant in the state, and, because of this reason with our limited inspection force, a complete survey of all pasteurizing plants operated in the state could not be accomplished this year.

A summary of the outstanding features of the investigation is presented:

RESULTS OBTAINED ON FIRST INSPECTION.

Number of plants visited for the purpose of collecting bact. samples....	64
Per cent. of plants showing satisfactory tests	22%
Per cent. of plants showing fair results	49%
Per cent. of plants showing poor results	29%

The results classed as poor were found to be due in five instances to contaminated milk coolers; in eight cases to contaminated cooler, bottle-filler or bottles; in four instances to unsatisfactory heating temperatures, and twice to causes unknown. The fact that the percentage of poor results obtained by bacteriological examination of the

milk exceeds the per cent. of satisfactory tests is discouraging, but emphasizes the need of constant supervision.

Number of plants re-visited for the purpose of collecting bact. samples..	7
Per cent. of satisfactory tests	29%
Per cent. of fair results	21%
Per cent. of poor results	50%

The proprietors of establishments where bacteriological results obtained indicated that the pasteurization was improperly performed, were summoned before the Director of Health to show cause why they should not be prosecuted for failure to comply with the regulations of the Department. A report of these hearings will be found in the report of the Director.

Samples of bottled pasteurized milk were collected during the warm months from thirty-six plants, the methods of which had been tested in detail early in the year. The bacterial counts in 11 per cent. of the samples examined were recorded as satisfactory; in 69 per cent. of the samples tested the bacterial counts were excessive. The result of this work shows the necessity of periodical investigation of the methods used in pasteurizing plants.

For the purpose of securing uniformity in the regulation of pasteurizing plants rules and regulations were prepared relating to this subject and presented to the Department with a recommendation that they be adopted. These regulations can be found in detail in the report of the Director of Health.

Each plant should be tested out both by observation and collection of bacterial samples at least once a month to bring about a more thorough supervision of pasteurizing plants and to have a firmer grasp of the many problems met in connection with this important work. More inspectors should be trained to do the work and provided means of transportation that will enable them to reach the remote country plants more frequently. The importance of the work justifies any reasonable expenditures for this accomplishment.

Report of the Bureau of Engineering.

CHESTER G. WIGLEY, CHIEF.

War conditions have seriously affected the work of the Bureau during the past year. Two of the eight engineers in the employment of the Bureau have obtained commissions in the Sanitary Corps of the National Army. All the men in the employment of the Bureau, with the exception of the Chief, are subject to call for service under the Selective Draft, and it is therefore difficult to foretell with what success the Bureau will be able to fulfill its obligations and duties during the coming year.

During the past fiscal year the working time of the employes has been utilized in the following work:

- 9.6% of the time was used for routine investigations of public water supplies.
- 10.2% of the time was used for special investigations of public water supplies, when complaints have been filed relative to the quality of the water, or analysis, or other sources of information have suggested the necessity of investigation.
- 8. % of the time was used for the inspection of water-sheds from which public supplies are derived.
- 10.3% of the working time was used for routine inspections of sewage treatment works.
- 16.1% of the working time was required for special investigations of complaints relating to the pollution of streams not used as sources of water supply.
- 23.2% of the working time was spent in the office examining plans, and replying to correspondence.
- 14.6% of the working time was spent in writing reports, analyzing samples, etc.
- 2.2% of the time was lost because of illness.
- 5.5% of the time was lost in appointing new men to vacant positions.

During the year the employes have worked on fifty-eight Sundays or holidays in order to meet unusual conditions requiring the attention of the Bureau for a continuous period.

The number of inspections in each class of work has been increased materially over last year's work, but, as pointed out in last year's report, the work of the Bureau is constantly increasing without a commensurate increase in the number of employes and appropriation.

Traveling Bacteriological Laboratory and Portable Disinfection Apparatus—The Bureau has been considerably aided in its work by the purchase of a Ford automobile fitted up as a portable laboratory. The auto is equipped with incubators that may either be run from the storage batteries on the car or be connected into any 110 volt electric circuit. The auto carries also, when necessary, a chlorine gas disinfection apparatus, solution feed type, and two ten-pound cylinders of chlorine gas. With this equipment it has been possible to prevent in several instances what, without doubt, would have been serious epidemics of typhoid fever.

In the early part of the year the Burlington water filtration and disinfection plant was completely thrown out of service because of the failure and breakdown of the raw water pumps, and it became necessary to supply the municipality with water direct from the Delaware river. While filtered water from the standpipe was still being used, the Departmental disinfection apparatus was taken to Burlington, and the engineers of the Bureau, by working late into the night, were able to install the device so that only disinfected water was supplied to the town. This work, we believe, is all that prevented a serious typhoid epidemic in the town.

Later in the year a few cases of typhoid were reported in Frenchtown. Indications pointed to the water-supply as the source of the outbreak. The Departmental outfit was immediately sent to Frenchtown and the water-supply disinfected. A more extended account of this matter will be found in the report of the Bureau of Local Health Administration.

The most serious typhoid epidemic of the year, the details of which will also be found in the above-mentioned report, occurred at Pompton Lakes, and the portable laboratory and disinfection apparatus again demonstrated its value by quickly disinfecting the water supplied to the town.

There is no doubt that the portable laboratory and disinfection apparatus have already paid for themselves many times over in the prevention of sickness and death which might have resulted from the change in quality of the above-mentioned water supplies or the continuation of the outbreaks for longer periods of time.

When not in use for emergency work, the traveling laboratory has been used for the routine inspection of water treatment plants. In this way it has been possible to considerably increase the number of inspections made, and also to make more extended investigations at each plant.

Water Supplies—The public water supplies in this state are derived from 274 sources. The nature of the water supplied is shown in the following table, together with an estimate of the population served:

<i>Character of Supply.</i>	<i>Estimated Population Served.</i>
Untreated well water.....	523,500
Disinfected well water.....	9,000
Well water treated for the removal of iron.....	63,000
Springs and untreated surface waters.....	71,000
Disinfected surface water.....	771,000
Surface water treated by slow sand filters.....	8,000
Surface water treated by rapid sand filters.....	907,000
Total population supplied.....	2,382,500

These figures, which are based upon the 1915 census, indicate that about 81 per cent. of the state's population use water from established public supplies.

There has been considerable improvement in the quality of many of the supplies, as every indication of pollution has been carefully investigated by the Bureau and recommendations made for improvements.

In several instances conditions that would injure the quality of the water-supply have been remedied, and in other cases where the water was of doubtful quality, or liable to receive polluting material, treatment plants have been installed. At the present time there are seventy water treatment plants in the state which is an increase of eleven over last year.

Use of Untreated Water Supplies in this State Attended with Considerable Danger—In a state having as dense a population as has New Jersey, and which is so universally visited by vacationists, it should be apparent that surface water supplies cannot be taken without great risk unless all of the watershed is under the absolute control of the persons supplying the water, or unless some protective and well-operated treatment works are provided. The installation of treatment works operated by rule of thumb or hap-hazard methods may improve the quality of the water-supply but will seldom result in the production of a water-supply of satisfactory and safe quality at all times. At every treatment plant where surface waters are purified or treated there arise from time to time conditions requiring a change in the method of treatment or in the quality of chemicals or disinfectant to be added. It is impracticable to control the treatment of surface water supplies in a satisfactory manner without sufficient bacteriological data to indicate the necessary procedure whenever the quality of the water changes because of wet weather or other conditions.

Prevention of the Pollution of Water Supplies—Considerable work has been done in preventing the pollution of the streams. Copies of the Potable Water act have been printed on cloth and distributed to the water companies so that the law could be posted on the various watersheds. Many persons from whose premises polluting material is discharged into a stream are unconsciously violating state laws, as they are not informed as to the streams from which public supplies are derived nor acquainted with the provisions of the law. By posting the law upon the watersheds, it is believed that many persons will voluntarily comply with its requirements.

Need for Co-operation of Local Boards of Health and Water-Supply Companies in Preventing the Pollution of Water Supplies—The magnitude of the work required to prevent the pollution of streams from which public water supplies are derived is not fully appreciated unless one is familiar with the fact that almost half of the total area of the state drains to streams above the intakes of various water supplies.

In many instances local boards of health could prosecute individuals and corporations for polluting streams, but few of them have ever done so. If each board of health prevented the pollution of the streams within their jurisdiction, it would not be necessary to demand that the State Department of Health endeavor to execute a function clearly beyond the ability of its present working force and appropriation to fulfill.

In the following table, No. 1, there is given a list of municipalities and the names of the water-supply company or system supplying water to them:

TABLE NO. 1.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY.

MUNICIPALITY.	SUPPLIED BY
Absecon	Atlantic County Water Company of N. J.
Acquackanonk Twp. (Athenia) (Clifton) (Delawanna)	Montclair Water Company. Montclair Water Company. Yantacaw Water Company.
Aldene	See Roselle and Cranford Boros.
Alexandria Twp. (Little York)	Community Supply. Boro. of Ramsey.
Allendale Boro.	Boro. of Allenhurst.
Allenhurst Boro.	Boro. of Allentown.
Allentown Boro.	See East Orange City.
Ampere	See Clinton Twp.
Annandale	See Kearny Town.
Arlington	See North Wildwood Boro.
Anglesa	City of Asbury Park.
Asbury Park	Monmouth County Water Company. Tintern Manor Water Company.
Asyla (Camden County Inst.)	See Gloucester Twp. and N. J. Institutions.
Athenia	See Acquackanonk Twp.
Atlantic City	City of Atlantic City.
Atlantic Highlands Boro.	Boro. of Atlantic Highlands.
Audubon Boro.	New Jersey Water Service Company. Merchantville Water Company.
Avalon Boro.	Boro. of Avalon.
Avon Boro.	Monmouth County Water Company.
Avondale	See Nutley Town.
Awosting	See West Milford Twp.
Bartley	See Mount Olive Twp.
Basking Ridge	See Bernards Twp.
Barnegat City Boro.	Barnegat Water Company.
Bay Head Boro.	Bay Head Artesian Water Company.
Bayonne	Montclair Water Company.
Beach Haven Boro.	Boro. of Beach Haven.
Beach Haven Terrace	See Long Beach Twp.
Beechwood Heights	See North Plainfield Twp.
Bedminster Twp. (Bedminster)	See Peapack-Gladstone. City of Newark.
Belleville Town	Boro. of Belmar.
Belmar Boro.	Buckhorn Springs Water Company.
Belvidere Town	Belvidere Water Company. Hackensack Water Company.
Bergenfield Boro.	Hackensack Water Company.
Berkley Twp. (Ocean Gate)	New Jersey Coast Water Company.
Bernards Twp. (Basking Ridge) (Bernardsville) (Far Hills)	Bernards Water Company. Bernards Water Company; Frank B. Allen. Borough of Peapack-Gladstone.
Beverly City	Delaware River Water Company.
Beverly Twp. (Delanco) (Edgewater Park)	Delaware River Water Company. Delaware River Water Company.
Blackwood	See Gloucester Twp.
Blairstown Twp. (Blairstown)	Blairstown Water Company.
Bloomington	See Pompton Twp.
Bloomfield Town	Montclair Water Company.
Bloomsbury Borough	Bloomsbury Water Company.
Rogota Boro.	Rogota Water and Light Company.
Boonton Town	United Water Supply Company.
Bordentown City	City of Bordentown.
Bound Brook Boro.	Bound Brook Water Company.
Bradley Beach Boro.	Monmouth County Water Company.
Branchville Borough	Branchville Water, Light and Power Company. Boro. of Branchville.
Brant Beach	See Long Beach Twp.
Brick Church	See East Orange City.
Brick Twp. (West Point Pleasant)	Point Pleasant Water Company.
Bridgeport	See Logan Twp.
Bridgewater Twp. (Pluckemin)	Superior Thread and Yarn Company.

TABLE NO. 1.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

MUNICIPALITY.	SUPPLIED BY
Bridgeton City	City of Bridgeton.
Brown's Mills	See Pemberton Twp.
Burlington City	City of Burlington.
Butler Boro.	Butler Water Company.
Caldwell Boro.	Essex Falls Electric Light and Water Company.
Caldwell Twp. (Overbrook Hospital)	Montclair Water Company.
Califon	See Tewksbury Twp.
Camden City	City of Camden. Merchantville Water Company. Stockton Water Company.
Camden County Hospital (Asyla)	See Gloucester Twp.
Cape May City	City of Cape May.
Cape May Court House	See Middle Twp.
Cape May Point Boro.	Boro. of Cape May Point.
Carlstadt Boro.	Hackensack Water Company.
Carlton Hill	See East Rutherford Boro.
Carteret	See Woodbridge Twp.
Chatham Boro.	Boro. of Chatham.
Chesterfield Twp. (Crosswicks)	Crosswicks Water Company.
Chester Twp. (Maple Shade) (Moorestown)	Maple Shade Water Company. Moorestown Water Department. Moorestown Water Department.
(Stanwick)	See Woodbridge Twp.
Chrome	Riverton-Palmyra Water Company.
(Cinnaminson Twp.)	See East Greenwich Twp.
Clarksboro	See East Greenwich Twp.
Clayton Boro.	Clayton-Glassboro Water Company.
Clementon Twp. (Clementon) (Kirkwood) (Lindenwold) (Overbrook) (Somerdale) (Stratford) (Watsonstown)	Clementon Spring Water Company. Lakeside Park Water Company. New Jersey Water Service Company. Laurel Springs Water Company. Laurel Springs Water Company. Laurel Springs Water Company. Clementon Springs Water Company.
Cliffside Park Boro. (Grantwood)	Hackensack Water Company. Hackensack Water Company.
Clifton	See Acquackanonk Twp.
Clinton Boro. (Reformatory)	Clinton Water and Water Supply Company. Institution (see N. J. Inst.).
Clinton Twp. (Annandale)	Clinton Water and Water Supply Company.
Closter Boro.	Hackensack Water Company.
Collingswood Boro.	Merchantville Water Company.
Colonia	See Woodbridge Twp.
Columbus	See Mansfield Twp.
Corson's Inlet	See Upper Twp.
Coytesville	See Fort Lee.
Cranbury Twp. (Cranbury)	Cranbury Water Company.
Cranford Twp. (Cranford)	Plainfield-Union Water Company.
Cresskill Boro.	Hackensack Water Company.
Crosswicks	See Chesterfield Twp.
Deal Boro.	New Jersey Water and Light Company. Tintern Manor Water Company.
Delair	See Pensauken Twp.
Delanco	See Beverly Twp.
Delawanna	See Acquackanonk Twp.
Delaware	See Knowlton Twp.
Delford Boro. (New Milford) (Oradell)	Hackensack Water Company. Hackensack Water Company. Hackensack Water Company.
Demarest Boro.	Hackensack Water Company.
Denville Twp. (Denville)	Cedar Lake Water Company.
Dover Town	Town of Dover.
Dover Twp. (Toms River)	Toms River Water Company.
Dumont Boro.	Hackensack Water Company.

TABLE NO. 1.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

MUNICIPALITY.	SUPPLIED BY
Dunellen Boro.	Watchung Water Company.
East Bound Brook.	See Piscataway Twp.
East Greenwich Twp. (Clarksboro)	Mrs. Charles B. Stewart.
(Mickleton)	Jeremiah Haines; August Eichler.
East Newark Boro.	Montclair Water Company.
Easthampton Twp. (Smithville)	H. B. Smith Machine Co.
East Orange City (Ampere)	City of East Orange.
(Brick Church)	City of East Orange.
East Rutherford Boro. (Carlton Hill)	Hackensack Water Company.
Eatontown Twp. (Eatontown)	Tintern Manor Water Company.
(Oceanport)	Tintern Manor Water Company.
Edgewater Boro.	Hackensack Water Company.
Edgewater Park	See Beverly Twp.
Egg Harbor City	Egg Harbor City Water Company.
Egg Harbor Twp.	Atlantic County Water Company.
Elizabeth City	Elizabethtown Water Company.
	City of Newark.
	Commonwealth Water and Light Company.
	Middlesex Water Company.
	Piscataway Water Company.
	Plainfield-Union Water Company.
	Short Hills Water Company.
	Watchung Water Company.
	See Newark City.
Elizabeth Park	Elmer Water Company.
Elmer Boro.	Hackensack Water Company.
Emerson Boro.	Hackensack Water Company.
Englewood City (Nordhoff)	Hackensack Water Company.
Englewood Cliffs Boro.	Hackensack Water Company.
Essex County Hospital.	See Caldwell Twp.
Essex Fells Boro.	Essex Fells Electric Light and Water Company.
Evesham Twp. (Marlton)	Marlton Water Company.
Fairfield Avenue	See Lawrence Twp.
Fair Haven Boro.	Tintern Manor Water Company.
	See Rumson Boro.
Fairview Boro.	Hackensack Water Company.
Fanwood Boro.	Plainfield-Union Water Company.
Fanwood Twp. (Scotch Plains)	Plainfield-Union Water Company.
Far Hills	See Bernards Twp.
Farmingdale Boro.	West Monmouth Water Co.
Flemington Boro.	Flemington Water Company.
Florence Twp. (Roebling)	John A. Roebling's Sons Company.
Fords	See Woodbridge Twp.
Fort Lee	Hackensack Water Company.
Franklin Boro.	New Jersey Zinc Company.
Freehold Town	Town of Freehold.
Frenchtown Boro.	Frenchtown Water Company.
Galloway Twp. (South Egg Harbor)	Egg Harbor City Water Company.
Garfield Boro.	Boro. of Garfield.
Garwood Boro.	Plainfield-Union Water Company.
German Valley	See Washington Twp.
Gibbsboro	See Voorhees Twp.
Gibbstown	See Greenwich Twp.
Gillette	See Passaic Twp.
Glassboro Boro.	Clayton-Glassboro Water Company.
Glen Gardner	See Lebanon Twp. and N. J. Institution.
Glen Lake	See Pitman Boro.
Glen Rock Boro.	Bergen Water Company.
Gloucester City	City of Gloucester.
Gloucester Twp. (Asyla, Camden Co. Inst.)	Camden County Institution.
(Blackwood)	Blackwood Water Company.
(Grenloch)	Grenloch Realty Company.

TABLE NO. 1.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

MUNICIPALITY.	SUPPLIED BY
Grantwood	See Cliffside Park Boro.
Grassell	See Linden Twp.
Greenwich Twp. (Gibbstown)	E. I. duPont de Nemours & Company.
Grenloch	See Gloucester Twp.
Guttenberg Town	Hackensack Water Company.
Hackensack Town	Hackensack Water Company.
Hackettstown Town	Town of Hackettstown.
Haddonfield Boro.	New Jersey Water Service Company. Boro. of Haddonfield.
Haddon Heights Boro.	New Jersey Water Service Company.
Haddon Twp. (Westmont)	Merchantville Water Company.
Haledon Boro.	Boro. of Haledon.
Hamilton Twp. (Atlantic Co.)	Mays Landing Water Department.
Mays Landing	Mays Landing Water Power Company.
Hamilton Twp. (Mercer Co.) (Hamilton Square)	Dr. F. M. Arthur.
(Lakeside Park)	Lakeside Park Land Company.
(White Horse)	W. V. McCalliard.
(White Horse)	Philip Lacy.
(Yardville Heights)	Charles A. Comp.
Hammondtown Town	Town of Hammondtown.
Hampton Boro.	Junction Water Company.
Hanover Twp. (Morris Plains)	New Jersey State Hospital.
(Morris Plains)	Morris Aqueduct Company.
(Mountain Lakes)	Hillcrest Water Company.
(Mount Tabor)	Camp Meeting Association of the Newark Conference, M. E.
Harrington Park Boro.	Hackensack Water Company.
Harrison Twp. (Mullica Hill)	Harrison Heights Improvement Company.
Harrison Town	Montclair Water Company.
Hasbrouck Heights Boro.	Hackensack Water Company.
Haskell	See Pompton Twp.
Haworth Boro.	Hackensack Water Company.
	Haworth Water and Light Company.
Hawthorne Boro.	Boro. of Hawthorne.
Helmetta Boro.	George W. Helme Company.
High Bridge Boro.	Boro. of High Bridge.
Highland Park Boro.	City of New Brunswick.
Highlands Boro.	Boro. of Highlands: J. M. Johnson.
Hightstown Boro.	Boro. of Hightstown.
Highwood	See Palisades Twp.
Hillsdale Boro.	Hackensack Water Company.
Hillside Twp. (Lyons Farms)	Elizabethtown Water Company.
Hilton	See South Orange Twp.
Hoboken City	Hackensack Water Company.
Hohokus Borough	Bergen Water Company.
Hohokus Twp. (Mahwah)	Cragmere Water Company. Albert Winters; John Winters.
Hopewell Boro.	Boro. of Hopewell.
Interlaken	See Ocean Twp.
Irvington Town	Commonwealth Water and Light Company.
Island Heights Boro.	Island Heights Water, Power, Gas and Sewer Company.
Jamesburg Boro.	Jamesburg Water Company.
Jamesburg Institution	See Monroe Twp. (Middlesex Co.) and New Jersey Institution.
Jersey City	City of Jersey City.
Keansburg	See Raritan Twp.
Kearny Town	New Jersey Soldiers' Home.
(Arlington)	Montclair Water Company.
Keasby	See Woodbridge Twp.
Kenilworth Boro.	New Orange Park Water, Light, Heat and Power Company.
Keyport Boro.	Boro. of Keyport.
Kirkwood	See Clementon Twp.
Knowlton Twp. (Delaware)	D. L. and W. R. R. Company.

TABLE NO. 1.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

MUNICIPALITY.	SUPPLIED BY
Lakehurst	See Manchester Twp.
Lakeside Park	See Hamilton Twp. (Mercer Co.)
Lakewood Twp. (Lakewood)	Lakewood Water Company.
Lambertville City	Lambertville Water Company.
Landis Twp. (Training School) (Inst. for Feeble Minded Women)	Institution at Vineland. Institution at Vineland.
Laurel Springs Boro.	Laurel Springs Water Supply Company.
Lawrence Twp. (Fairfield Avenue) (Lawrenceville)	Fairfield Avenue Community Supply. James Hulfish.
Lebanon Twp. (Glen Gardner)	John Hornby. Glen Gardner Water Company. Institution.
(Glen Gardner Sanatorium)	Institution.
Leonia Boro.	Hackensack Water Company.
Lincoln Park	See Pequannock Twp.
Linden Boro. (Union Co.)	Elizabethtown Water Company.
Linden Twp. (Grasselli)	Elizabethtown Water Company.
Lindenwood	See Clementon Twp.
Linwood Boro. (Atlantic Co.)	Atlantic County Water Company.
Little Falls Twp. (Little Falls)	Montclair Water Company.
Little Ferry Boro.	Hackensack Water Company.
Little Silver	See Shrewsbury Twp.
Little York	See Alexandria Twp.
Loch Arbor	See Ocean Township.
Lodi Boro.	Boro. of Lodi. Hackensack Water Company.
Logan Twp. (Bridgeport)	Bridgeport Water Company.
Logansville	See Passaic Twp.
Long Beach Twp. (Beach Haven Terrace) (Brant Beach)	Fidelity Land Company. Beach Haven North Company.
Long Branch City	Tintern Manor Water Company.
Longport Borough	Boro. of Longport.
Lopatcong Twp.	Lopatcong Water Company.
Lumberton Twp. (Lumberton)	Lumberton Light, Water and Sewer Company.
Lyndhurst	See Union Twp. (Bergen Co.).
Lyons Farm	See Hillside Twp.
Madison Boro.	Boro. of Madison.
Madison Twp. (Runyon)	City of Perth Amboy.
Mahwah	See Hobokus Twp.
Manasquan Boro.	Boro. of Manasquan.
Manchester Twp. (Passaic Co.) (North Haledon)	Boro. of Haledon.
Manchester Twp. (Ocean Co.) (Lakehurst)	Lakehurst Sewer Company.
Mansfield Twp. (Columbus)	Columbus Water Company.
Mantoloking Boro.	Louis D. F. Downer.
Mantua Twp. (Mantua) (Sewell)	Job Scott. Sewell Water Company.
Maple Shade	See Chester Twp.
Maplewood	See South Orange Twp.
Margate City	Margate City.
Marlton	See Evesham Twp.
Matawan Boro.	Boro. of Matwan.
Mays Landing	See Hamilton Twp. (Atlantic Co.).
Maywood Boro.	Hackensack Water Company.
Medford Twp. (Medford)	Medford Water Company.
Mendham Boro.	Boro. of Mendham.
Merchantville Boro.	Merchantville Water Company.
Metuchen Boro.	Middlesex Water Company.
Mickleton	See East Greenwich Twp.

TABLE NO. 1.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

MUNICIPALITY.	SUPPLIED BY
Middle Twp. (Cape May Court House)	Neptunus Water Company.
Middlesex Boro.	Piscataway Water Company.
Middletown Twp. (Navesink)	Tintern Manor Water Company.
Midland Twp. (Midland)	Hackensack Water Company.
Midland Park Boro. (Wortendyke)	Bergen Water Company. Bergen Water Company.
Milford Boro.	Mine Springs Water Company. Warren Manufacturing Company.
Millburn Twp. (Millburn) (Short Hills)	Commonwealth Water and Light Company. Short Hills Water Company. Commonwealth Water and Light Company. Commonwealth Water and Light Company.
(Wyoming)	See Passaic Twp.
Millington	Boro. of Milltown.
Milltown Boro.	Millville Water Company.
Millville City	Peoples Water Company. Tintern Manor Water Company.
Monmouth Beach Boro.	C. D. Tice & Son.
Monroe Twp. (Gloucester Co.) (Williamstown)	Monroe Water Company.
Monroe Twp. (Middlesex Co.) (Jamesburg Inst.)	Institution.
Montclair Town	Montclair Water Company.
Montgomery Twp. (Skillman Inst.)	State Institution at Skillman.
Montville Twp. (Towaco)	Plausha Park Land Company.
Moonachie Boro.	Hackensack Water Company.
Moorestown	See Chester Twp.
Morris Plains	See Hanover Twp.
Morris Twp. (Normandy Heights)	Morris Aqueduct Company. Normandy Water Company.
Morristown Town	Morris Aqueduct Company.
Morsemere	See Palisades Park.
Mountain Lakes	See Hanover Twp.
Mount Holly	See Northampton Twp.
Mount Olive Twp. (Bartley)	William Bartley & Sons.
Mount Tabor	See Hanover Twp.
Mullica Hill	See Harrison Twp.
Murray Hill	See New Providence Twp.
Navesink	See Middletown Twp.
Neptune Twp. (Ocean Grove Heights) (Wanamassa) (West Grove) (Whitesville)	Monmouth County Water Company. Monmouth County Water Company. Monmouth County Water Company. Monmouth County Water Company. Monmouth County Water Company.
Neptune City Boro. (West Avon)	Monmouth County Water Company.
Netcong Boro.	Boro. of Netcong.
Netherwood	See Plainfield City.
Newark City (Elizabeth Park)	City of Newark. City of Newark.
Newbold	See Westville Boro.
New Brunswick City	City of New Brunswick.
New Durham	See North Bergen Twp.
New Egypt	See Plumstead Twp.
New Hanover Twp. (Wrightstown)	Wrightstown Water, Electric Light and Sewer Company.
New Jersey State Institutions: (Glen Gardner) N. J. State Tuberculous Sanitarium	See Lebanon Twp.
New Jersey Home for Feeble Minded Women (Vineland)	See Landis Twp.
New Jersey Home for Boys (Jamesburg)	See Monroe Twp. (Middlesex Co.).

TABLE NO. 1.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

MUNICIPALITY.	SUPPLIED BY
New Jersey Reformatory (Rahway)	See Woodbridge Twp.
New Jersey Reformatory for Women	See Clinton.
New Jersey State Hospital (Morris Plains)	See Hanover Twp.
New Jersey State Village for Epileptics (Skillman)	See Montgomery Twp.
New Jersey Home for Disabled Soldiers (Kearney)	See Kearney.
New Jersey Home for Disabled Soldiers and Sailors (Vineland)	See Vineland.
New Jersey State Home for Girls (Trenton)	See Trenton.
New Jersey State Hospital (Trenton)	See Trenton.
New Jersey Training School for Feeble Minded Children (Vineland)	See Landis Twp.
New Jersey State Camp (Sea Girt)	See Wall Twp.
New Lisbon	See Pemberton Twp.
New Market	See Piscataway Twp.
New Milford	See Delford Boro.
New Providence Boro.	Commonwealth Water and Light Company.
New Providence Twp. (Murray Hill)	Commonwealth Water and Light Company.
Newton Town	Town of Newton.
Nordhoff	See Englewood City.
Normandie	See Sea Bright Boro.
Normandy Heights	See Morris Twp.
Northampton Twp. (Mount Holly)	Mount Holly Water Company.
North Arlington Boro.	City of Jersey City.
North Bergen Twp. (New Durham)	Hackensack Water Company.
North Caldwell Boro.	Essex Fells Electric Light and Water Company.
Northfield City	Atlantic County Water Company.
North Hackensack	See Riverside Boro.
North Haledon	See Manchester Twp.
North Plainfield Boro.	Plainfield-Union Water Company.
North Plainfield Twp.	Watchung Water Company.
North Wildwood Boro. (Anglesea)	City of Wildwood.
Norwood Boro.	Hackensack Water Company.
Nutley Town (Avondale)	Montclair Water Company.
Oaklyn Boro.	New Jersey Water Service Company.
Ocean City	Ocean City Water Company.
Ocean Gate	See Berkley Twp.
Ocean Grove Boro.	Ocean Grove Camp Meeting Association.
Ocean Grove Heights.	See Neptune Twp.
Oceanic	See Rumson Boro.
Oceanport	See Eatontown Twp.
Ocean Twp. (Interlaken)	Monmouth County Water Company.
(Loch Arbor)	Monmouth County Water Company.
(West Allenhurst)	Monmouth County Water Company.
(West Asbury Park)	Monmouth County Water Company.
Oldmans Twp. (Pedricktown)	Pennsgrove Water Supply Company.
Oradell	See Delford Boro.
Orange City	City of Orange.
Overbrook	See Clementon Twp.
Overbrook Hospital	See Caldwell Twp.
Overpeck Twp. (Overpeck)	Hackensack Water Company.
(Ridgefield Park)	Hackensack Water Company.
Oxford Twp. (Oxford)	Empire Steel and Iron Company.
Palisades Twp.	Hackensack Water Company.

TABLE NO. 1.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

MUNICIPALITY.	SUPPLIED BY
(Highwood)	Hackensack Water Company.
(Peetzburg)	Hackensack Water Company.
Palisades Park Boro.	Hackensack Water Company.
Palmyra Twp. (Palmyra)	Riverton-Palmyra Water Company.
Passaic City	Montclair Water Company.
Passaic Twp. (Gillette)	Gillette Water Company.
(Logansville)	Bernards Water Company.
(Millington)	Millington Water Company.
(Stirling)	Stirling Water Supply Company.
Paterson City	Montclair Water Company.
Paulsboro Boro.	Paulsboro Water Company.
Peapack-Gladstone Boro. (Bedminster)	Boro. of Peapack-Gladstone.
(Bedminster)	Boro. of Peapack-Gladstone.
Pedricktown	See Oldmans Twp.
Peetzburg	See Palisades Twp.
Pemberton Boro.	Pemberton Twp. Water, Sewerage and Light Company.
Pemberton Twp. (Browns Mills)	The Browns Mills Company.
(New Lisbon)	Burlington County Water Company.
(Camp Dix)	Camp Dix Supply.
Pennington Boro.	Pennington Spring Water Company.
Pennsgrove Boro.	Pennsgrove Water Supply Company.
Pensaiken Twp. (Delair)	Amon Heights Water Company.
(Pensaiken)	Merchantville Water Company.
Pequanock Twp. (Lincoln Park)	Mountain Heights Water Company.
Perth Amboy City	City of Perth Amboy.
Phillipsburg Town	Lehigh Water Company.
	Lopatcong Water Company.
	Peoples Water Company.
Piscataway Twp. (South Plainfield)	Middlesex Water Company.
(East Bound Brook)	Bound Brook Water Company.
(New Market)	Watchung Water Company.
(Piscataway)	Plainfield-Union Water Company.
Pitman Boro.	Pitman Water Company.
	N. J. Conference Camp Meeting Association.
(Glen Lake)	C. G. Justice.
Plainfield City	Middlesex Water Company.
(Netherwood)	Plainfield-Union Water Company.
Pleasantville City	Atlantic County Water Company.
Pluckemin	See Bridgewater Twp.
Plumstead Twp. (New Egypt)	New Egypt Light, Heat, Power and Water Company.
Pohatcong Twp. (Riegelsville)	Mrs. Lee S. Clymer.
Point Pleasant Beach Boro. (Point Pleasant)	Point Pleasant Water Works Company.
Pompton Lakes Boro.	Boro. of Pompton Lakes.
Pompton Twp. (Bloomingdale)	Butler Water Company.
(Haskell)	E. I. duPont de Nemours & Company.
Port Reading	See Woodbridge Twp.
Princeton	Princeton Water Company.
Prospect Park Boro.	Montclair Water Company.
Quinton Twp. (Quinton)	City of Salem.
Rahway City	City of Rahway.
	Middlesex Water Company.
Ramsey Boro.	Boro. of Ramsey.
Raritan Town	Somerville Water Company.
Raritan Twp. (Keansburg)	Middlesex Water Company.
	Ideal Beach Water Company.
	Keansburg Beach Water Company.
	Keansburg Water Company.

TABLE NO. 1.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

MUNICIPALITY.	SUPPLIED BY
Red Bank Boro.	Boro. of Red Bank.
Ridgefield Boro.	Hackensack Water Company.
Ridgefield Park	See Overpeck Twp.
Ridgewood Village	Bergen Water Company.
Riegelsville	See Pohatcong Twp.
River Edge	See Riverside Boro.
Riverside Boro. (Bergen Co.)	Hackensack Water Company.
(North Hackensack)	Hackensack Water Company.
(River Edge)	Hackensack Water Company.
Riverside Twp.	Hackensack Water Company.
(Riverside, Burlington Co.)	Delaware River Water Company.
Riverton Boro.	Riverton-Palmyra Water Company.
Rochelle Park	See Saddle River Boro.
Rockaway Boro.	Boro. of Rockaway.
Roebling	See Florence Twp.
Roosevelt Boro.	Middlesex Water Company.
Roseland Boro.	Essex Fells Electric Light and Water Company.
Roselle Boro.	Plainfield-Union Water Company.
Roselle and Cranford Boros.	
(Aldene)	Plainfield-Union Water Company.
Roselle Park Boro.	Plainfield-Union Water Company.
Rumson Boro.	Rumson Improvement Company.
(Oceanic)	Tintern Manor Water Company.
Runyon	See Madison Twp.
Rutherford Boro.	Hackensack Water Company.
Saddle River Boro.	
(Rochelle Park)	Arthur Brooks; William Colling. Deeks & Peeks; Mrs. Henry Theim.
Sayreville Twp.	
(Sayreville)	C. W. Fisher.
Salem City	City of Salem.
Scotch Plains	See Fanwood Twp.
Sea Bright Boro.	Tintern Manor Water Company.
(Normandie)	Tintern Manor Water Company.
Sea Girt	See Wall Twp.
Sea Isle City	Sea Isle City Water Company.
Sea Side Heights Boro.	Boro. of Sea Side Heights.
Seaside Park Boro.	Boro. of Seaside Park.
Secaucus Boro.	Hackensack Water Company.
Sewaren	See Woodbridge Twp.
Sewell	See Mantua Twp.
Short Hills	See Millburn Twp.
Shrewsbury Twp.	
(Little Silver)	Tintern Manor Water Company.
(Shrewsbury)	Tintern Manor Water Company.
Skillman	See Montgomery Twp. and N. J. Institute.
Smithville	See Easthampton Twp.
Somerdale	See Clementon Twp.
Somers Point City	Atlantic County Water Company.
Somerville Boro.	Somerville Water Company.
South Amboy	City of Perth Amboy.
Southampton Twp.	
(Vincentown)	Vincentown Water Company.
South Bound Brook Boro.	Bound Brook Water Company.
South Cape May Boro.	City of Cape May.
South Egg Harbor	See Galloway Twp.
South Orange Village	Village of South Orange.
South Orange Twp.	Commonwealth Water and Light Company.
(Maplewood)	Commonwealth Water and Light Company.
(Hilton)	Commonwealth Water and Light Company.
South Plainfield	Commonwealth Water and Light Company.
South River Boro.	See Piscataway Twp.
Sparta Twp.	Boro. of South River.
(Sparta)	
Springfield Twp.	Andrew Foulds; David Fisher; R. M. Smith.
(Springfield)	
Spring Lake Boro.	Short Hills Water Company.
Stanhope Boro.	Boro. of Spring Lake.
Stanwick	Boro. of Stanhope.
Stirling	See Chester Twp.
Stockton Boro.	See Passaic Twp.
Stone Harbor Boro.	Boro. of Stockton.
	Boro. of Stone Harbor.

TABLE NO. 1.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

MUNICIPALITY.	SUPPLIED BY
Stratford	See Clementon Twp.
Strathmere	See Upper Twp.
Summit City	Commonwealth Water and Light Company.
Surf City Boro.	Surf City Water Company.
Sussex Boro.	Boro. of Sussex.
Swedesboro Boro.	Woolwich Water Company.
Teaneck Twp.	
(Teaneck)	Hackensack Water Company.
Tenafly Boro.	Hackensack Water Company.
Tewkesbury Twp.	
(Califon)	Dr. I. Topkins. Califon Water Company.
Toms River	See Dover Twp.
Towaco	See Montville Twp.
Trenton City	City of Trenton.
(N. J. State Home for Girls)	Institution.
(N. J. State Asylum)	Institution.
Tuckerton Boro.	Tuckerton Water Company.
Union, Town of	Hackensack Water Company.
Union Twp. (Union Co.)	
(Union)	Elizabethtown Water Company.
Union Twp. (Bergen Co.)	
(Lyndhurst)	City of Jersey City.
Upper Twp.	
(Corson's Inlet)	Corson's Inlet Water Company.
(Strathmere)	Corson's Inlet Water Company.
Ventnor City	City of Ventnor.
Verona Boro.	Essex Fells Electric Light and Water Company.
Vincentown	See Southampton Twp.
Vineland Boro.	Boro. of Vineland.
(N. J. Home for Feeble-Minded Women)	See Landis Twp.
(N. J. Home for Soldiers and Sailors)	Institution.
(N. J. Training School for Feeble-Minded Children)	See Landis Twp.
Voorhees Twp.	
(Gibbsboro)	John Lucas & Company.
Wall Twp.	
(Sea Girt)	Sea Girt Water Company.
(N. J. State Camp)	State Quartermaster-General's Department.
Wallington Boro.	Boro. of Wallington.
Wanamassa	See Neptune Twp.
Washington Boro.	Washington Water Company.
Washington Twp.	
(German Valley)	German Valley Water Company; E. C. Welsh; M. T. Welsh.
Watsontown	See Clementon Twp.
Weehawken Twp.	Hackensack Water Company.
Wenonah Boro.	Boro. of Wenonah.
West Allenhurst	See Ocean Twp.
West Asbury Park	See Ocean Twp.
West Avon	See Neptune City Boro.
West Caldwell Boro.	Essex Fells Electric Light and Water Company.
West Cape May Boro.	City of Cape May.
Westfield Town	Plainfield-Union Water Company.
West Grove	See Neptune Twp.
West Hoboken Town	Hackensack Water Company.
West Long Branch Boro.	Tintern Manor Water Company.
West Milford Twp.	
(Awosting)	The Ringwood Company.
Westmont	See Haddon Twp.
West New York Town	Hackensack Water Company.
West Orange Town	Montclair Water Company.
West Paterson Boro.	Van Dyne Estate.
West Point Pleasant	See Brick Twp.
Westville Boro.	Westville-Newbold Water Company.
(Newbold)	Westville-Newbold Water Company.
Wharton Boro.	R. M. Oram.
White Horse	See Hamilton Twp. (Mercer Co.).
Whitesville	See Neptune Twp.
Wildwood City	City of Wildwood.

MUNICIPALITY.	SUPPLIED BY
Wildwood Crest Boro.	City of Wildwood.
Williamstown	See Monroe Twp. (Gloucester Co.).
Woodbine Boro.	Woodbine Land and Improvement Company.
Wood Ridge Boro.	Hackensack Water Company.
Woodbridge Twp.	City of Perth Amboy.
(Carteret)	Middlesex Water Company.
(Chrome)	Middlesex Water Company.
(Colonia)	Middlesex Water Company.
(Fords)	Middlesex Water Company.
(Keasby)	Middlesex Water Company.
(Port Reading)	Middlesex Water Company.
(Sewaren)	Middlesex Water Company.
(Woodbridge)	Middlesex Water Company.
(N. J. Reformatory)	City of Rahway.
Woodbury City	City of Woodbury.
Woodbury Heights Boro.	City of Woodbury.
Woodclife Lake Boro.	Hackensack Water Company.
Woodlynne Boro.	Merchantville Water Company.
Woodstown Boro.	Boro. of Woodstown.
Wortendyke	See Midland Park Boro.
Wrightstown	See New Hanover Twp.
Wyoming	See Millburn Twp.
Yardville Heights	See Hamilton Twp. (Mercer Co.).

In the following table, No. 2, there is given a list of the water-supply companies, departments, or systems, with information as to the source of supply, the character of the treatment processes utilized, the approximate maximum and average daily water consumption in thousands of gallons, and a rating as to the quality and condition of the water supplied. Obviously, it is impossible in any rating system consisting of one of the following words: poor, fair, good, very good, to adequately and justly classify them unless accompanied by many supplementary remarks. The rating in the table should, therefore, be considered as an approximate one, of use primarily to indicate to persons interested, those supplies which might receive more care and attention, and where further treatment or construction of additional works are required:

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maximum.	Average.	
Allen, Frank B. (Bernardsville.)	2 springs				46 Fair.
Allendale (Municipal.)	Supplied by Ramsey Bor.				Very good.
Allenhurst (Municipal.)	5 wells	Lime, sedimentation, pressure filter for iron removal	256	131	Very good.
Allentown (Municipal.)	Tributary to Doctor's creek	Mechanical filtration.	30	26	Good.
Amon Heights Water Co. (Pensauken Twp.) (Formerly J. N. Wilkins supply.)	2 wells, 71-121 ft.			16	Very good.
Arthur, Dr. F. M. (Hamilton Square.)	1 well, 142 ft.				New supply.
Asbury Park (Municipal.)	9 wells, 1100 ft.	Aeration and pressure filter for iron removal	2,000	1,000	Very good.
Atlantic City (Municipal.)	31 wells, 100-200 ft., Absecon creek.	Chlorine disinfection on surface water.	12,000	8,080	Good.
Atlantic County Water Co. of N. J. (Pleasantville.) (Absecon.) (Egg Harbor Twp.) (Linwood Bor.) (Northfield.) (Somers Point.)	Bargaintown pond.				Good.
Atlantic Highlands (Municipal.)	8 wells, 100-600 ft.	Aeration and pressure filters for iron removal	530	350	Very good.
Avalon (Municipal.)	2 wells, 925 ft.			60	Very good.
Barnegat Water Co. (Barnegat.)	1 well, 152 ft.			40	Very good.
Bartley, Wm. & Sons. (Bartley.)	Springs				Very good.
Bay Head Artesian Water Co. (Bay Head.)	4 wells, 700-900 ft.		265	190	Very good.
Beach Haven (Municipal.)	2 wells, 575 ft.		225	158	Very good.
Beach Haven North Co. (Brant Beach.)	1 deep well, 570 ft.		665	326	Very good.
Belmar (Municipal.)	8 wells, 655 ft.				3 Very good.
Belvidere Water Co. (Belvidere.)	Delaware river, 2 emergency wells.	Chlorine disinfection.	208	178	Good.
Bergen Water Co. (Wortendyke.) (Glen Rock.) (Hohokus.) (Midland Park.) (Ridgewood.)	8 wells, 200-260 ft.	Hypo disinfection.	1,250	977	Good.
Bernards Water Co. (Bernardsville.) (Basking Ridge.) (Logansville.)	Passaic river, Emergency by-pass.	Chlorine disinfection.	65	59	Fair.
Blackwood Water Co. (Blackwood.)	4 wells, 45-60 ft.	Aeration and gravity sand filtration for iron removal	45	32	Very good.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maxi- mum.	Aver- age.	
Blairstown Water Co. (Blairstown.)	1 well, 300 ft. Emergency.			100	Good.
Bloomsbury Water Co. (Bloomsbury.)	Paulin's Kill. Springs Pine Hollow br'k as emergency.			70	Poor.
Bogota Water & Light Co. (Bogota.)	1 well, 180 ft.			50	Very good.
Bordentown (Municipal.)	Springs, underdrains and well, 30 ft.			400	Good.
Bound Brook Water Co. (Bound Brook.) (Piscataway Twp.) (East Bound Brook.) (South Bound Brook.)	Middle brook, 20 wells, 125-150 ft. Emergency by-pass.	Pressure filters and chlorine disinfection		1,800	Good.
Branchville (Municipal.)	Dry brook				Fair.
Branchville Water, Light & Power Co. (Branchville.)	Culver's lake and No. branch of Paulin's kill.				Fair.
Bridgeport Water Co. (Bridgeport.)	4 wells, 40 ft.				Very good.
Bridgeton (Municipal.)	West branch of Cohansey river.	Mechanical filtration and chlorine disinfection	2,600	2,070	Very good.
Brooks, Arthur (Rochelle Park.)	1 well, 90 ft.			7	Good.
Brown's Mills Co., The.... (Brown's Mills.)	1 well, 300 ft.			50	Good.
Buckhorn Springs Water Co. (Belvidere.)	Buckhorn cr'k.			125	Fair.
Burlington (Municipal.)	Delaware river. Emergency by-pass.	Mechanical filtration and hypochlorite disinfection	1,330	1,156	Good.
Burlington County Water Co. (New Lisbon.)	2 wells, 392 ft. Emergency, Rancocas creek, Stone House cr'k, Aphawa brook.			45	Very good.
Butler Water Co. (Butler.) (Bloomingdale.)				240	Fair.
Califon Water Co. (Califon.)	2 springs				Good.
Camden (Municipal.)	106 wells, 96-130 ft.			12,000	Very good.
Camden County Asylum & Almshouse (Asyla.) (Gloucester Twp.)	2 wells, 150-247 ft.				Good.
Camp Meeting Association of Newark Conference, M. E. (Mount Tabor.)	2 springs and 2 wells, 30-40 ft.			100	Very good.
Cape May City (Municipal.) (South Cape May.) (West Cape May.)	30 wells, 130-575 ft. 2 dug wells, 30 ft.			975	Very good.
Cape May Point (Municipal.)	1 well, 602 ft., 4 wells, 16-20 ft.			12	Good.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maxi- mum.	Aver- age.	
Cedar Lake Water Co. (Denville.)	Springs				New supply.
Chatham (Municipal.)	6 wells, 98-326 ft.			270	Very good.
Clayton - Glassboro Water Co. (Clayton.) (Glassboro.)	6 wells, 100 ft.			200	Very good.
Clementon Springs Water Co. (Clementon.) (Watsontown.)	2 wells, 172-178 ft. Emergency, north side of Bottom lake.			100	Good.
Clinton Water and Water Supply Co. (Clinton.) (Annandale.)	Beaver brook, Springs and dug well, 20 ft.			85	Fair. Good.
Clinton (Reformatory.)	Springs			20	Good.
Clymer, Mrs. Lee S. (Riegelsville.)	7 springs			5	Very good.
Colling, Wm. (Rochelle Park.)	1 well, 112 ft.				
Columbus Water Co. (Columbus.)	2 wells, 225-300 ft.			10	Very good.
Commonwealth Water and Light Co. (Summit.) (Elizabeth.) (Hilton.) (Irvington.) (Maplewood.) (Millburn.) (Murray Hill.) (New Providence.) (Short Hills.) (South Orange.) (South Orange Twp.) (Wyoming.)	47 wells, 40-394 ft.		3,200	2,944	Good.
Comp. C. A. (Yardville Heights.)	Spring				2 Good.
Corson's Inlet Water Co. (Corson's Inlet.) (Strathmere.)	1 well, 856 ft.			20	Very good.
Cragmere Water Co. (Cragmere Park.) (Mahwan.)	3 wells, 300-600 ft.			30	Very good.
Cranbury Water Co. (Cranbury.)	2 wells, 115-267 ft.	Aeration and lime for carbon dioxide re- moval		22	Very good.
Crosswicks Water Co. (Crosswicks.)	Spring collecting underdrains			7	Good.
Deeks & Peeks, Messrs. (Rochelle Park.)	1 well, 200 ft.			4	Very good.
D. L. & W. R. R. Co. (Delaware.)	1 spring				Poor.
Delaware River Water Co., (Beverly.) (Delanco.) (Edgewater Park.) (Riverside.)	12 wells, 60-70 ft.			500	Very good.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maxi- mum.	Aver- age.	
Dover (Municipal.)	7 wells, 86-200 ft., and springs.....	Hypochlorite disinfection		500	Good.
Downer, Louis D. F. (Mantoloking.)	3 wells, 900-1000 ft..	.....	20	9	Very good.
du Pont de Nemours & Co., E. I. (Haskell.)	Spring and dug wells, 25-30 ft..	.....		300	Good.
du Pont de Nemours & Co., E. I. (Gibbstown.)	2 dug wells, 13 ft., 1 well, 90 ft..	.....		6	Very good.
East Orange (Municipal.) (Ampere.) (Brick Church.)	40 wells, 115-260 ft..	.....	2,735		Good.
Egg Harbor City Water Co. (Egg Harbor.) (South Egg Harbor.)	3 wells, 132-400 ft..	.....		190	Very good.
Eichler, August (Mickleton.)	1 well, 170 ft..	.....		2	Very good.
Elizabethtown Water Co.. (Elizabeth.) (Lyons Farms.) (Linden Bor.) (Linden Twp.) (Union.) (City of Newark.)	110 wells, 125-135 ft., Elizabeth river..	Sedimentation and chlorine disinfection	16,700		Good.
Elmer Water Co..... (Elmer.)	1 well, 110 ft..	.....		18	Very good.
Empire Steel & Iron Co... (Oxford.)	10 springs .....	.....			Good.
Essex Fells Electric Light and Water Co..... (Essex Fells.) (Caldwell.) (North Caldwell.) (Roseland.) (Verona.) (West Caldwell.)	6 wells, 36-110 ft..	.....		212	Good.
Fairfield Avenue Commu- nity Supply (Lawrence Twp.) (Formerly C. F. Reid's supply.)	1 well, 71 ft..	.....			Good.
Fidelity Land Co..... (Beach Haven Terrace.)	1 well, 595 ft..	.....			Very good.
Fisher, David (Sparta.)	Springs .....	.....			Good.
Flemington Water Co..... (Flemington.)	1 well, 405 ft., Mine springs, So. Branch of Raritan river..	Mechanical filtration and hypochlorite disinfection	366	306	Good. Poor.
Foulds, A. W. (Sparta.)	Spring .....	.....		
Freehold (Municipal.)	16 wells, 60-500 ft..	.....		350	Very good.
Frenchtown Water Co.... (Frenchtown.)	Nishisakawick creek..	Chlorine disinfection,		100	Good.
Garfield (Municipal.)	12 wells, 200-500 ft..	.....		750	Very good.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maxi- mum.	Aver- age.	
German Valley Water Co.. (German Valley.)	Spring field and underdrains..	.....			2 Good.
Gillette Water Co..... (Gillette.)	1 well, 410 ft..	.....		
Glen Gardner (N. J. Sanatorium.)	Rocky Run brook..	Mechanical filtration and hypochlorite disinfection			75 Good. Good.
Glen Gardner Water Co... (Glen Gardner.)	Springs .....	.....		
Gloucester City (Municipal.)	16 wells, 91-174 ft., Emergency supply from Newton creek.	Aeration, gravity sand filtration for iron removal; chlorine disinfection on emergency supply	2,011	1,816	Very good.
Grenloch Realty Co..... (Grenloch.) (Formerly Bateman Mfg. Co. supply.)	2 wells, 100-160 ft..	.....			39 Very good.
Hackensack Water Co.... (New Milford.) (Bergenfield.) (Carlstadt.) (Carlton Hill.) (Cliffside Park.) (Closter.) (Coytesville.) (Cresskill.) (Demarest.) (Dumont.) (East Rutherford.) (Edgewater.) (Emerson.) (Englewood.) (Englewood Cliffs.) (Fairview.) (Fort Lee.) (Grantwood.) (Guttenberg.) (Hackensack.) (Harrington Park.) (Hasbrouck Heights.) (Haworth.) (Highwood.) (Hillsdale.) (Hoboken.) (Leonia.) (Little Ferry.) (Lodi.) (Maywood.) (Midland Park.) (Moonachie.) (Morsemere.) (New Durham.) (Nordorff.) (North Bergen Twp.) (North Hackensack.) (Norwood.) (Oradell.) (Overpeck.) (Palisades Park.) (Palisades Twp.) (Peetsburg.) (Ridgefield.)	Hackensack river..	Mechanical filtration and hypochlorite disinfection	37,330	31,460	Very good.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maxim.	Average.	
Hackensack Water Co.— (Con.) (Ridgefield Park.) (Riverside.) (River Edge.) (Rutherford.) (Secaucus.) (Teaneck.) (Tenafly.) (Union Town.) (Weehawken.) (West Hoboken.) (West New York.) (Woodcliffe Lake.) (Woodbridge.)	Mine Hill brook, Mine brook and spring.....			425	Good.
Hackettstown (Municipal.)	4 wells, 218-229 ft..			300	Good.
Haddonfield (Municipal.)	1 well, 238 ft..			1	Very good.
Haines, Mrs. Jeremiah (Mickleton.)	Tributary of Passaic river..	Slow sand filtration..		350	Good.
Haledon (Municipal.) (North Haledon.)	7 wells, 180-304 ft..			150	Very good.
Hammonton (Municipal.)	2 wells, 260 ft..		208	92	Very good.
Harrison Heights Imp. Co., (Mullica Hill.)	1 well, 185 ft..			10	Very good.
Haworth Water and Light Co. (Haworth.)	3 wells, 113-250 ft..			190	Very good.
Hawthorne (Municipal.)	1 well, 280 ft., 2 wells, 24-32 ft..	Permutit pressure filter for iron removal	27	22	Very good.
High Bridge (Municipal.)	Springs and Willoughby br'k.	Chlorine disinfection,		125	Fair.
Highlands (Municipal.)	3 wells, 213-650 ft..	Aeration and gravity sand filtration for iron removal	177	106	Very good.
Hightstown (Municipal.)	5 wells, 200 ft..	Aeration, lime and gravity sand filtration for iron and carbon dioxide removal	433	386	Good.
Hillcrest Water Co. (Mountain Lakes.)	8 wells, 341-469 ft..			20	Very good.
Hopewell (Municipal.)	4 wells, 234-500 ft. (Only 2 used.)			15	Good.
Hornby, John (Glen Gardner.)	Springs				Good.
Hulfish, James (Lawrenceville.)	2 wells, 65 ft..			10	Good.
Ideal Beach Water Co. (Keansburg.)	1 well, 163 ft..	Aeration and gravity sand filtration for iron removal		35	Very good.
Island Heights (Municipal.)	4 wells, 50-350 ft..		150	70	Good.
Jamesburg (State Home for Boys.)	2 wells, 500 ft..			75	Very good.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maxim.	Average.	
Jamesburg Water Co..... (Jamesburg.)	3 wells, 75 ft..			60	Very good.
Jersey City	Rockaway river,	Chlorine disinfection,	57,000	54,500	Good.
(Municipality.) (Lyndhurst.) (North Arlington.)					
Johnson, J. M..... (Highlands.)	1 well, 153 ft., Spring	Aeration and pressure filtration for iron removal	44	40	Good.
Junction Water Co..... (Hampton.)	12 springs and Rocky run, 1 well, 327 ft.,			164	Very good.
Justice, C. G..... (Pittman.) (Glen Lake.)	1 well, 250 ft..			16	Very good.
Keansburg Beach Water Co. (Keansburg.)	1 well, 321 ft..	Aeration and pressure filtration for iron removal	35	18	Very good.
Keansburg Water Co..... (Keansburg.)	2 wells, 300 ft..	Aeration and gravity sand filtration for iron removal	720	192	Very good.
Kearny	1 well, 612 ft..			230	Very good.
(N. J. Soldiers' Home.)					
Keport (Municipal.)	6 wells, 240 ft. (4 used.)	Aeration and gravity sand filtration for iron removal	450	300	Very good.
Lacy, Phillip	1 well, 60 ft..				Very good.
(White Horse.)					
Lakehurst Sewer Co..... (Lakehurst.)	1 well, 125 ft..			10	Very good.
Lakeside Park Land Co... (Mercer County.)	1 well, 94 ft..			3	Very good.
Lakeside Park Water Co.. (Kirkwood.)	1 well, 106 ft..	Aeration and gravity sand filtration for iron removal	9	4	Very good.
Lakewood Water Co..... (Lakewood.)	3 wells, 650 ft., 3 dug wells, 20 ft..			784	Good.
	Emergency supply, So. branch Metedeconk river.				
Lambertville Water Co... (Lambertville.)	Springs and tributary to Delaware river..	Slow sand filtration..		300	Good.
Laurel Springs Water Supply Co. (Laurel Springs.) (Overbrook.) (Somerdale.) (Stratford.)	9 wells, 96-500 ft..			100	Very good.
Lehigh Water Co..... (Phillipsburg, N. J.) (Easton, Pa.)	Delaware river..	Hypochlorite disinfection. Infiltration gallery.		25	Good.
Little York Community Supply	Spring	Mechanical filtration at times,		2	Fair.
(Little York.) (Formerly Stewart Eckel Supply.)					
Lodi	2 wells, 305-320 ft..			150	Very good.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maxi- mum.	Aver- age.	
Longport (Municipal.)	2 wells, 850-855 ft.		200	140	Good.
Lopatcong Water Co. (Phillipsburg.) (Lopatcong Twp.)	Merrill brook			800	Fair.
Lucas, John & Co. (Gibbsboro.)	2 wells, 160 ft.			123	Very good.
Lumberton Light, Water & Sewerage Co. (Lumberton.)	So. branch of Rancocas creek			20	Poor.
Madison (Municipal.)	9 wells, 86-160 ft.			350	Very good.
Manasquan (Municipal.)	6 wells, 48-150 ft.		125	68	Very good.
Maple Shade Water Co. (Maple Shade.)	1 well, 385 ft.	Aeration and gravity sand filtration for iron removal		6	5 Very good. Good.
Margate City (Municipal.)	2 wells, 815 ft.		150	130	Good.
Marlton Water Co. (Marlton.)	1 well, 216 ft.			20	Very good.
Matawan (Municipal.)	3 wells, 200-325 ft.	Aeration and gravity sand filtration for iron removal		200	180 Very good. 60 Very good.
Mays Landing (Municipal.)	2 wells, 250 ft.				
Mays Landing Water Power Co. (Mays Landing.)	Great Egg Har- bor river, Lake Lenape				Good.
McGalliard, W. H. (White Horse.)	1 well, 70 ft.			6	Good.
Medford Water Co. (Medford.)	Rancocas creek			40	Poor.
Mendham (Municipal.)	3 springs & brook tributary to N. branch of Rar- itan river				43 Very good.
Merchantville Water Co. (Merchantville.) (Audubon.) (Camden.) (Collingswood.) (Delair.) (Pensauken.) (Westmont.) (Woodlyne.)	10 wells, 75-145 ft.	Aeration and pressure filters for iron re- moval			750 Very good.
Middlesex Water Co. (Plainfield.) (Rahway.) (Carteret.) (Chrome.) (Colonia.) (Elizabeth.) (Fords.) (Keasby.) (Metuchen.) (Port Reading.) (Piscataway Twp.) (Raritan Twp.) (Roosevelt.) (Sewaren.) (South Plainfield.) (Woodbridge.) (Woodbridge Twp.)	18 wells, 300 ft., Rahway river	Pressure filters and hypochlorite disin- fection	5,800	5,168	Good.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maxi- mum.	Aver- age.	
Millington Water Co. (Millington.)	2 wells, 16 x 20 ft.				12 Very good.
Milltown (Municipal.)	Spring water, Infiltration gallery				22 Very good.
Millville Water Co. (Millville.)	Union lake and Maurice river, 14 wells, 135-400 ft.	Mechanical filtration and chlorine disin- fection	2,875	1,980	Good.
Mine Spring Water Co. (Milford.)	1 dug well, 20 x 24 ft.				26 Very good.
Monmouth County Water Co. (Neptune Twp.) (Asbury Park.) (Avon.) (Bradley Beach.) (Interlaken.) (Loch Arbor.) (Neptune City.) (Ocean Grove Heights.) (Wanamassa.) (West Grove.) (West Avon.) (West Allenhurst.) (West Asbury Park.) (Whitesville.)	Jumping brook, 9 wells, 590-1125 ft., Auxiliary supply at Whitesville.	Mechanical pressure filtration, and lime addition with sedi- mentation for iron removal	1,640	983	Good.
Monroe Water Co. (Williamstown.)	3 wells, 112-124 ft.				30 Very good.
Montclair Water Co. (Little Falls.) (Arlington.) (Athenia.) (Avondale.) (Bayonne.) (Bloomfield.) (Clifton.) (East Newark.) (Harrison.) (Kearny.) (Montclair.) (Nutley.) (Overbrook Hospital.) (Passaic.) (Paterson.) (Prospect Park.) (West Orange.)	Passaic river	Mechanical filtration and chlorine disin- fection	46,200	40,550	Very good.
Moorestown (Municipal.)	5 wells, 112-480 ft.	Aeration, sedimenta- tion and gravity sand filtration for iron removal			500 403 Very good.
Morris Aqueduct Co. (Morristown.) (Morris Plains.) (Morris Twp.)	Emergency supply from Pensauken creek, 8 wells, 45-60 ft., 6 springs				300 Very good.
Morris Plains (N. J. State Hospital.)	Tributary to Whippany river and springs	Chlorine disinfection,	934	743	Good.
Mountain Heights Water Co. (Lincoln Park.)	2 springs				Good.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maximum.	Average.	
Mount Holly Water Co. (Mount Holly.)	Rancocas creek.	Mechanical filtration and hypochlorite disinfection	486	417	Good.
Neptunus Water Co. (Cape May Ct. House.)	3 wells, 35 ft.			30	Very good.
Netcong (Municipal.)	Spring under-drains & brook.			50	Good.
Newark (Municipal.) (Belleville.) (Elizabeth.)	Pequannock river.	Chlorine disinfection.	52,000	48,560	Very good.
New Brunswick (Municipal.) (Highland Park.)	Lawrence brook.	Aeration, mechanical filtration and chlorine disinfection	6,500	5,870	Good.
New Egypt Light, Heat, Power & Water Co. (New Egypt.)	1 well, 238 ft. Emergency supply, Crosswicks creek.			70	Very good.
New Jersey Coast Water Co. (Ocean Gate.)	1 well, 376 ft.			20	Very good.
New Jersey Conference Camp Meeting Ass'n. (Pitman.)	2 wells, 185 ft.		45	24	Very good.
New Jersey Water & Light Co. (Deal.)	6 wells, 380-585 ft.		900	420	Very good.
New Jersey Water Service Co. (Haddonfield.) (Audubon.) (Haddon Heights.) (Lindenwood.) (Oaklyn.)	2 wells, 190-193 ft., Spring under-drains.			450	Good.
New Jersey Zinc Co. (Franklin.)	Walkkill river.	Mechanical filtration and hypochlorite disinfection		290	Very good.
New Orange Park Water, Heat, Light & Power Co. (Kenilworth.)	1 well, 275 ft.			10	Very good.
Newton (Municipal.)	Morris lake.			750	Very good.
Normandy Water Co. (Normandy Heights.)	27 wells, 80-90 ft.			78	Very good.
Ocean City Water Co. (Ocean City.)	4 wells, 840 ft.		1,802	584	Very good.
Ocean Grove Camp Meeting Ass'n. (Ocean Grove.)	27 wells, 400-1100 ft.			1,000	Very good.
Oram, R. F. (Wharton.)	2 springs			20	Good.
Orange (Municipal.)	West branch of Rahway river.	Chlorine disinfection.	2,290	2,090	Good.
Pausiboro Water Co. (Pausiboro.)	7 wells, 65 ft.			96	Very good.
Peapack-Gladstone (Municipal.) (Far Hills.) (Bedminster.)	Emerson pond.			150	Good.
Peapack, J. L. (Peapack-Gladstone.)	Springs				Good.
Pemberton Twp. Water, Sewerage & Light Co. (Pemberton.)	No. branch of Rancocas creek.			70	Fair.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maximum.	Average.	
Pennington Spring Water Co. (Pennington.)	2 springs, 2 wells, 156-186 ft.				20 Good.
Pennsgrove Water Supply Co. (Pennsgrove.) (Pedricktown.)	6 wells, 158-180 ft., Emergency supply, Beaver creek.	Aeration, sedimentation and gravity filtration for iron removal. Mechanical filtration for emergency supply with hypochlorite disinfection.			315 273 Very good.
Peoples Water Co. (Phillipsburg.)	Infiltration gallery for springs and Delaware river				1,500 Very good.
Peoples Water Co. (Millville.)	6 wells, 112 ft.	Aeration and pressure filtration for iron removal	1,060	892	Very good.
Perth Amboy (Municipality.) (Runyon.) (South Amboy.) (Woodbridge Twp.)	136 gr'nd storage wells, 80 ft., 14 wells, 260 ft., Deep run	Aeration and gravity sand filtration for iron removal on deep wells. Chlorine disinfection on surface water			12,000 Very good.
Piscataway Water Co. (Middlesex Bor.) (Elizabeth.)	19 wells, 125 ft.	Chlorine disinfection.	1,765	1,640	Very good.
Pitman Water Co. (Pitman.)	2 wells, 220-500 ft.	Aeration			58 Very good.
Plainfield-Union Water Co. (Netherwood.) (Aldene.) (Cranford.) (Elizabeth.) (Fanwood.) (Garwood.) (North Plainfield.) (Piscataway.) (Plainfield.) (Roselle.) (Roselle Park.) (Scotch Plains.) (Westfield.)	38 wells, 70-500 ft.				6,000 Very good.
Plausha Park Land Co. (Towaco.)	1 well, 200 ft.				Good.
Point Pleasant Water W'ks Co. (Point Pleasant.) (Pt. Pleasant B'ch Bor.) (West Point Pleasant.)	12 wells, 30 ft.		300	146	Very good.
Pompton Lakes (Municipal.)	Storage well with tile under-drains, 15 ft.	Chlorine disinfection.	220	200	Good.
Princeton Water Co. (Princeton.)	4 wells, 300-500 ft.				600 Very good.
Rahway (Municipal.)	Rahway river.	Mechanical pressure filtration, chlorine disinfection	2,620	2,295	Good.
Ramsey Bor. (Municipal.) (Allendale.)	3 wells, 127-240 ft., 1 dug well, 28 ft.				10 Very good.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maxi- mum.	Aver- age.	
Red Bank (Municipal.)	5 wells, 190-260 ft., 1 dug well, 75 ft.	Aeration and sedi- mentation for iron removal.	745	605	Good. Very good.
Ringwood Co., The (Awostring)	1 well, 136 ft.				
Riverton-Palmyra Water Co. (Riverton.) (Cinnaminson Twp.) (Palmyra.)	4 wells, 20-260 ft.			600	Very good.
Rockaway (Municipal.)	2 wells, 245-300 ft. Emergency supply from Mt. Hope and Crossway brooks.			200	Fair.
Roebbling, John A., Sons' Co. (Roebbling.)	Delaware river.	Mechanical filtration and chlorine disin- fection	360	320	Good.
Rumson Improvement Co., (Fair Haven.) (Rumson.)	5 wells, 191-335 ft.	Aeration and gravity sand filtration for iron removal	95	61	Very good.
Salem (Municipal.) (Quinton.)	34 wells, 110-286 ft., Tributary of Alloway creek.	Chlorine disinfection.	1,035	900	Fair.
Scott, Job (Mantua.)	4 wells, 120-201 ft.			20	Fair.
Sea Girt Water Co. (Sea Girt.)	1 dug well, 30 ft.			30	Very good.
Sea Isle City Water Co. (Sea Isle City.)	1 well, 863 ft.			312	Very good.
Sea Side Heights (Municipal.)	1 well, 460 ft.			134	Very good.
Sea Side Park (Municipal.)	3 wells, 139-463 ft.			97	Very good.
Sewell Water Co. (Sewell.)	1 well, 80 ft.			17	Good.
Short Hills Water Co. (Short Hills.) (Elizabeth.) (Springfield.)	13 wells, 60-80 ft., 1 well, 328 ft.			1,250	Very good.
Skillman (N. J. State Village.)	Rock brook	Mechanical filtration and hypochlorite disinfection	103	96	Good. Very good.
Smalley, Dr. M. C. (Peapack-Gladstone.)	Springs			1	Very good.
Smith, H. B., Machine Co., (Smithville.)	2 wells, 108 ft.	Aeration and gravity sand filtration for iron removal		30	Very good. Very good.
Smith, R. M. (Sparta.)	Glen Brook				
Somerville Water Co. (Raritan.) (Somerville.)	Raritan river... Emergency by-pass.	Mechanical pressure filtration and hypo- chlorite disinfection	2,143	1,826	Fair.
South Orange (Municipal.)	7 wells, 274-300 ft.			570	Very good.
South River (Municipal.)	1 well, 150 ft., Collecting well, 35 ft.			40	Very good.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maxi- mum.	Aver- age.	
Spring Lake (Municipal.)	7 wells, 700 ft.		600	320	Very good.
Stanhope (Municipal.)	1 well, 54 ft.			16	Very good.
State Camp (Sea Girt.)	1 well, 750 ft.		90	48	Very good.
Stewart, Mrs. Kate (Clarksboro.)	1 well, 180 ft.			1	Fair.
Stirling Water Supply Co. (Stirling.)	6 wells, 70-252 ft.			70	Very good.
Stockton (Municipal.)	2 wells, 160 ft., Emergency sup- ply from canal.			25	Very good.
Stockton Water Co. (Camden.)	26 wells, 52-176 ft.			1,750	Very good.
Stone Harbor (Municipal.)	1 well, 859 ft.		140	72	Good.
Superior Thread and Yarn Co. (Pluckemin.)	Echo lake			7	Good.
Surf City Water Co. (Surf City.)	1 well, 564 ft.				Good.
Sussex (Municipal.)	Lake Rutherford,			75	Fair.
Thelm, Mrs. Henry (Rochelle Park.)	1 well, 204 ft.			4	Very good.
Tice, C. D. & Son (Williamstown.)	1 well, 130 ft.				Very good.
Tintern Manor Water Co., (Long Branch.) (Asbury Park.) (Deal.) (Eatontown.) (Fair Haven.) (Little Silver.) (Monmouth Beach.) (Navesink.) (Normandie.) (Oceanic.) (Oceanport.) (Rumson.) (Sea Bright.) (Shrewsbury.) (West Long Branch.)	Hop and Yellow brooks and Whale Pond br'k, Mechanical pressure filtration and chlo- rine disinfection...		7,000	5,885	Good.
Toms River Water Co. (Toms River.)	4 wells, 47 ft.			60	Good.
Topkins, Dr. I. (Califon.)	Springs				Good.
Trenton (Municipal.)	Delaware river.	Mechanical filtration and chlorine disin- fection	20,910	16,514	Very good. Very good.
Trenton (State Home for Girls.)	2 wells, 160 ft.			27	Very good.
Trenton (State Hospital.)	9 wells, 250-588 ft.			286	Very good.
Tuckerton Water Co. (Tuckerton.)	Pohatcong lake, Gifford Mill br'k, & Shord Mill br'k, Stony brook.			60	Good. Good.
United Water Supply Co. (Boonton.)	Spring			356	Good.
Van Dyne Estate (West Paterson.) (Formerly Hugh Stew- art supply.)	Spring				Fair.
Ventnor (Municipal.)	4 wells, 817-825 ft.			1,300	Very good.

TABLE NO. 2.—PUBLIC WATER SUPPLIES OF MUNICIPALITIES IN NEW JERSEY—
Continued.

OWNER AND MUNICIPALITIES SUPPLIED.	Source of supply.	Treatment.	Daily Consumption in 1,000 Gallons.		Rating.
			Maxi- mum.	Aver- age.	
Vincentown Water Co. (Vincentown.)	So. branch of Rancocas creek.				
Vineland (Municipal.)	12 wells, 120 ft.			90	Poor.
Vineland (Home for Feeble-Minded Women.)	2 wells, 135 ft.			300	Very good.
Vineland (N. J. Soldiers' Home.)	1 well, 124 ft.				
Vineland (Training School.)	3 wells, 100-120 ft.			35	Good.
Wallington (Municipal.)	2 wells, 270-290 ft., 1 spring			60	Very good.
Warren Manufacturing Co. (Milford.)	8 dug wells, 50 ft.			275	Very good.
Washington Water Co. (Washington.)	Roaring Rock brook and mountain watershed.				Good.
Watching Water Co. (North Plainfield Twp.) (Beechwood Heights.) (Dunellen.) (Elizabeth.) (New Market.)	7 wells, 95 ft., 5 wells, 135-210 ft. (5 new wells included.)	Emergency chlorine treatment		300	Good.
Welsh, E. C. (German Valley.)	Springs on Schooley's mountain.				
Welsh, M. T. (German Valley.)	Fairmount spring on Fox Hill.				Good.
Wenonah (Municipal.)	7 wells, 210-216 ft.				Good.
West Monmouth Water Co. (Farmingdale.)	1 well, 480 ft.			40	Very good.
Westville - Newbold Water Co. (Westville.) (Newbold.)	2 wells, 113-117 ft.				Good.
Wildwood (Municipal.) (Rio Grande.) (Anglesea.) (North Wildwood.) (Wildwood Crest.)	29 wells, 50-1000 ft. Emergency plants at Wildwood and Anglesea.			134	Very good.
Winters, Albert (Mahwah.)	Spring				
Winters, John (Mahwah.)	1 well, 84 ft.			8	Good.
Woodbine Light, Power & Water Co. (Woodbine.)	5 wells, 150-160 ft.			2	Very good.
Woodbury (Municipal.) (Woodbury Heights.)	10 wells, 287-293 ft. Emergency supply from Mantua creek.		1,300	80	Very good.
Woodstown (Municipal.)	6 wells, 165-175 ft.				
Woolwich Water Co. (Swedesboro.)	4 wells, 138-150 ft.			107	Good.
Wrightstown Water, Electric L't & Sewer Co.	1 dug well, 24 ft.			115	Good.
Yantacaw Water Co. (Delawanna.)	1 well, 175 ft.			50	Good.
				13	Very good.

In tables Nos. 3, 4, 5 and 6 are given lists of the various water treatment plants in the state.

The most important addition to the treatment works is the water filtration plant recently completed and put in operation for the city of New Brunswick.

Disinfection apparatus has been installed to treat the water supplied to the following places:

Camp Dix, Frenchtown, Orange, Perth Amboy (for emergency supply), Pennsgrove (for emergency supply), Pompton Lakes, Salem, Long Branch (two plants), North Plainfield Township (emergency supply).

TABLE NO. 3.—SHOWING THE VARIOUS WATER TREATMENT PLANTS IN NEW JERSEY USING DISINFECTION ONLY.

CALCIUM HYPOCHLORITE.

Owner's Name.	Location of Plant.
Bergen Water Co.	Wortendyke.
Dover	Dover (on surface water only).
Lehigh Water Co.	Easton, Pa.

LIQUID CHLORINE.

Owner's Name.	Location of Plant.
Atlantic City	Absecon.
Belvidere Water Co.	Belvidere.
Bernards Water Co.	Bernardsville.
Camp Dix	New Lisbon.
Elizabethtown Water Co.	Elizabeth (on surface water only).
Frenchtown Water Co.	Frenchtown.
High Bridge	High Bridge.
Jersey City	Boonton and Dover.
New Jersey State Hospital	Morris Plains.
Newark	Macopin.
Orange	Mountain Station.
Perth Amboy	Runyon (on emergency surface water).
Piscataway Water Co.	Middlesex Borough.
Pompton Lakes	Pompton Lakes.
Salem	Quinton.
Watching Water Co.	North Plainfield Township.

TABLE NO. 4.—SHOWING THE FILTRATION PLANTS FOR THE REMOVAL OF ORGANIC MATTER, INCLUDING BACTERIA.

RAPID SAND FILTRATION.				
SLOW SAND FILTRATION.	PRESSURE FILTERS.		GRAVITY FILTERS.	
	No disinfection.	Hypochlorite.	Chlorine.	No disinfection.
Haledon. Lambertville.	Middlesex Water Co. (Rahway). Somerville Water Co. (Raritan).	Bound Brook water Co. (Bound Brook). Rayway Manor Water Co. (West End-Long Branch).	Allentown.	Burlington. Templeton. N. J. Sanatorium (Glen Gardner). Water Co. (New Milford). Lehigh Water Co. (Easton, Pa.) (for emergency). Mt. Holly Water Co. (Mt. Holly). N. J. State Village (Skillman). N. J. Zinc Co. (Franklin). Pennsgrove Water Supply Co. (near Pedricktown) (for emergency supply).
				Bridgeton. Gloucester (emergency supply). Millville Water Co. (Millville) (on surface water). Montclair Water Co. (Little Falls). New Brunswick. Roebling, John A. Sons' Co. (Roebling). Co. (Newman Springs). Trenton.

TABLE NO. 5.—SHOWING THE FILTRATION PLANTS IN NEW JERSEY FOR THE REMOVAL OF IRON.

PRESSURE FILTERS.	
Owner's Name.	Location of Plant.
Allenhurst	Allenhurst.
Asbury Park	Asbury Park.
Atlantic Highlands	Atlantic Highlands.
Helme, Geo. W., Co.	Helmetta (Permutit filter).
Johnson, J. M.	Highlands.
Keansburg Beach Water Co.	Keansburg.
Merchantville Water Co.	Merchantville.
Monmouth County Water Co.	Neptune Township (Asbury Park).
Peoples Water Co.	Millville.

GRAVITY FILTERS.	
Owner's Name.	Location of Plant.
Blackwood Water Co.	Blackwood.
Gloucester	Gloucester.
Highlands	Highlands.
Hightstown	Hightstown.
Ideal Beach Water Co.	Keansburg.
Keansburg Water Co.	Keansburg.
Keyport	Keyport.
Lakeside Park Water Co.	Kirkwood.
Maple Shade Water Co.	Maple Shade.
Matawan	Matawan.
Moorestown	Moorestown.
Pennsgrove Water Supply Co.	Near Pedricktown.
Perth Amboy	Runyon.
Rumson Improvement Co.	Fair Haven.
Smith, H. B., Machine Co.	Smithville.

TABLE NO. 6.—SHOWING MISCELLANEOUS TREATMENT PLANTS IN NEW JERSEY.

OWNER'S NAME.	Location of Plant.	Treatment.
Cranbury Water Co.	Cranbury	Lime and aeration for carbon dioxide removal.
Red Bank	Red Bank	Aeration and sedimentation for iron removal.

In Table No. 7 there are given the results obtained when testing the various water treatment plants in the state:

TABLE NO. 7.—SUMMARY OF THE INSPECTIONS OF THE WATER TREATMENT PLANTS.

PLANT OR LOCATION.	Date.	Character of sample.	Iron in p. p. m.	20° Bacteria per c.c.	37° Bacteria per c.c.		B. coli in 10 c.c.	Remarks.
					Total.	Red Colonies.		
Altenhurst	July 9, '17	Raw	1.5				0	
Allentown	Jan. 9, '17	Raw	0.35	1,800	75	0	0	Alk. 6 p. p. m.
	Jan. 25, '17	Filtered		800	20	0	0	Alk. 2 p. p. m.
	Mar. 22, '17	Raw			250	6	0	Alk. 3 p. p. m.
	Aug. 7, '17	Filtered			60	0	0	Alk. 4 p. p. m.
	Oct. 10, '17	Raw			11	0	0	Alk. 4 p. p. m.
	Oct. 10, '17	Filtered			13	0	0	Alk. 4 p. p. m.
	Oct. 4, '17	Raw		1,200	6	0	0	Alk. 17 p. p. m.
	Oct. 4, '17	Filtered	6.0	600	55	1	0	Alk. 10 p. p. m.
	Nov. 29, '16	Aerated	0.4		5	0	0	Alk. 7 p. p. m.
	April 4, '17	Raw						Alk. 8 p. p. m.
Atlantic Highlands	April 4, '17	Disinfected				100	0	
	May 18, '17	Raw			4	0	0	Surface.
	June 20, '17	Disinfected			00	25	0	Mixed.
	July 10, '17	Raw			42	16	0	Surface.
	July 20, '17	Disinfected			48	0	0	Surface water.
	Aug. 6, '17	Raw			17	0	0	Well water.
	Aug. 9, '17	Well					20	Mixed supply.
	Aug. 9, '17	Treated			35	0	0	Avg. of 8 tests.
	Aug. 9, '17	Raw			60	1	1	Well and surface.
	April 23, '17	Aerated	2.5		0	0	0	
Atlantic Highlands	April 23, '17	Filtered	0.2		0	0	0	
	Oct. 4, '17	Aerated	3.6		0	0	0	
Atlantic Highlands	Oct. 4, '17	Filtered	0.15				0	

TABLE NO. 7.—SUMMARY OF THE INSPECTIONS OF THE WATER TREATMENT PLANTS—Continued.

PLANT OR LOCATION.	Date.	Character of sample.	Iron in p. p. m.	20° Bacteria per c.c.	37° Bacteria per c.c.		B. coli in 10 c.c.	Remarks.
					Total.	Red Colonies.		
Belvidere	Nov. 1, '16	Raw		400	60	5	40	Avg. of 4 tests.
	Nov. 21, '16	Disinfected		55	12	1	4	Avg. of 4 tests.
	Nov. 21, '16	Raw		480	12	1	6	
	Feb. 20, '17	Disinfected		4	34	0	0	
	Mar. 19, '17	Disinfected			26	5	10	Avg. of 3 tests.
	May 24, '17	Raw			15	0	0	
	July 9, '17	Disinfected					0	
	May 3, '17	Raw			6	1	0	
	June 20, '17	Disinfected			2	0	0	
	Oct. 5, '17	Filtered	0.15		36	4	0	
Blackwood	Dec. 7, '16	Raw		15	0	0	0	
	Feb. 26, '17	Raw		70	8	0	8	
	Mar. 1, '17	Raw		33	3	0	10	
	April 19, '17	Raw		0	0	0	0	
	July 18, '17	Raw		200	10	4	2	
	Sept. 25, '17	Raw		240	4	0	2	
	Dec. 12, '16	Raw		16	0	0	8	
	April 30, '17	Raw		600	40	0	10	
	July 19, '17	Raw		15	0	0	0	
	Oct. 9, '17	Raw		1	1	0	0	
Bridgeton	April 30, '17	Raw		60	5	0	0	Alk. 1 p. p. m.
	July 19, '17	Raw		37	1	0	0	Alk. 2 p. p. m.
	Oct. 9, '17	Raw		80	0	3	8	Alk. 12 p. p. m.
	Oct. 9, '17	Raw		0	0	0	0	Alk. 12 p. p. m.
	Oct. 9, '17	Raw		20	0	0	0	Alk. 5 p. p. m.
	Oct. 9, '17	Raw		8	0	0	0	
	Nov. 1, '16	Raw		400	60	5	40	Avg. of 4 tests.
	Nov. 21, '16	Disinfected		55	12	1	4	Avg. of 4 tests.
	Nov. 21, '16	Raw		480	12	1	6	
	Feb. 20, '17	Disinfected		4	34	0	0	
Mar. 19, '17	Disinfected			26	5	10	Avg. of 3 tests.	
May 24, '17	Raw			15	0	0		
July 9, '17	Disinfected					0		
May 3, '17	Raw			6	1	0		
June 20, '17	Disinfected			2	0	0		
Oct. 5, '17	Filtered	0.15		36	4	0		
Dec. 7, '16	Raw		15	0	0	0		
Feb. 26, '17	Raw		70	8	0	8		
Mar. 1, '17	Raw		33	3	0	10		
April 19, '17	Raw		0	0	0	0		
July 18, '17	Raw		200	10	4	2		
Sept. 25, '17	Raw		240	4	0	2		
Dec. 12, '16	Raw		16	0	0	8		
April 30, '17	Raw		600	40	0	10		
July 19, '17	Raw		15	0	0	0		
Oct. 9, '17	Raw		1	1	0	0		
April 30, '17	Raw		60	5	0	0	Alk. 1 p. p. m.	
July 19, '17	Raw		37	1	0	0	Alk. 2 p. p. m.	
Oct. 9, '17	Raw		80	0	3	8	Alk. 12 p. p. m.	
Oct. 9, '17	Raw		0	0	0	0	Alk. 12 p. p. m.	
Oct. 9, '17	Raw		20	0	0	0	Alk. 5 p. p. m.	
Oct. 9, '17	Raw		8	0	0	0		

TABLE NO. 7.—SUMMARY OF THE INSPECTIONS OF THE WATER TREATMENT PLANTS—Continued.

PLANT OR LOCATION.	Date.	Character of sample.	Iron in p. p. H.	20° Bacteria per c.c.	37° Bacteria per c.c.		B coli in 10 c.c.	Remarks.
					Total.	Red Colonies.		
Burlington	Jan. 4, '17.	Raw	0.3	4,500	90	59	80	Pump broke.
	Feb. 14, '17.	Raw & Dis. Fil. & Dis.		150	3	1	50	
	Feb. 19, '17.	Disinfected Raw					10	
	Feb. 28, '17.	Raw Fil. & Dis.					50	
	May 24, '17.	Raw Fil. & Dis.					2	
	Aug. 27, '17.	Raw Fil. & Dis.					10	
	Aug. 14, '17.	Raw Fil. & Dis.					500	
	Oct. 15, '17.	Raw Fil. & Dis.					500	
	Feb. 13, '17.	Raw Fil. & Dis.					500	
	Mar. 23, '17.	Raw Disinfected					4	
Elizabeth	Nov. 1, '16.	Raw Disinfected				0	Elizabeth river.	
	Jan. 31, '17.	Raw Disinfected				10		
	April 30, '17.	Raw Disinfected				0		
	May 15, '17.	Raw Disinfected				0		
Flemington	Sept. 11, '17.	Raw Disinfected				400		
	Jan. 23, '17.	Raw Disinfected				90		
	Mar. 23, '17.	Raw Fil. & Dis.				46		
	July 19, '17.	Raw Fil. & Dis.				1		
	Oct. 23, '17.	Raw Fil. & Dis.				3		
		Raw Fil. & Dis.				31		
		Raw Fil. & Dis.				115		
		Raw Fil. & Dis.				70		
		Raw Disinfected				10		
		Raw Disinfected				0		

TABLE NO. 7.—SUMMARY OF THE INSPECTIONS OF THE WATER TREATMENT PLANTS—Continued.

PLANT OR LOCATION.	Date.	Character of sample.	Iron in p. p. m.	20° Bacteria per c.c.	37° Bacteria per c.c.		B coli in 10 c.c.	Remarks.
					Total.	Red Colonies.		
Franklyn	Dec. 1, '16.	Raw Fil. & Dis.					10	37° colonies very small.
	Feb. 7, '17.	Raw Fil. & Dis.				48	8	
	May 16, '17.	Raw Fil. & Dis.				700	6	
	Sept. 11, '17.	Raw Fil. & Dis.				25	2	
	Dec. 13, '16.	Raw Fil. & Dis.				1	0	
	Feb. 15, '17.	Raw Filtered				220	2	
	April 5, '17.	Raw Filtered				7	6	
	April 15, '17.	Raw Disinfected				30	4	
	May 24, '17.	Raw Disinfected				50	4	
	July 9, '17.	Raw Disinfected				37	4	
Glen Gardner (State Institution.)	Dec. 8, '16.	Raw Fil. & Dis.				22	0	Disinfection installed.
	July 24, '17.	Raw Fil. & Dis.				20	0	
	Oct. 3, '17.	Raw Fil. & Dis.				19	0	
	Dec. 6, '16.	Raw Fil. & Dis.				240	8	
Gloucester	Feb. 6, '17.	Raw Fil. & Dis.				42	0	Well water. Creek water. Mixed supply. Wells.
	May 7, '17.	Raw Act, Fil. & Dis.	0.3			7	1	
	Aug. 8, '17.	Raw Act. & Fil.	2.0	1,500		9	0	
	Oct. 4, '17.	Raw Act. & Fil.	3.5	10		6	0	

TABLE NO. 7.—SUMMARY OF THE INSPECTIONS OF THE WATER TREATMENT PLANTS—Continued.

PLANT OR LOCATION.	Date.	Character of sample.	Iron in p. p. m.	20° Bacteria per c.c.	37° Bacteria per c.c.		B coll in 10 c.c.	Remarks.
					Total.	Red Colonies.		
Haledon	Dec. 18, '16.	Reservoir					0	Not filtered in winter.
	Mar. 16, '17.	Raw					0	
		Filtered					0	
	Mar. 26, '17.	Reservoir					0	
	April 16, '17.	Raw					0	
		Filtered					0	
	June 29, '17.	Raw					0	
		Filtered					10	
	Sept. 21, '17.	Raw			600	9	0	
		Filtered			60	2	0	
High Bridge	Nov. 23, '16.	Raw		6,700	32	0	0	
		Filtered			4	0	0	
	Jan. 31, '17.	Disinfected		35	1	0	0	
		Raw			5	0	0	
Highlands	May 21, '17.	Disinfected		275	4	0	8	
		Raw		59	0	0	9	
	July 31, '17.	Disinfected		30	0	0	0	
	Aug. 31, '17.	Disinfected		12	0	0	0	
	Oct. 17, '17.	Disinfected		15	1	0	4	
	April 23, '17.	Raw		35	0	0	6	
		Raw		0	0	0	6	
		Aer. & Fil.	1.5	0	0	0	0	
	Oct. 4, '17.	Raw			0	0	0	
		Aer. & Fil.	2.0		0	0	0	
Hightstown	Mar. 1, '17.	Raw					0	
		Aer. & Fil.	0.1				0	
	May 17, '17.	Raw					0	
		Aer. & Fil.	1.4				0	
Keensburg Water Co. (Ideal Bench Water Co.)	July 18, '17.	Raw					0	
		Aer. & Fil.	0.6				0	
	Oct. 9, '17.	Raw					0	
		Aer. & Fil.	0.05				0	
	Oct. 3, '17.	Raw					0	
		Aer. & Fil.	3.0				0	
		Raw					0	
		Aer. & Fil.	2.0				0	
		Raw					0	
		Aer. & Fil.	0.15				0	

TABLE NO. 7.—SUMMARY OF THE INSPECTIONS OF THE WATER TREATMENT PLANTS—Continued.

PLANT OR LOCATION.	Date.	Character of sample.	Iron in p. p. m.	20° Bacteria per c.c.	37° Bacteria per c.c.		B coll in 10 c.c.	Remarks.
					Total.	Red Colonies.		
Keypoint	April 2, '17.	Raw	2.3				0	
		Aer. & Fil.	0.1				0	
	Oct. 3, '17.	Raw	2.0				0	
		Aer. & Fil.	0.25				0	
	Oct. 5, '17.	Raw	2.0				0	
Lambertville	Nov. 20, '16.	Raw	1.1				0	
	May '17	Filtered		10,000	75	15	5	
		Raw		410	20	5	0	
		Filtered			25	0	0	
	Dec. 27, '16.	Raw		1,800	110	0	4	
Long Branch (West End.)	May 8, '17.	Raw		16	0	0	0	
		Filtered			0	0	0	
	Oct. 8, '17.	Raw			25	0	0	
		Filtered			0	0	0	
	Oct. 8, '17.	Raw			43	0	0	
Little Falls (Montclair Water Company.)	Sept. 25, '17.	Raw			1	0	0	
		Raw			35	0	0	
	May 18, '17.	Fil. & Dis.	4.5		1	0	10	
		Raw					0	
	April 2, '17.	Filtered	0				0	
Matawan	Oct. 3, '17.	Raw	2.5				0	
		Filtered	0.2				0	
	Oct. 3, '17.	Aerated	1.0				0	
		Filtered	0.5				0	
	Feb. 26, '17.	Raw					0	
Middlesex Borough (Piscataway Water Company.)	April 19, '17.	Disinfected			1	0	0	
		Raw			1	0	0	
	July 18, '17.	Disinfected			1	0	0	
		Raw			100	0	0	
	Oct. 15, '17.	Disinfected			2	0	0	

TABLE NO. 7.—SUMMARY OF THE INSPECTIONS OF THE WATER TREATMENT PLANTS—Continued.

PLANT OR LOCATION.	Date.	Character of sample.	Iron in p. p. m.	20° Bacteria per c.c.	37° Bacteria per c.c.		B coli in 10 c.c.	Remarks.
					Total.	Red Colonies.		
Millville (Peoples Water Company.)	Jan. 11, '17.	Aerated	0				0	
	April 20, '17.	Filtered	0.8				0	
Millville Water Company.	Jan. 11, '17.	Aerated	0.2				0	
	Mar. 9, '17.	Raw		350	8	0	0	
	July 19, '17.	Raw & Dis.		19	4	0	0	
	Sept. 20, '17.	Raw & Dis.					0	
	Nov. 8, '16.	Raw & Dis.			3	0	0	
	Jan. 29, '17.	Raw & Dis.			6	0	0	
	May 10, '17.	Raw & Dis.			1	0	0	
	July 6, '17.	Raw			4	0	0	
	Oct. 22, '17.	Raw			80	0	0	
	Jan. 4, '17.	Disinfected			65	0	0	
Mount Holly	April 6, '17.	Raw	0.2	1,800	1	0	0	Alk. 1 p. p. m.
	Aug. 29, '17.	Raw		24	7	0	0	Alk. 2 p. p. m.
	Sept. 10, '17.	Raw		350	0	0	0	Alk. 2 p. p. m.
	Sept. 10, '17.	Raw		23	11	0	0	Alk. 2 p. p. m.
	Sept. 10, '17.	Raw		2,200	160	3	0	Alk. 7 p. p. m.
	Sept. 18, '17.	Raw		200	11	1	0	
		Raw			10	0	0	
		Raw			1	0	0	
		Raw						
		Raw						

TABLE NO. 7.—SUMMARY OF THE INSPECTIONS OF THE WATER TREATMENT PLANTS—Continued.

PLANT OR LOCATION.	Date.	Character of sample.	Iron in p. p. m.	20° Bacteria per c.c.	37° Bacteria per c.c.		B coli in 10 c.c.	Remarks.
					Total.	Red Colonies.		
Neptune Township (Monmouth Co. Water Company.)	Dec. 27, '16.	Raw	5				0	Well water.
	Mar. 28, '17.	Raw	0				0	Well water.
	June 22, '17.	Raw	5.2				0	Surface water.
	Oct. 4, '17.	Raw	0.1				0	Well water.
	Dec. 4, '16.	Raw	16.0		35	0	0	Mixed supply.
	April 17, '17.	Raw	0.2		0	0	0	Surface water.
	May 16, '17.	Raw	6.4		25	0	0	Well water.
	July 17, '17.	Raw			2	0	0	Mixed supply.
	Oct. 15, '17.	Raw			40	0	0	Well water.
	Oct. 8, '17.	Raw			20	0	0	Well water.
New Brunswick	Dec. 4, '16.	Disinfected		700	0	0	0	
	April 17, '17.	Raw		20	0	0	0	
	May 16, '17.	Raw		350	0	0	0	
	July 17, '17.	Raw		300	0	0	0	
New Milford	Oct. 15, '17.	Raw			22	0	0	
	Oct. 8, '17.	Raw			26	0	0	
	Dec. 6, '16.	Raw			90	0	0	
	Feb. 22, '17.	Raw			135	0	0	
Orange	Oct. 8, '17.	Disinfected		1,300	0	0	0	
	Dec. 6, '16.	Raw		160	0	0	0	
	May 7, '17.	Raw		170	4	0	0	
	Sept. 5, '17.	Raw		110	15	0	0	
Pennsgrove	Oct. 8, '17.	Disinfected			12	0	0	
	Dec. 6, '16.	Raw	13		15	0	0	
	May 7, '17.	Raw	0.4		12	0	0	
	Sept. 5, '17.	Raw	0.4		15	0	0	

TABLE NO. 7.—SUMMARY OF THE INSPECTIONS OF THE WATER TREATMENT PLANTS—Continued.

PLANT OR LOCATION.	Date.	Character of sample.	Iron in p. p. H.	20° Bacteria per c.c.	37° Bacteria per c.c.		B coll in 10 c.	Remarks.
					Total.	Red Colonies.		
Perth Amboy	Jan. 20, '17	Raw	.....	.....	.....	.....	.....	.....
	May 8, '17	Disinfected	.....	.....	.....	.....	.....	.....
Pompton Lakes	Aug. 14-30, '17	Disinfected	.....	.....	.....	.....	.....	.....
	Aug. 14-22, '17	Raw	.....	.....	.....	.....	.....	.....
	Aug. 22-30, '17	Disinfected	.....	.....	.....	.....	.....	.....
	Sept. 9, '17	Raw	.....	.....	.....	.....	.....	.....
		Disinfected	.....	.....	.....	.....	.....	.....
Rahway	Nov. 14, '16	Raw	.....	.....	.....	.....	.....	.....
(Municipal.)	Jan. 23, '17	Fl. & Dis.	.....	.....	.....	.....	.....	.....
	Feb. 19, '17	Raw	.....	.....	.....	.....	.....	.....
	May 14, '17	Fl. & Dis.	.....	.....	.....	.....	.....	.....
	Sept. 18, '17	Raw	.....	.....	.....	.....	.....	.....
		Fl. & Dis.	.....	.....	.....	.....	.....	.....
Rahway	Nov. 25, '16	Raw	.....	.....	.....	.....	.....	.....
(Middlesex Water Company.)	Dec. 20, '16	Fl. & Dis.	.....	.....	.....	.....	.....	.....
	Jan. 26, '17	Raw	.....	.....	.....	.....	.....	.....
	May 16, '17	Fl. & Dis.	.....	.....	.....	.....	.....	.....
	July 30, '17	Raw	.....	.....	.....	.....	.....	.....
	Sept. 18, '17	Fl. & Dis.	.....	.....	.....	.....	.....	.....
Raritan	Dec. 13, '16	Raw	.....	.....	.....	.....	.....	.....
	Feb. 9, '17	Fl. & Dis.	.....	.....	.....	.....	.....	.....

TABLE NO. 7.—SUMMARY OF THE INSPECTIONS OF THE WATER TREATMENT PLANTS—Continued.

PLANT OR LOCATION.	Date.	Character of sample.	Iron in p. p. H.	20° Bacteria per c.c.	37° Bacteria per c.c.		B coll in 10 c.	Remarks.
					Total.	Red Colonies.		
Raritan—(Con.)	April 9, '17	Raw	.....	.....	.....	.....	.....	.....
	June 8, '17	Fl. & Dis.	.....	.....	.....	.....	.....	.....
	July 18, '17	Raw	.....	.....	.....	.....	.....	.....
	Sept. 19, '17	Fl. & Dis.	.....	.....	.....	.....	.....	.....
	April 24, '17	Raw	.....	.....	.....	.....	.....	.....
	Jan. 8, '17	Aerated	.....	.....	.....	.....	.....	.....
	Jan. 20, '17	Raw	.....	.....	.....	.....	.....	.....
	Feb. 28, '17	Fl. & Dis.	.....	.....	.....	.....	.....	.....
	May 24, '17	Raw	.....	.....	.....	.....	.....	.....
	Aug. 27, '17	Fl. & Dis.	.....	.....	.....	.....	.....	.....
	Oct. 15, '17	Raw	.....	.....	.....	.....	.....	.....
	April 24, '17	Fl. & Dis.	.....	.....	.....	.....	.....	.....
	Oct. 3, '17	Aer. & Fl.	.....	.....	.....	.....	.....	.....
	Feb. 23, '17	Raw	.....	.....	.....	.....	.....	.....
	Mar. 15, '17	Disinfected	.....	.....	.....	.....	.....	.....
	April 27, '17	Raw	.....	.....	.....	.....	.....	.....
	July 10, '17	Fl. & Dis.	.....	.....	.....	.....	.....	.....
Rumson	Jan. 17, '17	Raw	.....	.....	.....	.....	.....	.....
	May 4, '17	Aer. & Fl.	.....	.....	.....	.....	.....	.....
	Jan. 5, '17	Raw	.....	.....	.....	.....	.....	.....
		Disinfected	.....	.....	.....	.....	.....	.....
		Fl. & Dis.	.....	.....	.....	.....	.....	.....

SEWERAGE WORKS.

During the past year eight sewage or trade waste treatment plants have been abandoned. These were all small plants, most of which have been abandoned, as the facilities of neighboring municipal sewerage systems became available, a procedure which this Department recommends wherever it can be adopted:

ALDINE (Watson Stillman Company):—The wastes from this plant now discharge into the Roselle Park sewerage system.

CALDWELL (The Essex County Penitentiary):—The sewage from this institution now discharges into the Caldwell sewerage system.

COLT'S NECK (Colt's Neck Creamery):—This creamery has been closed.

MAYWOOD (Shafer Alkaloid Works):—The wastes from this plant now discharge into the new sewerage system of Maywood.

MAYWOOD (Citro Chemical Company):—The wastes from this plant now discharge into the new sewerage system at Maywood.

RAHWAY (Kline Realty Company):—The sewage from this development now discharges into the Rahway sewerage system.

TRENTON (I. O. O. F. Home):—The sewage from this institution now discharges into the Trenton sewerage system.

VERONA (Newark City Home for Boys):—The sewage from this institution now discharges into the new sewerage system at Verona.

It now appears probable that the Rockaway Valley Trunk Sewer and the Rahway Trunk Sewer Systems will be constructed within a short time. The construction of these works should do much to protect two important sources of water supply.

Even with these trunk sewers constructed it will be necessary to continue operating the present water treatment plants in the most careful manner.

At the following places special investigations relating to sewerage systems or sewage treatment works have been made:

Allwood (Brighton Mills), 2; Atlantic Highlands, 1; Bayonne, 1; Blairstown, 1; Bound Brook, 1; Butler (American Hard Rubber Company), 1; Butler (Pequannock Valley Paper Company), 3; Closter (B. Ullman & Company), 1; Cookstown (Camp Site), 2; East Bound Brook, 1; Fort Lee, 5; Garwood, 2; Hackensack, 1; Highlands, 1; Kenilworth (Estate of James Arthur), 1; Linden Township, 1; Little Ferry, 1; Midland Park (Web Tannery), 2; Metuchen (Woodbrook Farms), 1; Middletown Township (Camp Site), 1; Midland Park, 1; Milford, 1; Millville (Millville Manufacturing Company), 2; New Brunswick (National Musical String Company), 1; New Orange Park, 1; North Arlington, 1; North Bergen, 1; North Bergen Township, 4; Palisades, 1; Phillipsburg, 1; Picton (American Felt Company), 1; Pleasantville, 2; Pompton Lakes (Artistic Weaving Company), 1; Princeton, 2; Prospect Park, 1; Ridgefield Park (Tennessee Copper Company), 2; Riegelsville (Warren Manufacturing Company), 1; Riverton, 2; Roosevelt, 1; Roselle Borough, 1; Rutherford, 1; Somerville, 1; Trenton (State Home for Girls), 1; Union Township, 1; Vineland (Slaughter House), 1; Wayne (E. I. du Pont de Nemours & Company), 1; West Caldwell, 1; Wildwood Crest, 1; Woodbury (private plant), 1. Total, 67.

At the following places experimental plants are in operation:

ROCKAWAY (Liondale Bleach, Dye and Print Works):—At this plant experiments are being conducted with an activated sludge tank.

SPRINGFIELD (The Chemical Company of America).

TRENTON (Agasote Millboard Company):—At this plant a small unit is being operated to treat about 4% of their trade waste, preparatory to submitting designs for full size units.

TRENTON (Thermoid Rubber Company):—At this factory there has been an electrical plant (Clark process) installed. The entire domestic sewage flow is being treated.

The experimental plant at the Thermoid Rubber Company consists of lime precipitation, settling of the precipitate in a Dorr Continuous Separator, and the electrification of the settled effluent.

Several tests were made of the operation of the plant. From the results of these tests the conclusions are drawn that—

1. The process of treatment is costly.
2. Practically all of the removal of organic matter and reduction in bacteria are caused by the lime precipitation.
3. The electrification resulted in no increase of the nitrite or nitrate figures.
4. There appeared to be no practical advantage in the use of the electrolyzing unit.

The results of the tests follow:

Average of results from composite samples collected on each of five days—

SOLIDS EXPRESSED IN PARTS PER MILLION.

	<i>In Raw Sewage.</i>	<i>After Precipitation with Lime on 2½ to 3 Hrs. Settling.</i>	<i>After Electrification.</i>
Total Solids	1,423	779	711
Fixed	711	520	476
Organic	712	259	235
Solution	286	237	219
Suspension	426	22	16

FREE AMMONIA, NITRITES AND NITRATES (AVERAGE OF FIVE DAILY COMPOSITE SAMPLES).

	<i>Raw.</i>	<i>After Settling with Lime.</i>	<i>After Electrification.</i>
Free Ammonia	133	53	58
Nitrites	0.3	0.4	0.4
Nitrates	0.16	0.28	0.28
Organic Consumed	206	62	63
(Organic Matter.)			

(BACTERIAL REDUCTION (AVERAGE FOR FIVE DAYS).

	<i>Raw.</i>	<i>Settled.</i>	<i>Electrolized.</i>
20° Count	4,600,000	14,500	38,500
B. Coli	100,000	0	0

The following tables, Nos. 8, 9, 10, 11, 12 and 13, give in brief form a summary of the inspections of sewage treatment plants, indicating the general condition of each unit as found at the time of inspection:

TABLE NO. 8.—SEWAGE TREATMENT PLANTS HAVING SEDIMENTATION WITHOUT SUBSEQUENT TREATMENT.

NAME OR LOCATION OF PLANT.	Number of inspections.	Condition of tank effluent.	Remarks.
Allenhurst	2	Good	Tank cleaned in spring.
Asbury Park	4	Very good	
Avalon	3	Good	New plant: sewage turned on in October.
Avon	3	Good	Tank cleaned early in summer.
Babbitt	3	Good	New installation.
Beach Haven	3	Poor	Raw sewage frequently discharged through a by-pass.
Belmar	3	Very good	Cleaned in Spring.
Beverly	3	Fair	Tank requires thorough cleaning.
Bradley Beach (2 tanks.)	3	Very good	Both tanks cleaned in October.
Bogota	4	Good	Overloaded at times with surface drainage.
Burlington (U. S. Cast Iron and Foundry Co.)	3	Good	New installation.
Carlton Hill (E. Rutherford.)	1	Good	Connection to be made with Passaic Valley Trunk Sewer.
Carlstadt	3	Fair	Nuisance from odor.
Cliffside Park	3	Fair	Requires more attention.
Deal Beach	3	Very good	Tank cleaned in Spring.
Deiford	6	Poor	Overloaded; addition contemplated.
E. Rutherford (Union Hill.)	1	Poor	Requires more attention.
Englewood	4	Fair	Improvements under consideration.
Gibbstown	1	Fair	New installation.
Interlaken	1	Good	Well maintained.
Kenilworth (Amer. Cir. Loom Co.)	4	Poor	Not enough lime added to neutralize acid wastes. Better baffling needed.
Leonia	3	Fair	Improvement in maintenance.
Little Falls	2	Good	Not in service; new.
Loch Arbor	2	Poor	Requires more frequent cleaning. Outlet not long enough.
Lodi	3	Good	New installation.
Manasquan (2 tanks.)	2	Good	Improvement in operation.
Maywood	4	Good	New plant.
Neptune Twp.	2	Good	At times of extreme high tide, or heavy rainfall, sewage backs up in tank and manholes overflow.
Ocean Grove (2 tanks.)	2	Very good	Tanks cleaned every Spring.
Palisades Park	2	Good	New installation.
Point Pleasant	2	Fair	New tank: old one needs cleaning.
Ridgefield	2	Good	Construction suspended.
Ridgefield Park	5	Good	Under construction.
Spring Lake (3 tanks.)	2	Very good	Tanks receive careful attention.
Sea Girt	2	Poor	Tanks need cleaning.
Sea Girt (State Camp.)	4	Good	Improvements made.
Secaucus	2	Good	
Secaucus (H. Borne estate.)	2	Good	Sewage not connected to plant.
S. Bound Brook	3	Good	
Trenton (P. R. R. shops.)	2	Good	
Wanaque (Paper mills.)	3	Poor	
Waterwich	1	Good	No inspection.
West Englewood (2 tanks.)	7	Fair	Sand filters partly reconstructed.
Woodbridge (4 tanks.)	5	Fair	One tank requires cleaning.
Woodbury	2	Poor	Tank too small: discharges continually.

TABLE NO. 9.—SEWAGE TREATMENT PLANTS WITH PROVISIONS FOR DISINFECTION WITH CALCIUM HYPOCHLORITE OR LIQUID CHLORINE.

PLANTS RECEIVING SEWAGE FROM OVER 200 PEOPLE DAILY.

NAME OR LOCATION OF PLANT.	Number of inspections.	CONDITION OF						Disinfecting agent.	Remarks.
		Settling tank.	Contact bed.	Sprinkling filter.	Sand filter.	Final effluent.			
Atlantic City (Kaneigh Ave.)	4					Very good	Ca(ClO) ₂	Disinfected. Screened sewage.	
Atlantic City (City Island.)	11					Poor		New installation.	
Atlantic City (McKinley Ave.)	14	Fair				Fair	Cl	Screened sewage disinfected. New plant. Tanks have been cleaned. Sewage septic.	
Bridgeton (Glass St.)	11	Fair				Fair	Ca(ClO) ₂	Does not receive proper attention. Chlorine used only at times. Not enough attention.	
Bridgeton (Lincoln St.)	6	Good				Fair	Ca(ClO) ₂	Ca(ClO) ₂ not always applied in sufficient quantities. Good attention.	
Brown's Mills	7	Good	Poor			Good	Ca(ClO) ₂	Ca(ClO) ₂ not applied to the effluent.	
Chatham-Madison	5	Poor				Fair	Cl	Results irregular. New installation.	
Glen Gardner (State institution.)	7	Good				Good	Ca(ClO) ₂	Cl not used. Tanks need cleaning. Dose too small. New tank under construction. Ca(ClO) ₂ not used in winter.	
Keyport	6	Good				Very good	Ca(ClO) ₂		
Longport (2 tanks.)	7	Fair				Fair	Ca(ClO) ₂		
Margate City (2 tanks.)	10	Poor				Fair	Cl		
Millville	7	Good				Fair	Cl		
Northfield City (Atlantic Co. Institutions.)	5	Good	Good			Good	Cl		
Oaklyn	13	Good				Fair	Ca(ClO) ₂		
Ocean City	13	Good				Good	Ca(ClO) ₂		
Red Bank	2	Fair				Poor	Ca(ClO) ₂		
Rumson	2	Fair				Fair	Ca(ClO) ₂		
Rahway (State Reformatory.)	2	Fair				Fair	Ca(ClO) ₂		

TABLE NO. 9.—SEWAGE TREATMENT PLANTS WITH PROVISIONS FOR DISINFECTION WITH CALCIUM HYPOCHLORITE OR LIQUID CHLORINE—Continued.

PLANTS RECEIVING SEWAGE FROM OVER 200 PEOPLE DAILY.

NAME OR LOCATION OF PLANT.	Number of Inspections.	CONDITION OF						Disinfecting agent.	Remarks.
		Settling tank.	Contact bed.	Sprinkling filter.	Sand filter.	Final Effluent.	Final Effluent.		
Sea Isle City	3	Poor				Poor	Ca(ClO) ₂	Sewage by-passed part of time. Disinfection apparatus not installed. No attention; Cl. not applied; tank needs cleaning. U. S. Naval base. More Ca(ClO) ₂ required. Tank unsatisfactory.	
Seaside Park	6	Poor				Poor	Cl.		
Sewell's Point	1	Poor				Poor	Ca(ClO) ₂		
Stone Harbor	4	Poor				Poor	Ca(ClO) ₂		
Ventnor	10	Good				Fair	Cl.	Plant inadequate. Receives better attention. Screens sewage to be disinfected. Chlorinator not in operation.	
Vineyard	9	Poor				Fair	Ca(ClO) ₂		
Wildwood Crest	4	Good				Good	Ca(ClO) ₂		
Wildwood	6					Poor	Cl.		

PLANTS RECEIVING SEWAGE FROM LESS THAN 200 PEOPLE DAILY.

Closter (Color factory.)	5	Good				Poor	Cl.	Plant not constructed according to plans. No chlorine used. Receives better attention.
Galloway Twp. (Sea View Golf Club.)	6	Good				Good	Ca(ClO) ₂	
Mahwah (All houses.)	5	Good				Poor	Cl.	Not built according to plans.
Princeton (Rocketticher)	3	Good				Good	Cl.	New installation.
Rahway (State Reformatory.)	3	Good				Good	Ca(ClO) ₂	Good attention.

TABLE NO. 10.—SEWAGE TREATMENT PLANTS HAVING SEDIMENTATION FOLLOWED BY SUBSEQUENT TREATMENT OTHER THAN DISINFECTION. Plants Receiving Sewage from More Than 200 Persons Daily.

NAME OR LOCATION OF PLANT.	Number of Inspections.	CONDITION OF								Remarks.
		Sed. tank.	Dosing apparatus.	Contact beds.	Sprinkling filter.	Sand filter.	Substrate or broad Irrigation.	Final Effluent.		
Asyla	7	Fair	Poor		Poor			Poor	Poor	Faulty construction. New installation.
Audubon	4	Fair	Fair		Fair			Fair	Fair	
Bay Head	4	Very good	Good		Very good			Good	Very good	
Bernardsville (Parochial school.)	2	Good						Good	Good	
Bordentown	13	Fair	Poor	Poor				Poor	Poor	Requires more attention. Siphons out of order.
Burlington	8	Fair		Poor				Fair	Fair	Plans submitted for enlargement of plant.
Caldwell	12	Fair		Poor				Poor	Poor	Overloaded but receives good attention. New plant to be built.
Cape May Point	1	Good		Good				Fair	Fair	
Collingswood	3	Good		Good				Poor	Poor	
Convent	5	Poor		Good				Good	Good	
Essex Falls	6	Good		Fair				Fair	Fair	Tank needs more attention. Reconstruction contemplated.
Fairview	7	Poor	Good					Fair	Good	Receives good attention.
Far Hills	6	Poor	Good					Good	Fair	Plant overloaded; sometimes overflows.
Flemington	3	Good	Poor					Fair	Fair	
Freehold	9	Poor						Very good	Very good	
Gladstone (St. Bernard's school.)	2	Good						Poor	Poor	To be enlarged.
Haddonfield	12	Poor	Good		Fair			Fair	Good	Sludge bed needs enlarging.
Haddon Heights	6	Fair	Good		Good			Fair	Good	Good attention.
Hamamonton	5	Good	Good		Good			Fair	Fair	Additional houses connected to plant. Larger tank needed to reduce load on filters.
Helmetsa	4	Good	Fair		Good			Good	Good	New plant under construction. Good attention.
Hightstown	6	Fair	Good		Good			Good	Very good	
Island Heights	5		Very good		Good			Good	Very good	
Konilworth (Amer. Can Co.)	6	Very good	Very good		Very good			Very good	Very good	
Lawrenceville	3	Fair		Fair				Fair	Fair	Screens. Tanks too small.
Long Branch	5	Fair		Fair				Fair	Fair	
Lakewood	5	Poor		Good				Fair	Fair	
Lawrenceville (Prep. school.)	3	Fair		Good				Fair	Fair	Overloaded.
Merchantville	7	Fair		Fair				Fair	Fair	

Plants Receiving Sewage from More Than 200 Persons Daily.

NAME OR LOCATION OF PLANT.	CONDITION OF							Remarks.	
	Number of inspections.	Sed. tank.	Dosing apparatus.	Contact beds.	Sprinkling filter.	Sand filter.	Subsurface or broad Irrigation.		Final effluent.
Moorestown	4	Good.	Good.	Good.	Good.	Fair.	Good.	Good.	Tanks need attention. Beds should be underdrained.
Morris Plains (State Hospital.)	5	Fair.	Good.	Good.	Good.	Fair.	Good.	Good.	Insufficient sedimentation. Sand beds overloaded (good attention).
Morris Plains (State Hospital.)	5	Fair.	Good.	Good.	Good.	Fair.	Good.	Good.	Good attention.
Morristown	8	Good.	Good.	Good.	Good.	Fair.	Good.	Good.	New installation.
Newton (Sparta.)	8	Good.	Poor.	Good.	Good.	Fair.	Good.	Good.	New installation.
Newton	8	Good.	Good.	Good.	Good.	Fair.	Good.	Good.	Odor caused by tanks. Considerable raw sewage reaches brook in winter.
Newton (Clinton.)	4	Poor.	Good.	Good.	Good.	Fair.	Good.	Good.	Sewage flows directly into creek at times.
Pemberton	10	Poor.	Good.	Good.	Good.	Fair.	Good.	Good.	Tank operating better.
Pitman (East.)	10	Poor.	Good.	Good.	Good.	Fair.	Good.	Good.	Overloaded.
Pitman (West.)	12	Fair.	Good.	Good.	Good.	Fair.	Good.	Good.	Tank needs cleaning.
Plainfield	4	Fair.	Good.	Good.	Good.	Fair.	Good.	Good.	Plans approved for additional units.
Princeton (Northwest.)	6	Fair.	Good.	Good.	Good.	Fair.	Good.	Good.	More attention required.
Princeton (Northeast.)	5	Good.	Good.	Good.	Good.	Fair.	Good.	Good.	Filter area should be increased.
Princeton (University.)	4	Poor.	Fair.	Good.	Good.	Fair.	Good.	Good.	Tank cleaned; new sand filter built.
Ridgewood	6	Good.	Good.	Good.	Good.	Fair.	Good.	Good.	
Riverside	6	Good.	Good.	Good.	Good.	Fair.	Good.	Good.	
Roebling	5	Fair.	Fair.	Good.	Good.	Fair.	Good.	Good.	
Skillman	3	Very good	Fair.	Good.	Good.	Good.	Good.	Good.	
Washington	3	Fair.	Good.	Good.	Good.	Good.	Good.	Good.	
Wenonah	4	Fair.	Good.	Good.	Good.	Good.	Good.	Good.	
Wenonah (Nassau Ave.)	4	Fair.	Good.	Good.	Good.	Good.	Good.	Good.	
Wenonah (Princeton Ave.)	5	Good.	Good.	Good.	Good.	Poor.	Fair.	Fair.	
Westfield	2	Good.	Good.	Good.	Under constr.	Good.	Good.	Good.	
Wrightstown	7	Good.	Good.	Good.	Good.	Good.	Good.	Good.	
Woodstown	7	Good.	Good.	Good.	Good.	Good.	Good.	Good.	

TABLE NO. 11.—SEWAGE TREATMENT PLANTS HAVING SEDIMENTATION FOLLOWED BY SUBSEQUENT TREATMENT.

Plants Receiving Sewage from Less Than 200 Persons Daily.

NAME OR LOCATION OF PLANT.	CONDITION OF							Remarks.	
	Number of inspections.	Sed. tank.	Dosing apparatus.	Contact beds.	Sprinkling filter.	Sand filter.	Subsurface or broad Irrigation.		Final effluent.
Allwood	1	Good.	Poor.	Good.	Good.	Good.	Good.	Good.	Tank needs thorough cleaning.
Ancora (Camden Co. Inst.)	2	Poor.	Poor.	Good.	Good.	Good.	Fair.	Fair.	Overloaded in summer.
Asbury Park	2	Fair.	Good.	Good.	Good.	Good.	Fair.	Fair.	Additional houses connected. Sand beds not completed.
Awosting (Ross Fenton Farm.)	2	Good.	Good.	Good.	Good.	Good.	Good.	Good.	Sprinkling filter cleaned. Tank cleaned.
Branchville (Sussex Co. Almshouse.)	2	Fair.	Good.	Good.	Good.	Fair.	Fair.	Fair.	Two new plants.
Burlington (T. Devlin Co.)	6	Good.	Good.	Good.	Good.	Good.	Good.	Good.	Sand beds overloaded. Built before submitting plans. Plant is inadequate.
Butler (Kinney Estate, 3 plants.)	11	Good.	Good.	Good.	Good.	Good.	Good.	Good.	Grit chamber cleaned every two weeks.
Butler (Pequannock Rubber Co.)	7	Good.	Good.	Good.	Good.	Fair.	Fair.	Fair.	No method of changing flow on irrigation field. No sedimentation.
Butler (Pequannock Rubber Co.)	7	Poor.	Good.	Good.	Good.	Good.	Very good	Fair.	New installation.
Cape May Court House (County Buildings.)	1	Very good	Good.	Good.	Good.	Fair.	Fair.	Fair.	Requires more attention.
Changewater (Tidewater Oil Co.)	1	Fair.	Good.	Good.	Good.	Fair.	Fair.	Fair.	
Cliffwood (G. Blond.)	1	Good.	Good.	Good.	Good.	Fair.	Fair.	Fair.	
Clinton (State Reformatory.)	3	Good.	Good.	Good.	Good.	Fair.	Fair.	Fair.	
Cresskill (Cresskill Slope & Development Co.)	4	Poor.	Good.	Good.	Good.	Poor.	Poor.	Poor.	
Cresskill (S. Tietjen.)	1	Good.	Good.	Good.	Good.	Good.	Good.	Good.	
Cresskill (P. Uhlman & Co.)	2	Poor.	Good.	Good.	Good.	Poor.	Poor.	Poor.	
Deal Golf Club.	1	Fair.	Good.	Good.	Good.	Poor.	Poor.	Fair.	

TABLE NO. 11.—SEWAGE TREATMENT PLANTS HAVING SEDIMENTATION FOLLOWED BY SUBSEQUENT TREATMENT—Continued.
Plants Receiving Sewage from Less Than 200 Persons Daily.

NAME OR LOCATION OF PLANT.	Number of Inspections.	CONDITION OF							Remarks.
		Sed. tank.	Dosing apparatus.	Contact beds.	Sprinkling filter.	Sand filter.	Subsurface or broad irrigation.	Final effluent.	
Deans (Middlesex Co. Workhouse.)	5	Good.				Fair.		Fair.	New plant.
Delawanna (Paper Mills.)	3	Poor.				Good.		Poor.	Reconstruction considered.
Far Hills (Froh Helm Farms.)	3	Good.				Good.		Good.	
Far Hills (G. H. Schley Estate.)	3	Fair.				Fair.		Fair.	
Far Hills (Mrs. Fahr.)	3	Fair.				Fair.		Fair.	
Franklin Township (Hillar of Vir.)	7	Good.				Good.		Very good.	New installation.
Gilbeshoro (3 plants.)	3	Good.				Good.		Good.	Good attention.
Glastonbury (C. C. Brady Estate.)	5	Good.				Good.		Good.	Out of order part of the year.
Greenoch (Santeman Mfg. Co.)	2	Fair.				Good.		Poor.	Plant needs repairs.
Itaskell (Domestic; Dupont Co.) (DuPont.)	2	Fair.				Good.		Good.	
Itaskell (Trade waste; DuPont Co.)	5	Good.							Acidity neutralized.
Haworth (High Bridge)	1	Poor.						Poor.	New installation.
High Bridge (Taylor Wharton Iron Co.)	6	Good.				Good.		Good.	New installation.
Hopewell (St. Michael's Orphans Home.)	1	Good.							Tank and irrigation ditches.
Hampton (Standard Water System Co.)	1	Good.						Good.	Sedimentation basin remodeled.
Hackettstown (Lack. Leather Co.)	1	Good.						Good.	

TABLE NO. 11.—SEWAGE TREATMENT PLANTS HAVING SEDIMENTATION FOLLOWED BY SUBSEQUENT TREATMENT—Continued.
Plants Receiving Sewage from Less Than 200 Persons Daily.

NAME OR LOCATION OF PLANT.	Number of Inspections.	CONDITION OF							Remarks.
		Sed. tank.	Dosing apparatus.	Contact beds.	Sprinkling filter.	Sand filter.	Subsurface or broad irrigation.	Final effluent.	
Hobokus	2	Good.						Good.	Private estate.
Jamesburg (State Reformatory for Boys.)	6	Poor.				Fair.		Fair.	Tanks too small, reconstruction recommended.
Kenil (2 plants.)	2	Good.				Fair.		Fair.	Sedimentation and coke strainers.
Kingston (Hercules Powder Co.)	3	Poor.				Fair.		Good.	Rebuilt 1917.
Lambertville (St. Joseph's College.)	4	Fair.				Fair.		Fair.	No inspection.
Lakenhurst (Maurice Canning Co.)	2	Good.				Fair.		Good.	Not enough attention.
Locust (J. Huber Estate.)	4	Fair.				Fair.		Fair.	No inspection.
Locust Point (E. R. Walsh Estate.)	2	Good.				Fair.		Good.	No inspection.
Macopin (Mahwah)	4	Fair.				Fair.		Fair.	No attention.
Mahwah (Amer. Brake Shoe & Foundry Co.)	3	Fair.				Poor.		Poor.	Good attention.
Matawan (Monmouth Seed Co.)	3	Fair.				Fair.		Fair.	Bedd need reconstructing.
Medford (Mullica Hill)	2	Fair.				Fair.		Fair.	Poor attention.
Millville (Millville Mfg. Co.)	3	Fair.				Fair.		Fair.	Tank effluent sometimes bypassed.
New Lisbon (Alms-house)	1	Good.				Good.		Good.	1,200 feet new tile laid.
New Lisbon (County Hospital.)	4	Good.				Good.		Very good.	Good attention.
New Lisbon (Tuberculosis Hospital.)	3	Good.				Good.		Good.	New installation.
Oradell (Isolation Hospital.)	1	Good.				Good.		Good.	Tank needs cleaning.
Overbrook (Institution.)	20	Poor.				Fair.		Good.	

TABLE NO. II.—SEWAGE TREATMENT PLANTS HAVING SEDIMENTATION FOLLOWED BY SUBSEQUENT TREATMENT—Continued.
Plants Receiving Sewage from Less Than 200 Persons Daily.

NAME OR LOCATION OF PLANT.	Number of Inspections.	CONDITION OF							Remarks.
		Sed. tank.	Dosing Apparatus.	Contact Beds.	Sprinkling filter.	Sand filter.	Substrate Irrigation.	Final Effluent.	
Oceanic (6 plants) (E. D. Godfrey, John G. Gillig, David McClure, John Wagner, J. C. G. Hupstal, Alexander Gordon.)	1					Fair.		Good.	No inspection.
Paulsboro (Standard Fuse Corp.)	3	Fair.		Fair.				Good.	Ordered to install a tank. To be connected to new sewer system.
Pleasantville (New Rodney Hotel.)	1	Good.	Good.		Poor.	Fair.		Fair.	New installation.
Point Pleasant (Beacon Hotel.)	13	Good.	Good.		Poor.			Poor.	Chlorine installed. Filters need overhauling. Requires more attention.
Pompton Lakes (Cap Works.)	6	Fair.			Poor.			Poor.	
Pompton Lakes (Fuse Works.)	2	Very good				Fair.		Fair.	
Powerville (Paper Mill.)	1	Good.				Good.		Good.	New installation.
Pitcon (American felt Co.)	5	Poor.					Good.	Good.	New installation.
Ralston (2 plants) (St. Margaret's School.)	1	Good.	Good.					Good.	New installation.
Red Bank (Schwartz estate.)	7	Good.	Good.				Good.	Good.	
River Edge (Short Hills (F. V. Skiff.)	4	Fair.	Good.	Good.			Fair.	Fair.	Receiving vaults too small. Better attention shown.
Scotch Plains (Somme Farms Sanatorium.)	2	Poor.							
Smithville (H. B. Smith Machine Co.)	2	Fair.					Poor.	Fair.	Experimental installation.
South Plainfield (Spicer Mfg. Co.)	8	Fair.						Fair.	
Springfield (Chemical Co. of America.)									

TABLE NO. II.—SEWAGE TREATMENT PLANTS HAVING SEDIMENTATION FOLLOWED BY SUBSEQUENT TREATMENT—Continued.
Plants Receiving Sewage from Less Than 200 Persons Daily.

NAME OR LOCATION OF PLANT.	Number of Inspections.	CONDITION OF							Remarks.
		Sed. tank.	Dosing Apparatus.	Contact Beds.	Sprinkling filter.	Sand filter.	Substrate Irrigation.	Final Effluent.	
Swartzwood (B. D. Rice Estate.)	1	Good.					Good.	Good.	Private estate.
Trenton (domestic) (Agasote Millboard Co.)	4	Fair.	Good.	Good.		Good.		Good.	Non-putrescible effluent.
Trenton (trade waste) (Agasote Millboard Co.)	5	Fair.					Fair.	Poor.	Experiments being conducted on trade wastes.
Trenton (De Laval Steam Turbine Co.)	2	Fair.	Good.	Good.				Fair.	Overloaded.
Tuckerton (Wireless Station.)	1	Poor.					Poor.		New installation.
Verona (Fagle Rock Mfg. Co.)	12	Good.	Good.				Fair.	Fair.	Irrigation area should be underdrained.
Verona (Fagle Rock Mfg. Co.)	4	Good.	Good.				Fair.	Fair.	Distribution should be improved.
Vineland (Home for Feeble-Minded Women.)	1	Good.	Good.				Fair.	Fair.	
Vineland (Home for Feeble-Minded Boys.)	1	Good.					Fair.	Fair.	
Warrenville (P. Hoffheimer.)	2	Good.				Good.		Good.	New installation.
Warrenville (N. & J. Hoffheimer.)	2	Good.				Good.		Good.	New installation.
Westfield Golf Club.	3	Good.	Good.	Poor.				Good.	Raw sewage leaks through the bank. More attention required.
West Orange (J. F. Loree.)	2	Poor.	Fair.			Poor.		Fair.	More area required.
Woodstown (Roberts Canning Co.)	3	Good.	Poor.			Poor.		Poor.	Overloaded.
Worcester (Granite Linen Mills.)	2	Poor.				Poor.		Poor.	

TABLE NO. 12.—PLANTS FOR THE TREATMENT OF CREAMERY WASTES.

NAME OR LOCATION OF PLANT.	Number of inspections.	Condition of settling tank.	Regularity of lime application.	Appearance of effluent.	General condition of plant.	Remarks.
Branchville	1	Good		Good	Good	No lime added.
Clinton	3	Good	Once a day	Good	Good	
Hampton	1	Fair		None	Fair	No overflow to stream.
Metuchen	1	Fair		Fair	Fair	No lime used.
Neshanic	2	Good	Once a day	Fair	Fair	
Quarryville	1	Fair		Fair	Fair	
Sharptown	3	Poor		Poor	Very poor	No lime used.
Sunnyside	3	Fair		Good	Fair	No lime used.
Three Bridges	2	Good	Once a day	Good	Good	
Woodstown	4	Very good	Once a day	Very good	Very good	

TABLE NO. 13.—ANALYSES OF THE FINAL EFFLUENT OF THE PRINCIPAL SEWAGE TREATMENT PLANTS IN THE STATE.

NAME OR LOCATION OF PLANT.	Date of collection of sample.	Relative stability by methylene blue, Per cent.	BACTERIA.			Presumptive test for B. coli in bile tubes 37° C.	Remarks.
			Total Count.	Red Colonies.	Count of <i>Litmus Lac-tose</i> Agar Plates 37°C.		
Atlantic City	8-15-17	37	.....	.....	100	Screened sewage disinfected. Sprinkling filter effluent. Tank only. Siphons not operating properly.
Audubon	8-15-17	37	5,000,000	16,000	100,000		
Beverly	2-30-16	37	.....	.....	100,000	
Bordentown	4-23-17	21	200,000	35,000	10,000		
Brown's Mills	8-27-17	68	160,000	60,000	10,000	Not sufficient attention.	
Burlington	10-1-17	50	.....	.....	10,000	
Burlington (Thos. Devlin & Co.)	7-19-17	60	5,000	2,000	100,000	Land filter. Operation excellent.	
	8-6-17	60	350	less than 10	10,000		
	4-27-17	96	.....	.....	.....	Averages of a series of tests. Reconstruction recommended.
	1-2-17	96	.....	.....	.....
	9-13-17	96	.....	.....	.....	Average taken from monthly report. Result of good attention. Land filter. Plant to be reconstructed. Good results when proper attention is given.
	4-27-17	96	.....	.....	.....
Bridgeton	1-2-17	96	48,000	18,000	10,000		
	2-23-17	96	40,000	20,000	10,000		
Caldwell	4-23 to 27-17	80	.....	.....	.....
Chatham-Madison	12-26-16	21	.....	.....	.....
	9-6-17	21	.....	.....	.....
	April, May and June 1917	96	2,100	4,000	1,000		
Flemington	10-10-16	68	13,500	.....	.....
	2-27-17	96	.....	.....	.....
	4-19-17	37	.....	.....	.....
Freehold	10-3-17	68	.....	.....	.....
Haddonfield	1-4-17	37	.....	.....	.....
	8-17-17	37	.....	.....	.....
Haddon Heights	4-11-17	37	.....	.....	.....
	8-15-17	96	.....	.....	.....

TABLE NO. 13.—ANALYSES OF THE FINAL EFFLUENT OF THE PRINCIPAL SEWAGE TREATMENT PLANTS IN THE STATE.—Continued.

NAME OR LOCATION OF PLANT.	Date of collection of sample.	Relative stability by methylene blue, Per cent.	BACTERIA.			Remarks.
			Total Count.	Count of Litmus Lactose Agar Plates 37°C.	Presumptive test for B. coli in bile tubes at 37°C.	
Hammonton	2-26-17	96	2,300	1,100	100	Raw sewage weak.
Hightstown	8-23-17	96	.....	.....	.....	Tank not large enough.
Island Heights	2-1-17	68	.....	.....	.....	Tank effluent disinfected.
Keypoint	9-6-17	96	.....	.....	.....	.....
	12-7-16	.....	1,000	100	100	.....
	2-2-17	.....	100,000	50,000	10,000	.....
	4-25-17	.....	.....	less than 100	10	.....
	3-9-17	.....	.....	less than 100	100	.....
	7-16-17	.....	1,600	500	1,000	.....
	10-2-17	96	.....	.....	.....	Excellent attention.
Kenilworth (American Can Co.)	4-20-17	.....	100,000	80,000	10,000	Overloaded.
Lakewood	1-3-17	21	.....	.....	.....	Plant on low ground.
Medford	8-17-17	37	.....	.....	.....	Water table high.
	12-13-16	50	.....	.....	.....	Overloaded.
Merchantville	2-23-17	37	95,000	3,000	1,000	.....
	8-9-17	92	.....	.....	.....	.....
	8-20-17	80	.....	.....	.....	.....
Moorestown	12-13-16	80	175,000	35,000	10,000	Imhoff tank requires closer attention.
	3-1-17	80	.....	.....	.....	.....
Morris Plains	2-15-17	84	500	100	1,000	No higher dilutions run.
Morristown	7-17-17	68	.....	.....	.....	Irregular results from disinfecting.
Milville	4-2-17	.....	130,000	.....	100,000	.....
	9-23-17	.....	330,000	15,000	100,000	.....
Newton (Sparta)	4-26-17	96	1,200	400	10,000	.....
Newton	2-7-17	96	10,000	4,000	10,000	.....
	4-26-17	96	900	700	1,000	.....
Oaklyn	1-5-17	96	.....	.....	.....	.....
	8-10-17	96	8,500	1,500	1,000	New plant.

TABLE NO. 13.—ANALYSES OF THE FINAL EFFLUENT OF THE PRINCIPAL SEWAGE TREATMENT PLANTS IN THE STATE.—Continued.

NAME OR LOCATION OF PLANT.	Date of collection of sample.	Relative stability by methylene blue, Per cent.	BACTERIA.			Remarks.
			Total Count.	Count of Litmus Lactose Agar Plates 37°C.	Presumptive test for B. coli in bile tubes at 37°C.	
Ocean City	11-21-16	.....	210,000	70,000	10,000	.....
Plainfield	9-12-17	96	.....	.....	.....	Overloaded beds cannot treat winter flow effectively.
Princeton (University.)	1-8-17	96	.....	.....	.....	Tank effluent disinfected. New tank under construction.
Princeton (Northeast.)	1-8-17	50	.....	.....	.....	Improvement in operation.
	9-27-17	96	.....	.....	.....	.....
	5-24-17	37	2,000	less than 1,000	100	.....
Red Bank	1-22-17	.....	3,000	less than 100	1,000	.....
	1-22-17	60	1,000	less than 100	100	.....
Riverside	2-13-17	96	.....	.....	.....	.....
	8-7-17	94	.....	.....	.....	.....
Reebling	12-30-16	96	.....	.....	.....	.....
Ventnor	2-19-17	21	65,000	15,000	10,000	Imhoff tank and chlorine disinfecting; sewage septic.
	9-19-17	.....	140,000	50,000	100,000	Reconstruction recommended.
	11-22-16	.....	150,000	.....	10,000	.....
Vineland	3-30-17	37	13,000	500	100,000	Overloaded; plans approved for addition.
	9-14-17	800	.....	.....	.....	.....
Washington	2-18-17	37	18,000	11,000	100	.....
Wenonah	2-13-17	21	140,000	60,000	10,000	.....
	8-20-17	96	.....	.....	.....	.....
Westfield	Daily	96	.....	.....	.....	Sample collected by superintendent.
Woodstown	1-9-17	84	.....	.....	.....	Overloaded in winter; new bed turned on.
	9-4-17	96	.....	.....	.....	.....
Woodstown (Stapice Dairy.)	9-4-17	96	.....	.....	.....	Lime used regularly.

Report of the State Laboratory of Hygiene.

R. B. FITZ-RANDOLPH, CHIEF.

The following report deals with the work of the Laboratory of Hygiene from November 1st, 1916, to October 31st, 1917, inclusive. The work of the laboratory falls in three main divisions: The bacteriological laboratory, which examines specimens from suspected cases of communicable diseases sent by physicians and institutions throughout the state; the food and drug laboratory, which examines samples of food and drugs submitted by the Bureau of Food and Drugs, and by local health boards; and the water and sewage laboratory, which examines samples of water and sewage submitted by the Bureau of Engineering and by local boards of health.

Bacteriological Laboratory—The number of bacteriological specimens examined is considerably larger than during the previous fiscal year. The increase is particularly large in those specimens which require the expenditure of considerable time for their examination. Nevertheless, the laboratory staff has not been increased, with the exception of one laboratory assistant, who helps in the examination of specimens by Wasserman's method. The increase in the total number of specimens is partly due to the receipt of large numbers of specimens from various military camps throughout the state, and partly to the examination of specimens by Wasserman's method, which was begun during January, 1917. The number of specimens now being received has already reached such proportions as to test the resources of the laboratory, and, undoubtedly, the number will be still further increased during the coming year. A number of state institutions have availed themselves of the opportunity of having Wasserman reactions made on their inmates, one institution of about seven hundred inmates having already submitted specimens from each one. At the present time specimens are being received from three other state institutions, and it is hoped that during the coming year we may be in a position to make regular examinations in all these institutions.

While the room used at present for the examination of these specimens is small, it has proven adequate during the past ten months; but this work is certain soon to increase to such an extent that it will be necessary to provide additional facilities. This lack of space is also felt in other parts of the bacteriological laboratory, particularly in the room where culture media is made. The laboratory should be in a

position to supply media to local laboratories throughout the state more liberally than it can do at present. Experience has shown that it is a very great convenience to local laboratories to be able to secure culture media at a reasonable price and of uniform quality, particularly to those laboratories which examine but few specimens and to whom the preparation of culture media would be a time-consuming and wasteful procedure.

The lack of laboratory working space also makes it impossible, at the present time, to engage in certain new lines of work, the demands for which are being constantly made. One of these is the identification of types of pneumococci as an aid in the treatment of cases of pneumonia. This work is being done in a number of the more progressive public health laboratories, and should be included here as a routine procedure. It is also very desirable that the work now being carried on in the examination of specimens of feces and urine from suspected typhoid carriers and cases should be extended. This work is particularly valuable in connection with the examination of food handlers, which is now being undertaken by some of the more progressive local boards of health, and the laboratory should be able to comply with any reasonable demands upon it by such local boards.

The act requiring the reporting of venereal diseases provides that the State Department of Health shall furnish salversan and other remedial agents for the treatment of syphilis to physicians throughout the state at cost. Salversan, and the drugs allied to it, are exceedingly expensive at the present time, because of the difficulty in securing these articles caused by the war. It is suggested, therefore, that facilities be provided in the laboratory, so that we may engage in the manufacture of drugs of this character. If the Department is to provide these drugs for the treatment of syphilis, it is more economical at the present time to manufacture them than to purchase them. It is also suggested that a fund be set aside as a working capital to carry on the distribution of these drugs. As it stands at present, the sale of these drugs to physicians becomes a drain upon the resources of the Department, because the Department must expend its appropriation in the purchase of the drugs, and the money which is received from the physicians does not come back to the Department appropriation, but is turned into the state treasury. It is recommended, therefore, that legislation be secured which will provide a substantial fund as a working capital for the distribution of materials of this sort.

Because of the disturbances in travel brought about by the war, the mail service has been unusually poor during the past year. This interferes very seriously with the efficiency of the bacteriological laboratory, the usefulness of which depends upon the rapidity with which its reports can be returned to physicians. At the present time it takes too long for specimens to get to the laboratory from the northern and extreme southern parts of the state to make the laboratory service of any considerable value to physicians located in those sections. It would therefore be exceedingly desirable to provide for the establish-

ment of at least two branch laboratories, one in the vicinity of Jersey City, which could handle specimens from the extreme northern end of the state, and one somewhere in the southern part of the state where mail facilities are good.

It will be seen by referring to Table No. 1, which follows, and which shows the number of specimens which have been examined in the laboratory during each year since it was begun, that the facilities rendered by the laboratory are being taken advantage of to a greater extent each year by the physicians in the state.

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

	1896 and 1897	1898	1899	1900	1901	1902	1903
Diphtheria	627	600	577	974	1,864	1,847	2,000
Tuberculosis	253	516	766	892	1,211	1,467	1,853
Typhoid fever	27	175	339	431	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	8,234
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	3,028
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	12,618	21,594	16,424

	1911	1912	1913	1914	1915	1916	1917
Diphtheria	4,529	4,856	7,083	10,802	25,297	13,292	13,935
Tuberculosis	4,938	5,427	6,136	6,589	6,346	6,225	5,916
Typhoid fever	3,342	3,899	3,582	3,205	4,426	3,366	5,023
Malaria	320	355	403	399	413	460	351
Gonorrhoea .....	.....	.....	.....	.....	.....	1,132	1,117
Syphilis .....	.....	.....	.....	.....	.....	.....	1,822
Miscellaneous	589	796	1,138	1,277	1,566	511	549
Totals	13,718	15,313	18,342	22,272	38,048	24,986	28,713

*The number of these specimens have not been recorded.

The following table gives a summary by months of the specimens examined from November 1st, 1916, to October 31st, 1917, inclusive:

MONTH.	* DIPHTHERIA.						TUBERCULOSIS.					
	Primary.			Secondary.			Primary.			Secondary.		
	P ¹	N ²	U ³	P	N	U	P	N	U	P	N	U
November	150	1134	35	222	301	18	69	256	9	10	44	.....
December	106	543	17	238	666	25	87	289	4	16	56	.....
January	80	289	12	104	301	14	92	364	6	22	72	.....
February	58	254	14	86	140	1	88	335	11	18	69	.....
March	85	272	9	136	224	6	131	415	4	19	58	.....
April	57	289	7	117	262	2	102	353	4	6	55	.....
May	69	1309	43	84	250	49	109	358	6	21	61	.....
June	66	795	33	148	508	140	111	291	2	21	70	.....
July	81	551	14	207	537	72	131	254	6	25	49	.....
August	50	158	14	87	291	26	102	266	4	12	52	.....
September	87	227	9	89	191	7	86	261	4	22	50	.....
October	129	739	21	155	433	12	115	287	7	11	48	.....
Total	998	6560	228	1673	4104	372	1223	3729	67	203	684	10

* During the year 53 tests were made for the virulence of the diphtheria bacillus.

P¹ = Positive.
N² = Negative.
U³ = Unsatisfactory.

MONTH.	TYPHOID.						MALARIA.					
	Primary.			Secondary.			Primary.			Secondary.		
	P ¹	N ²	U ³	P	N	U	P	N	U	P	N	U
November	35	113	14	10	13	4	2	14	1	.....	1	.....
December	40	91	4	8	7	.....	.....	18	3	.....	3	.....
January	35	93	4	5	9	.....	.....	9	.....	.....	.....	.....
February	29	95	4	3	10	1	.....	8	.....	.....	.....	.....
March	33	137	4	3	17	2	.....	17	4	.....	1	.....
April	28	159	8	5	19	1	.....	23	3	.....	1	.....
May	21	160	9	4	24	1	1	24	3	.....	1	.....
June	17	172	10	11	13	2	4	33	3	.....	.....	.....
July	44	376	6	5	19	4	6	36	4	1	.....	.....
August	111	1041	32	19	40	5	1	36	7	.....	.....	.....
September	128	647	43	41	55	14	4	37	3	1	4	2
October	65	733	18	21	66	3	1	23	4	.....	3	.....
Total	586	3817	156	135	292	37	19	278	35	2	14	3

MONTH.	GONORRHEA.						MISCELLANEOUS.					
	Primary.			Secondary.			Primary.			Secondary.		
	P ¹	N ²	U ³	P	N	U	P	N	U	P	N	U
November	21	41	10	3	6	4	4	16	3	.....	11	1
December	21	40	12	6	14	.....	7	20	1	1	9	.....
January	28	38	10	6	13	3	11	15	2	2	2	.....
February	25	27	13	3	4	2	11	16	1	4	2	.....
March	26	38	8	.....	.....	.....	10	15	5	.....	7	.....
April	24	48	9	3	8	4	9	48	1	4	4	.....
May	28	42	12	8	12	3	11	18	1	4	2	.....
June	26	33	17	7	8	4	11	8	5	.....	1	.....
July	21	27	11	2	15	4	9	15	4	1	4	.....
August	47	58	12	6	1	3	8	41	4	2	8	.....
September	28	47	10	2	3	3	12	29	3	6	6	.....
October	29	35	11	2	13	.....	20	44	5	5	19	.....
Total	324	474	135	48	107	29	123	285	35	29	76	1

MONTH.	COMPLEMENT FIXATION FOR SYPHILIS.														Total.	
	Primary.							Secondary.								
	4+	3+	2+	+	±	-	U	4+	3+	2+	+	±	-	U		
November	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,575
December	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	2,354
January	2	.....	.....	.....	.....	4	.....	.....	.....	.....	.....	.....	.....	.....	.....	1,629
February	4	.....	1	1	.....	7	1	.....	.....	.....	.....	.....	.....	.....	.....	1,347
March	19	1	1	.....	.....	71	.....	1	.....	2	.....	.....	.....	.....	.....	1,794
April	16	3	3	.....	.....	155	.....	.....	2	.....	1	5	.....	.....	.....	1,850
May	10	3	3	2	.....	209	2	3	1	.....	1	3	.....	.....	.....	2,986
June	14	4	6	1	.....	195	5	1	1	.....	2	1	13	.....	.....	2,813
July	16	5	.....	14	4	263	13	2	1	.....	2	.....	9	.....	.....	2,870
August	17	6	7	6	.....	185	23	9	.....	2	1	.....	21	.....	.....	2,830
September	28	1	1	2	.....	125	9	6	.....	.....	.....	14	1	.....	.....	2,349
October	41	9	1	2	2	156	9	6	1	1	1	1	8	1	.....	3,316
Total	167	32	23	28	6	1380	62	28	4	7	7	3	73	2	.....	28,713

The following table shows the number and various kinds of miscellaneous specimens examined in the laboratory from November 1st, 1916, to October 31st, 1917, inclusive:

Specimen For	Positive.	Negative.	Unsatisfactory.
Rabies	32	31	6
Acute anterior poliomyelitis (spinal fluid) ..	2		
Anthrax (human)		3	
Anthrax (animals)	2	5	2
B. tuberculosis (spinal fluid)		4	1
B. tuberculosis (urine)	6	28	1
B. tuberculosis (various lesions)	13	21	1
B. typhosus (blood)		1	
B. typhosus (faeces)	21	115	3
B. typhosus (urine)	1	25	1
B. typhosus (water)		10	
B. para-typhosus (faeces)		1	
B. para-typhosus (agglutination test)	3	22	5
Bacterial infection (blood)	3		1
Bacterial infection (faeces)		4	
Bacterial infection (milk)	2		
Bacterial infection (pleural fluid and spinal fluid)	4	2	1
Bacterial infection (pus)	55	12	9
Bacterial infection (urine)	4	1	
Bacterial infection (various kinds)	3	1	
Diphtherial infection (eye)		1	
Diphtherial infection (vagina)		2	
Gonococcus infection (eye)	1	13	3
Gonococcus infection (urine)		41	2
Meningitis (naso-pharynx)		4	
Treponema pallida		14	1
Totals	152	361	36

The following table shows the number and species of animals examined for rabies from November 1st, 1916, to October 31st, 1917, inclusive:

Dogs—Positive, 32; negative, 26; unsatisfactory, 5.
 Cats—Negative, 1.
 Cows—Negative, 3.
 Horses—Negative, 1; unsatisfactory, 1.

Following are shown the towns, arranged by counties, from which animals found to be rabid were received:

ATLANTIC COUNTY—Atlantic City, 7; Buena, 1; Mays Landing, 1; Ventnor City, 2.
 BERGEN COUNTY—Englewood, 1; Hackensack, 1; Maywood, 1.
 BURLINGTON COUNTY—Moorestown, 1.
 CAMDEN COUNTY—Camden, 1; Haddonfield, 2.
 CUMBERLAND COUNTY—Millville, 3; Vineland, 3.
 GLOUCESTER COUNTY—Glassboro, 1; Swedesboro, 1.
 PASSAIC COUNTY—Clifton, 1; Passaic, 1.
 SUSSEX COUNTY—Hamburg, 1.
 UNION COUNTY—Mullica Hill, 1; Rahway, 1; Roselle, 1.

Contrary to the popular belief, the following table indicates that rabies is no more frequent in the warmer months than at other times:

Month.	Positive.	Negative.	Unsatisfactory.
November, 1916	3	1	
December, 1916	1	1	
January, 1917	3	5	
February	7	5	
March	5	3	
April	4	1	
May	1	2	
June	2	4	
July	2	3	3
August		4	2
September			1
October	4	2	
Totals	32	31	6

The following table shows the various kinds and amounts of culture media and reagents supplied by the laboratory to persons engaged in public health work throughout the state:

Media and Reagents.	Tubes.	Grams.
Blood serum	2,502	
Plain agar		226,000
Peptone bile		33,000
Endo media		38,500
Lactose fuchsine sulphite solution		2,250
Nutrient broth		96,500

Miscellaneous.

Autogenous vaccine

2

The following table shows the number of outfits supplied to repositories maintained throughout the state and to physicians who are not conveniently located near repositories:

Diphtheria—Regular outfits	10,156
Serum tubes	6,001
Swab tubes	4,629
Total	20,786
Tuberculosis outfits	8,066
Typhoid fever outfits	6,485
Malaria outfits	1,137
Gonorrhoea outfits	2,018
Syphilis outfits	2,167
Faeces and urine outfits	219
Silver nitrate outfits	385
Total	41,263

Food and Drug Laboratory—The Food and Drug Laboratory makes analyses of samples which are collected by inspectors of the Bureau of Food and Drugs. It also examines samples which are submitted by local health officers throughout the state, and certain samples submitted by the State Purchasing Agent. In addition to this it carries on certain other investigations of a chemical nature, such as the investigation of industrial plants for the purpose of ascertaining whether or not they produce objectionable fumes and odors. In addition to making the examinations above mentioned, the laboratory co-operates with local boards of health by providing facilities whereby local men may be trained in the simpler analytical methods, which they can use to advantage in their own localities. During the year a number of local men have taken advantage of these facilities and have visited the laboratory for instruction.

The working force of the laboratory has been reduced during the year; the Chief Chemist having resigned to accept a much more lucrative position, and one of the assistant chemists having accepted a commission in the Sanitary Corps of the Army, and conditions which prevail at present, due to the war, make it exceedingly difficult to secure satisfactory laboratory assistants. It has therefore been necessary to curtail somewhat the work of the Food and Drug Laboratory, and it will be necessary to curtail it much more during the coming fiscal year.

The following table shows the total number of samples analyzed, which is 4,613, an increase of 11.23 per cent. over the total for the last fiscal year:

<i>Character of Sample.</i>	FOODS.	<i>No. Examined.</i>
Milk and cream, Chem. Exam.....		2,298
Milk and cream, Bact. Exam.....		990
Butter		78
Oleomargarine		4
Lard		39
Olive oil		26
Other oils		3
Cider		1
Cider vinegar		5
Honey		13
Molasses		29
Extracts (flavoring)		39
Alcoholic beverages		6
Soft drinks		83
Meat products		47
Peaches (canned)		2
Tomato products		166
Spices		19
Pork and beans (canned).....		1
Preservative (food)		2
Total		3,851

DRUGS AND TOILET PREPARATIONS.

Tincture of ferric chloride.....	51
Tincture of iodine	10
Tincture of larkspur	31
Tincture of opium	1
Spirits of camphor	18
Camphorated oil	1
Superol oil	1
Witch hazel	107
Toilet preparations	368
Tablet preparations	26
Liniments	32
Hydrogen peroxide	1
Citrate of magnesia	27
Mercurial ointment	60
Proprietary remedies	6
Other U. S. P. & N. F. preparations.....	8
Total	748
Miscellaneous (8 varieties)	14
Total food and drugs.....	4,613

Water and Sewage Laboratory—The number of samples analyzed by the Water and Sewage Laboratory during the fiscal year was 3,859, an increase of 32 per cent. over the number examined last year. No increase in the working force has been made, nor have any material changes been made in the methods of analysis which have been described in previous reports. In addition to the water and sewage analyses made in the laboratory, a large number of preliminary tests and field investigations have been made by the assistant sanitary engineers, using the automobile laboratory, which is under the direct supervision of the Bureau of Engineering. Most of the tests which are begun in the field by the engineers are brought to the laboratory for completion, although in times of emergency the entire laboratory procedure may be carried on in the field, as was the case when the automobile laboratory was sent to Pompton Lakes to assist the Bureau of Local Health Administration in the investigation of the typhoid epidemic there.

Unfortunately, the laboratory staff is too small to carry on certain investigations regarding the treatment of trade wastes, which are urgently needed, particularly at this time, when the state is filling up with new factories, many of which have objectionable liquid wastes which must be disposed of.

The smallness of the laboratory force has made it necessary to refuse many applications for the analysis of water from private supplies. During the year a considerable number of samples of water from camp sites have been examined at the request of army officers.

The following table shows the number of samples of water and sewage examined during the year:

Public water supplies	1,879
Private water supplies	242
State institution water supplies.....	96
Bottled water supplies	1,012
Water supplies for railroad certification.....	98
Proposed public water supplies.....	7
Special water samples	97
Sewage samples	339
Trade wastes samples	66
Miscellaneous samples	23
Total	<u>3,859</u>

Report of the Bureau of Vital Statistics.

DAVID S. SOUTH, CHIEF.

The tables in the following report in reference to mortality statistics in various municipalities in New Jersey are somewhat different from those prepared in previous years.

In view of the great volume of data necessary to be published in the Bureau of Vital Statistics, and on recommendation of the Commissioner of Reports, we have made every effort to abbreviate the tabulations.

BIRTHS.

During the past year the Bureau of the Census at Washington, D. C., sent representatives to the Bureau of Vital Statistics for the purpose of ascertaining the completeness of birth registration in New Jersey. However, it was necessary to recall these representatives before the work had been actually finished, hence no formal report of the same can be made, but from data on hand it would appear that in some parts of the state not over 70 per cent. of the births are reported and in very few districts 90 per cent., with a possibility of an average for the entire state of about 75 per cent. of births reported. Therefore, the necessity for more stringent methods in reference to birth registration is apparent.

The national law requiring the registration of men between twenty-one and thirty-one years of age resulted in many requests for birth records, and a large number of these could not be found, much to the embarrassment of the applicants. This is only one of the many important reasons why birth registration should be at once perfected, and changes in the law are at the present time under consideration, which, if presented to the Legislature, we hope will receive favorable consideration.

During the past year a large number of prosecutions were recommended against physicians and midwives who failed to report births, and in many instances the penalties were collected, records of each case being filed with the State Department of Health.

MARRIAGES.

The marriage license law as it stood originally, requiring a twenty-four hour period to elapse between the application and the marriage ceremony, was on the statute books for several years and found to be entirely satisfactory. However, a recent act of the Legislature extended the period of time from the date of application to the time the ceremony may be performed to seventy-two hours, or three days. This has on many occasions been found very embarrassing and has not in our opinion strengthened the law, but has had a tendency to weaken the same, for the reason that we believe in many cases local registrars have been compelled to antedate these licenses in order to assist the contracting parties, who had issued invitations and made plans for their wedding without knowledge of the three-day limit. It is earnestly hoped that this amendment to the law will be repealed.

DEATHS.

The tables in the report of the Bureau of Vital Statistics of the present year reflect only the exact mortality data in each district, for the reason that the rules for the transfer of non-resident deaths have been rigidly observed, and each district has only been charged with the deaths of persons who were actual residents of the same at the time of death.

It is regretted that the Bureau has not sufficient help to prepare tabulations showing the mortality data both as regards residents and non-residents. However, this may be possible sometime in the near future.

GENERAL SUMMARY.

Deaths registered, indexed and tabulated.....	44,186
Births registered, indexed and tabulated.....	70,211
Still-births registered, indexed and tabulated.....	3,221
Marriages registered, indexed and tabulated.....	31,169
Total records registered, tabulated and permanently preserved.....	148,787
Certified copies issued and searches made for which fees were received,	3,390
Certified copies issued and searches made in pension cases for which no fees were received.....	4,673
Fees returned to State Treasurer for certified copies and searches...	\$2,681.35

TABLE 1.—BIRTHS, MARRIAGES AND DEATHS BY COUNTIES, CITIES, BOROUGHES AND TOWNSHIPS FOR THE YEAR 1916.

ATLANTIC COUNTY.

NAME OF PLACE.	B.	M.	D.
Absecon City	8	6	11
Atlantic City	927	639	679
Buena Vista Twp.	102	30	41
East Atlantic City			
Egg Harbor City	55	20	36
Egg Harbor Twp.	36	7	17
Folsom Boro.	2	1	4
Galloway Twp.	18	3	32
Hamilton Twp.	38	7	24
Hammonton Town	161	78	82
Linwood Boro.			1
Longport Boro.	2	2	
Margate City	2		1
Mullica Twp.	13		14
Northfield City	20	2	13
Pleasantville City	93	53	83
Port Republic City		2	6
Somers Point City	13	3	14
Ventnor City	27	3	9
Weymouth Twp.	12	1	9
	1529	837	1076

BERGEN COUNTY.

NAME OF PLACE.	B.	M.	D.
Allendale Boro.	10	7	16
Alpine Boro.	9	2	3
Bergenfield Boro.	52	17	21
Bogota Boro.	46	15	35
Carlstadt Boro.	98	54	55
Cliffside Park Boro.	151	50	64
Closter Boro.	21	8	15
Cresskill Boro.	7	6	10
Delford Boro.	13	9	17
Demarest Boro.	8	3	2
Dumont Boro.	46	10	20
East Paterson Boro.	26	1	5
East Rutherford Boro.	126	49	50
Edgewater Boro.	69	23	46
Emerson Boro.	24	2	10
Englewood City	272	98	168
Englewood Cliffs Boro.	3	4	8
Fairview Boro.	153	45	54
Fort Lee Boro.	84	39	72
Franklin Twp.	36	9	19
Garfield Boro.	549	176	196
Glen Rock Boro.	39	5	16
Hackensack Town	471	197	258
Harrington Park Boro.	8	3	7
Hasbrouck Heights Boro.	29	7	32
Haworth Boro.	12	2	9
Hillsdale Twp.	26	5	17
Hohokus Boro.	8	6	3
Hohokus Twp.	67	30	28
Leonia Boro.	24	12	28
Little Ferry Boro.	52	4	33
Lodi Boro.	248	48	88
Lodi Twp.	26	4	2
Maywood Boro.	27	11	14
Midland Twp.	35	9	22
Midland Park Boro.	58	18	21

Bergen County—Continued.

NAME OF PLACE.	B.	M.	D.
Montvale Boro.	9	2	4
Moonachie Boro.	23	6	11
North Arlington Boro.	13	2	9
Northvale Boro.	29	2	11
Norwood Boro.	13	1	6
Oakland Boro.	11	3	9
Old Tappan Boro.	5		4
Orvil Twp.	18	3	17
Palisade Twp.	22	3	20
Palisade Park Boro.	55	19	30
Park Ridge Boro.	28	11	18
Ramsey Boro.	26	10	25
Ridgefield Boro.	30	15	16
Ridgefield Park Boro.	96	32	55
Ridgewood Village	78	50	91
Riverside Boro.	7	1	7
Rivervale Twp.	2		8
Rutherford Boro.	125	61	91
Saddle River Boro.	2		6
Saddle River Twp.	61	9	25
Teaneck Twp.	50	13	40
Tenafly Boro.	59	14	26
Union Twp.	212	48	73
Upper Saddle River Boro.	2	9	2
Wallington Boro.	138	5	56
Washington Twp.	1	2	1
Westwood Boro.	34	11	23
Woodcliff Lake Boro.	8		4
Woodridge Boro.	22	4	13
	4112	1326	2165

BURLINGTON COUNTY.

NAME OF PLACE.	B.	M.	D.
Bass River Twp.	14	3	9
Beverly City	74	27	39
Beverly Twp.	39	19	36
Bordentown City	63	56	76
Bordentown Twp.	11		4
Burlington City	214	118	175
Burlington Twp.	27	3	19
Chester Twp.	121	34	76
Chesterfield Twp.	21	2	29
Cinnaminson Twp.	27	6	17
Delran Twp.	33	7	19
Eastampton Twp.	13	2	9
Evesham Twp.	23	6	18
Fieldsboro Boro.	7	4	6
Florence Twp.	220	25	101
Lumberton Twp.	26	12	26
Mansfield Twp.	23	5	20
Medford Twp.	46	14	37
Mt. Laurel Twp.	36	3	20
New Hanover Twp.	21	6	20
Northampton Twp.	112	70	128
North Hanover Twp.	6	4	9
Palmyra Twp.	63	25	60
Pemberton Boro.	5	6	14
Pemberton Twp.	4	4	16
Riverside Twp.	152	71	85
Riverton Boro.	51	26	25

Monmouth County—Continued.

NAME OF PLACE.	B.	M.	D.
Englishtown Boro.	6	6	15
Fair Haven Boro.	24	9	23
Farmingdale Boro.	12	8	5
Freehold Town.	51	52	97
Freehold Twp.	31	8	23
Highlands Boro.	27	16	28
Holmdel Twp.	10	3	23
Howell Twp.	22	8	37
Keyport Boro.	64	43	56
Long Branch City.	386	98	186
Manalapan Twp.	23	7	21
Manasquan Boro.	26	21	31
Marlboro Twp.	15	7	21
Matawan Boro.	22	14	44
Matawan Twp.	51	5	18
Middletown Twp.	85	35	104
Millstone Twp.	14	5	19
Monmouth Beach Boro.	4	3	3
Neptune Twp.	121	34	102
Neptune City Boro.	16	10	10
Ocean Twp.	14	10	39
Raritan Twp.	43	9	37
Red Bank Boro.	190	105	145
Rumson Boro.	24	11	21
Sea Bright Boro.	14	6	11
Shrewsbury Twp.	30	7	30
Spring Lake Boro.	61	6	31
Upper Freehold Twp.	39	5	23
Wall Twp.	62	25	57
West Long Branch Boro.	9	3	8
	1841	850	1618

MORRIS COUNTY.

NAME OF PLACE.	B.	M.	D.
Boonton Town	109	70	75
Boonton Twp.	10	12	12
Butler Boro.	63	32	30
Chatham Boro.	39	15	40
Chatham Twp.	11	3	6
Chester Twp.	19	7	16
Denville Twp.	20	6	16
Dover Town	242	124	113
Florham Park Boro.	4	8	8
Hanover Twp.	79	28	78
Jefferson Twp.	27	3	18
Madison Boro.	113	45	74
Mendham Boro.	31	5	14
Mendham Twp.	13	1	9
Montville Twp.	16	6	31
Morristown Town	325	126	171
Morris Twp.	36	7	33
Mt. Arlington Boro.	11	1	4
Mt. Olive Twp.	21	4	18
Netcong Boro.	61	12	21
Passaic Twp.	23	7	24
Pequanock Twp.	49	9	43
Randolph Twp.	40	5	52
Rockaway Boro.	59	33	26
Rockaway Twp.	58	3	53
Roxbury Twp.	59	15	69
Washington Twp.	18	6	33
Wharton Boro.	52	16	41
	1608	589	1128

OCEAN COUNTY.

NAME OF PLACE.	B.	M.	D.
Barnegat City Boro.	2	6	6
Bay Head Boro.	8	3	5
Beach Haven Boro.	12	7	12
Berkeley Twp.	34	7	33
Brick Twp.	42	18	41
Dover Twp.	2	4	9
Eagleswood Twp.	5	8	15
Harvey Cedars Boro.	16	2	13
Island Heights Boro.	10	5	13
Jackson Twp.	100	49	63
Lacey Twp.	3	1	8
Lakewood Twp.	5	1	8
Lavalette Boro.	10	4	9
Little Egg Harbor Twp.	5	1	8
Long Beach Twp.	10	4	9
Manchester Twp.	5	1	4
Mantoloking Boro.	19	10	22
Ocean Twp.	12	17	11
Plumstead Twp.	3	2	3
Point Pleasant Beach.	3	1	5
Sea Side Heights Boro.	2	8	6
Seaside Park Boro.	10	4	7
Stafford Twp.	13	12	6
Surf City Boro.	10	4	7
Tuckerton Boro.	316	168	291
Union Twp.			

PASSAIC COUNTY.

NAME OF PLACE.	B.	M.	D.
Acquackanonk Twp.	539	142	237
Haledon Boro.	34	51	31
Hawthorne Boro.	62	31	47
Little Falls Twp.	65	29	39
North Haledon Boro.	28	4	17
Passaic City	2111	1446	899
Paterson City	2883	1422	1982
Pompton Twp.	193	49	94
Pompton Lakes Boro.	35	30	26
Prospect Park Boro.	84	16	32
Totowa Boro.	32	11	15
Wayne Twp.	26	13	28
West Milford Twp.	35	13	26
West Paterson Boro.	42	1	21
	6169	3258	3494

SALEM COUNTY.

NAME OF PLACE.	B.	M.	D.
Alloway Twp.	30	7	18
Elmer Boro.	22	21	31
Elsinboro Twp.	6	4	4
Lower Alloways Creek Twp.	23	4	14
Lower Penns Neck Twp.	31	1	19
Mannington Twp.	15	4	27
Oldmans Twp.	28	12	19

Salem County—Continued.

NAME OF PLACE.	B.	M.	D.
Penns Grove Boro.	172	66	93
Pilesgrove Twp.	32	6	25
Pittsgrove Twp.	33	12	12
Quinton Twp.	20	8	15
Salem City	160	61	124
Upper Penns Neck Twp.	134	4	45
Upper Pittsgrove Twp.	19	8	25
Woodstown Boro.	29	16	26
	754	230	497

SOMERSET COUNTY.

NAME OF PLACE.	B.	M.	D.
Bedminster Twp.	21	13	10
Bernards Twp.	92	27	54
Bound Brook Boro.	181	91	79
Branchburg Twp.	14	2	14
Bridgewater Twp.	22	2	27
Franklin Twp.	26	11	46
Hillsborough Twp.	70	15	50
Millstone Boro.	2	2	6
Montgomery Twp.	30	7	28
North Plainfield Boro.	95	57	81
North Plainfield Twp.	11	3	19
Peapack-Gladstone Boro.	26	4	17
Raritan Twp.	135	23	53
Rocky Hill Boro.	7	3	9
Somerville Boro.	127	66	102
South Bound Brook Boro.	21	7	26
Warren Twp.	11	7	11
	891	340	632

SUSSEX COUNTY.

NAME OF PLACE.	B.	M.	D.
Andover Boro.	4	4	9
Andover Twp.	8	3	3
Branchville Boro.	12	6	13
Byram Twp.	12	13	13
Frankford Twp.	89	25	19
Franklin Boro.	30	3	34
Fredon Twp.	7	5	5
Green Twp.	6	6	4
Hampton Twp.	14	5	8
Hardyston Twp.	63	26	30
Hopatcong Boro.	2	2	2
Lafayette Twp.	10	3	10
Montague Twp.	6	13	13
Newton Twp.	71	48	72
Ogdensburg Boro.	5	1	4
Sandyston Twp.	10	6	13
Sparta Twp.	33	11	20
Stanhope Boro.	19	8	11
Stillwater Twp.	21	5	13
Sussex Boro.	24	17	21

Sussex County—Continued.

NAME OF PLACE.	B.	M.	D.
Vernon Twp.	28	12	22
Walpack Twp.	11	1	2
Wantage Twp.	35	23	23
	520	187	364

UNION COUNTY.

NAME OF PLACE.	B.	M.	D.
Clark Twp.	7	1	6
Cranford Twp.	92	45	61
Elizabeth City	2444	943	1230
Fanwood Boro.	9	2	14
Fanwood Twp.	38	15	38
Garwood Boro.	61	12	17
Hillside Twp.	68	15	33
Kenilworth Boro.	35	3	8
Linden Boro.	58	23	38
Linden Twp.	96	1	23
Mountainside Boro.	24	8	8
New Providence Boro.	10	3	6
New Providence Twp.	24	8	6
Plainfield City	667	220	408
Rahway City	206	84	163
Roselle Boro.	90	24	47
Roselle Park Boro.	87	26	49
Springfield Twp.	24	10	22
Summit City	236	80	131
Union Twp.	53	12	56
Westfield Town	150	54	98
	4455	1581	2456

WARREN COUNTY.

NAME OF PLACE.	B.	M.	D.
Alpha Boro.	22	11	26
Allamuchy Twp.	81	25	13
Belvidere Town	23	13	28
Blairstown Twp.	21	15	14
Franklin Twp.	35	6	14
Frelinghuysen Twp.	15	3	16
Greenwich Twp.	36	7	20
Hackettstown Town	69	27	66
Hardwick Twp.	9	2	5
Harmony Twp.	32	6	13
Hope Twp.	19	3	18
Independence Twp.	16	5	12
Knowlton Twp.	26	8	17
Lopatcong Twp.	9	9	9
Mansfield Twp.	23	5	19
Oxford Twp.	54	26	32
Pahaquarry Twp.	4	1	1
Phillipsburg Town	332	174	252
Pohatcong Twp.	18	4	18
Washington Boro.	45	46	46
Washington Twp.	13	20	20
White Twp.	16	6	11
	918	392	670

TABLE 2.—DEATHS IN THE COUNTIES OF NEW JERSEY AND IN EACH MUNICIPALITY OF LIST) : 1916

Table with 19 columns representing municipalities and rows listing causes of death such as Congenital debility, icterus and sclerema, Other diseases peculiar to early infancy, Lack of care, Senility, Suicide by poison, etc.

5,000 POPULATION OR OVER IN 1910, AND CAUSE OF DEATH (DETAILED INTERNATIONAL -Continued.

Table with 20 columns representing municipalities and rows listing causes of death such as Monmouth County, Asbury Park, Long Branch, Red Bank, Morris County, Dover, Morristown, Ocean County, Passaic County, Passaic City, Paterson, Salem County, Salem City, Somerset County, North Plainfield, Somerville, Sussex County, Union County, Elizabeth, Plainfield, Rahway, Summit, Westfield, Warren County, Phillipsburg.

TABLE 3.—DEATHS BY OCCUPATIONS, AGE GROUPS

	AGRICULTURE, FORESTRY AND ANIMAL HUSBANDRY.										
	Farmers.	Farm laborers.	Fishermen and oystermen.	Gardeners, florists, fruit growers and nurserymen.	Other agricultural and animal husbandry pursuits.	EXTRACTION OF MINERALS.	Foremen, overseers and inspectors.	Miners.	Quarry operatives.	MANUFACTURING AND MECHANICAL INDUSTRIES.	Bakers.
Tuberculosis of lungs.	10 to 19	2	2							1	1
	20 to 29	6	2							1	1
	30 to 39	1	1								
	40 to 49	1	1	1							
	50 to 59	11	1	1	1	1					
	60 to 69	9	1	1	1	1				1	
	70 to 79	6			1						
	80 to 89	3									
	90 and over										
	Totals	47	11	2	16	2		3	1		15
Cancer and other malignant tumors.	10 to 19	1		1							
	20 to 29	1									
	30 to 39	1									
	40 to 49	6	1								
	50 to 59	12				1					
	60 to 69	29	1		3	1					
	70 to 79	24	1		2		1		1		
	80 to 89	6		1							
	90 and over	1	1								
	Totals	81	4	2	12	1	1		1		3
Diseases of the nervous system and of the organs of sense.	10 to 19	2	1								
	20 to 29	4									
	30 to 39	3	1								
	40 to 49	4	1	1							
	50 to 59	10	2	2							
	60 to 69	29	2	2							
	70 to 79	25	4	3					1		
	80 to 89	2		1							
	90 and over	2									
	Totals	134	15	9	14				1		3
Diseases of the circulatory system.	10 to 19	2									
	20 to 29	1									
	30 to 39	4	2					1			
	40 to 49	4	1		4			1			
	50 to 59	2	4								
	60 to 69	19	1	2	5				3		
	70 to 79	45	10		4			1			
	80 to 89	75	6	5	10			3			
	90 and over	44	2		6						
	Totals	205	26	7	30	4		7	3		15

AND CERTAIN SELECTED CAUSES, NEW JERSEY, 1916.

	Blacksmiths, forgers and hammermen.	Boilermakers.	Brick and stone masons.	Builders and building contractors.	Carpenters, coopers and cabinet makers.	Compositors, linotypers and typesetters.	Dressmakers and seamstresses (not in factory).	Dyers.	Electricians and electrical engineers.	Engineers (stationary).	Engravers.	Flers, grinders, buffers and polishers (metal).	Firemen (except locomotive and fire department).	Glassblowers.	Jewelers, watchmakers, goldsmiths and silversmiths.	Laborers (general and not specified laborers).	Building and hand trades.	Chemical industries.
10 to 19	1																	
20 to 29	1																	
30 to 39	3																	
40 to 49	3																	
50 to 59	6																	
60 to 69	13																	
70 to 79	24																	
80 to 89	6																	
90 and over	1																	
Totals	12	1	10	8	46	1	6	3	1	16	2		1	2	8	87	1	2
10 to 19	1																	
20 to 29	1																	
30 to 39	3																	
40 to 49	3																	
50 to 59	8																	
60 to 69	11																	
70 to 79	16																	
80 to 89	3																	
90 and over	1																	
Totals	18	1	29	15	67	3	10	3	4	15	2	4	5	3	11	214	5	1
10 to 19	1																	
20 to 29	1																	
30 to 39	2																	
40 to 49	3																	
50 to 59	4																	
60 to 69	11																	
70 to 79	21																	
80 to 89	10																	
90 and over	7																	
Totals	20	8	39	15	114	3	18	9	10	25	2	10	10	8	12	368	5	1

TABLE 3.—DEATHS BY OCCUPATIONS, AGE GROUPS AND

	[Manuf'g & Mechanical Industries—Continued.] Laborers (clay, glass and stone industries).	Iron, steel and other metal industries.	Lumber and furniture industries.	Textile industries.	Other industries.	Machinists, millwrights and toolmakers.	Managers, superintendents and foremen (manu- facturing).	Manufacturers and officials.	Mechanics (gunsmiths, locksmiths, wheel- wrights, etc.).	Millers (grain, flour, feed, etc.).	Milliners and millinery dealers.	Moulders, founders and casters.
Tuberculous of lungs.												
10 to 19.....	1	1	1	1	1	1	1	1	1	1	1	1
20 to 29.....	1	1	1	1	1	1	1	1	1	1	1	1
30 to 39.....	1	1	1	1	1	1	1	1	1	1	1	1
40 to 49.....	1	1	1	1	1	1	1	1	1	1	1	1
50 to 59.....	1	1	1	1	1	1	1	1	1	1	1	1
60 to 69.....	1	1	1	1	1	1	1	1	1	1	1	1
70 to 79.....	1	1	1	1	1	1	1	1	1	1	1	1
80 to 89.....	1	1	1	1	1	1	1	1	1	1	1	1
90 and over.....	1	1	1	1	1	1	1	1	1	1	1	1
Totals.....	6	15	1	22	72	15	2	6	1	19		
Cancer and other malignant tumors.												
10 to 19.....	1	1	1	1	1	1	1	1	1	1	1	1
20 to 29.....	1	1	1	1	1	1	1	1	1	1	1	1
30 to 39.....	1	1	1	1	1	1	1	1	1	1	1	1
40 to 49.....	1	1	1	1	1	1	1	1	1	1	1	1
50 to 59.....	1	1	1	1	1	1	1	1	1	1	1	1
60 to 69.....	1	1	1	1	1	1	1	1	1	1	1	1
70 to 79.....	1	1	1	1	1	1	1	1	1	1	1	1
80 to 89.....	1	1	1	1	1	1	1	1	1	1	1	1
90 and over.....	1	1	1	1	1	1	1	1	1	1	1	1
Totals.....	1	1	1	5	17	18	11	5	3	2		
Diseases of the nervous system and of the organs of sense.												
10 to 19.....	1	1	1	1	1	1	1	1	1	1	1	1
20 to 29.....	1	1	1	1	1	1	1	1	1	1	1	1
30 to 39.....	1	1	1	1	1	1	1	1	1	1	1	1
40 to 49.....	1	1	1	1	1	1	1	1	1	1	1	1
50 to 59.....	1	1	1	1	1	1	1	1	1	1	1	1
60 to 69.....	1	1	1	1	1	1	1	1	1	1	1	1
70 to 79.....	1	1	1	1	1	1	1	1	1	1	1	1
80 to 89.....	1	1	1	1	1	1	1	1	1	1	1	1
90 and over.....	1	1	1	1	1	1	1	1	1	1	1	1
Totals.....	2	6	1	10	25	17	16	8	4	10		
Diseases of the circulatory system.												
10 to 19.....	1	1	1	1	1	1	1	1	1	1	1	1
20 to 29.....	1	1	1	1	1	1	1	1	1	1	1	1
30 to 39.....	1	1	1	1	1	1	1	1	1	1	1	1
40 to 49.....	1	1	1	1	1	1	1	1	1	1	1	1
50 to 59.....	1	1	1	1	1	1	1	1	1	1	1	1
60 to 69.....	1	1	1	1	1	1	1	1	1	1	1	1
70 to 79.....	1	1	1	1	1	1	1	1	1	1	1	1
80 to 89.....	1	1	1	1	1	1	1	1	1	1	1	1
90 and over.....	1	1	1	1	1	1	1	1	1	1	1	1
Totals.....	7	13	1	16	56	34	23	12	3	3	17	

CERTAIN SELECTED CAUSES, NEW JERSEY, 1916—Continued.

Painters, glaziers, varnishers, enamellers, etc.	Paperhangers.	Plasterers.	Plumbers and gas and steamfitters.	Pressmen (printing).	Roofers and slaters.	Semi-skilled operatives (factory employes, in- dustry not stated).	Chemical industries.	Cigar and tobacco factories.	Clay, glass and stone industries (excepting potteries).	Clothing industries.	Food industries.	Iron, steel and other metal industries.	Liquor and beverage industries.	Lumber and furniture industries.	Potteries.	Rubber industries.	Shoe factories.
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
19	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
37	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
49	3	6	31	21	11	40	5	11	15	38	4	38	4	6	28	9	6
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
19	1	2	5	2	1	1	1	3	3	11	2	4	1	3	5	1	1
1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
28	1	9	10	8	9	4	11	11	9	1	9	2	4	1	8	3	3
7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
13	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
47	1	3	14	11	10	17	6	8	5	24	3	27	2	9	9	9	3

TABLE 3.—DEATHS BY OCCUPATIONS, AGE GROUPS AND

Age Group	Occupations													
	[Public Service (not elsewhere classified)—Con.] Soldiers, sailors and marines.	Other pursuits.	PROFESSIONAL SERVICE.	Architects.	Chemists, assayers, etc.	Civil and mining engineers and surveyors.	Clergymen.	Dentists.	Lawyers, judges and justices.	Musicians and teachers of music.	Photographers.	Physicians and surgeons.		
Tuberculosis of lungs.	10 to 19													
	20 to 29													
	30 to 39													
	40 to 49													
	50 to 59													
	60 to 69													
	70 to 79													
	80 to 89													
	90 and over													
Totals	5	12	3	3	3	9	1	3	8	1	1			
Cancer and other malignant tumors.	10 to 19													
	20 to 29													
	30 to 39													
	40 to 49													
	50 to 59													
	60 to 69													
	70 to 79													
	80 to 89													
	90 and over													
Totals	3	11	1	1	1	7	1	2	5	1	2			
Diseases of the nervous system and of the organs of sense.	10 to 19													
	20 to 29													
	30 to 39													
	40 to 49													
	50 to 59													
	60 to 69													
	70 to 79													
	80 to 89													
	90 and over													
Totals	5	19	2	3	1	8	4	11	4	2	9			
Diseases of the circulatory system.	10 to 19													
	20 to 29													
	30 to 39													
	40 to 49													
	50 to 59													
	60 to 69													
	70 to 79													
	80 to 89													
	90 and over													
Totals	2	48	2	3	6	25	11	14	4	4	14			

CERTAIN SELECTED CAUSES, NEW JERSEY, 1916—Continued.

Age Group	Occupations																	
	Teachers.	Other professional and semi-professional pursuits.	DOMESTIC AND PERSONAL SERVICE.	Barbers, hairdressers and manicurists.	Bartenders.	Hotel keepers and managers.	Housekeepers and stewards.	Janitors and sextons.	Launderers and laundresses.	Porters (except in stores).	Servants.	Waiters.	Other pursuits.	CLERICAL OCCUPATIONS.	Agents, canvassers and collectors.	Bookkeepers, cashiers and accountants.	Clerks (except clerks in stores).	Other clerical pursuits.
Tuberculosis of lungs.	10 to 19																	
	20 to 29																	
	30 to 39																	
	40 to 49																	
	50 to 59																	
	60 to 69																	
	70 to 79																	
	80 to 89																	
	90 and over																	
Totals	20	18	14	28	5	858	6	9	22	42	27	29		6	39	110	8	
Cancer and other malignant tumors.	10 to 19																	
	20 to 29																	
	30 to 39																	
	40 to 49																	
	50 to 59																	
	60 to 69																	
	70 to 79																	
	80 to 89																	
	90 and over																	
Totals	13	12	4	1	6	1007	6	6	3	24		28		2	12	25	2	
Diseases of the nervous system and of the organs of sense.	10 to 19																	
	20 to 29																	
	30 to 39																	
	40 to 49																	
	50 to 59																	
	60 to 69																	
	70 to 79																	
	80 to 89																	
	90 and over																	
Totals	14	16	22	5	11	1023	8	7	7	31	6	25			24	46	5	
Diseases of the circulatory system.	10 to 19																	
	20 to 29																	
	30 to 39																	
	40 to 49																	
	50 to 59																	
	60 to 69																	
	70 to 79																	
	80 to 89																	
	90 and over																	
Totals	4	5	2	2	3	164	2	2	2	2		1		1	1	2		

TABLE 3.—DEATHS BY OCCUPATIONS, AGE GROUPS AND

	AGRICULTURE, FORESTRY AND ANIMAL HUSBANDRY.	Farmers.	Farm laborers.	Fishermen and oystermen.	Gardeners, florists, fruit growers and nursery-men.	Other agricultural and animal husbandry pursuits.	EXTRACTION OF MINERALS.	Foremen, overseers and inspectors.	Miners.	Quarry operatives.	MANUFACTURING AND MECHANICAL INDUSTRIES.	Bakers.
Pneumonia.												
10 to 19		1	2									1
20 to 29		1	4	1								1
30 to 39		1	1									1
40 to 49		1	1									1
50 to 59		11	1	1	1			1				1
60 to 69		19	1	1	1	1		1				1
70 to 79		19	1	1	1	1		1				1
80 to 89		5	1		1							1
90 and over		1										1
Totals		67	15	4	11	1		1	4			7
Diseases of the respiratory system (pneumonia and tuberculosis of lungs excepted).												
10 to 19		1										
20 to 29		1			1							
30 to 39		1										
40 to 49		1										
50 to 59		1										
60 to 69		1		1	1							1
70 to 79		1		1	1			1				1
80 to 89		1		1	1							1
90 and over		1										1
Totals		31	1	3	3			1				2
Diseases of the digestive system.												
10 to 19												
20 to 29		6		1	1							
30 to 39		3	3		1							
40 to 49		4	1									
50 to 59		6	1									
60 to 69		11	1		1			1				
70 to 79		8	1		1			3				
80 to 89		4						3				
90 and over		1										
Totals		43	8	1	7	1		10	1			7
Nonvenereal diseases of the genito-urinary system and annexa.												
10 to 19		3										
20 to 29		1										
30 to 39		1										
40 to 49		1		1								
50 to 59		17	4	1								
60 to 69		23	5	3								
70 to 79		44	7	7		1						
80 to 89		17	1	1								
90 and over		3										
Totals		120	21	8	22	2						12

CERTAIN SELECTED CAUSES, NEW JERSEY, 1916—Continued.

	Blacksmiths, forgemen and hammermen.	Boilermakers.	Brick and stone masons.	Builders and building contractors.	Carpenters, coopers and cabinet makers.	Compositors, linotypers and typesetters.	Dressmakers and seamstresses (not in factory).	Dyers.	Electricians and electrical engineers.	Engineers (stationary).	Engravers.	Flies, grinders, buffers and polishers (metal).	Firemen (except locomotive and fire department).	Glassblowers.	Jewelers, watchmakers, goldsmiths and silversmiths.	Laborers (general and not specified laborers).	Building and hand trades.	Chemical industries.
10 to 19	1				5		1	1	1	2					1	30	1	1
20 to 29	1			1	9		1	1	1	4					1	53	1	1
30 to 39	1			1	13		1	1	1	2					1	71		1
40 to 49	1			1	20		1	1	1	7					1	65		1
50 to 59	1			1	15		1	1	1	4					1	43		1
60 to 69	1			1	7		1	1	1	1					1	19		1
70 to 79	1			1	1		1	1	1	1					1	2		1
80 to 89	1			1	1		1	1	1	1					1	1		1
90 and over	1			1	1		1	1	1	1					1	2		1
Totals	8	5	17	7	71		9	4	3	20	1	4	4	1	4	285	2	4
10 to 19					1		1		2							2		1
20 to 29					1		1		1						1	9		1
30 to 39					1		1		1						1	16		1
40 to 49					1		1		1						1	21		1
50 to 59					1		1		1						1	25		1
60 to 69					1		1		1						1	19		1
70 to 79					1		1		1						1	12		1
80 to 89					1		1		1						1	1		1
90 and over					1		1		1						1	1		1
Totals	11	1	14	9	40	2	8	1	5	9		3		1	5	101	3	2
10 to 19	1				1		1		1							1		2
20 to 29	1				1		1		1							13		1
30 to 39	1				1		1		1							28		1
40 to 49	1				1		1		1							51		1
50 to 59	1				1		1		1							45		1
60 to 69	1				1		1		1							51		1
70 to 79	1				1		1		1							64		1
80 to 89	1				1		1		1							46		1
90 and over	1				1		1		1							6		1
Totals	20	6	33	7	76	1	16	7	9	23	3	5	10	3	11	254	4	5

TABLE 3.—DEATHS BY OCCUPATIONS, AGE GROUPS AND

Diseases of the respiratory system (pneumonia and tuberculosis of lungs excepted).	Occupations																				
	Express, post, telegraph and telephone (mail carriers, firemen, etc.).	Other transportation pursuits (road building, street cleaners, etc.).	TRADE.	Bankers, brokers and money-lenders.	Clerks in stores.	Commercial travelers.	Deliverymen.	Laborers.	Real estate and insurance agents and officials.	Salesmen and saleswomen.	Undertakers.	Wholesale and retail dealers.	Other pursuits.	PUBLIC SERVICE (NOT ELSEWHERE CLASSIFIED).	Firemen (fire department).	Laborers (public service).	Officials and inspectors (city, county, state).	Police.			
Pneumonia.	10 to 19.....	20 to 29.....	30 to 39.....	40 to 49.....	50 to 59.....	60 to 69.....	70 to 79.....	80 to 89.....	90 and over.....	Totals.....	12	25	16	9	4	11	1	10	17	75	41
Diseases of the digestive system.	10 to 19.....	20 to 29.....	30 to 39.....	40 to 49.....	50 to 59.....	60 to 69.....	70 to 79.....	80 to 89.....	90 and over.....	Totals.....	4	12	5	6	2	5	3	3	3	8	12
Nonvenereal diseases of the genito-urinary system and annexa.	10 to 19.....	20 to 29.....	30 to 39.....	40 to 49.....	50 to 59.....	60 to 69.....	70 to 79.....	80 to 89.....	90 and over.....	Totals.....	5	22	11	5	2	5	4	8	13	22	30

CERTAIN SELECTED CAUSES, NEW JERSEY, 1916—Continued.

Diseases of the respiratory system (pneumonia and tuberculosis of lungs excepted).	Occupations																				
	Express, post, telegraph and telephone (mail carriers, firemen, etc.).	Other transportation pursuits (road building, street cleaners, etc.).	TRADE.	Bankers, brokers and money-lenders.	Clerks in stores.	Commercial travelers.	Deliverymen.	Laborers.	Real estate and insurance agents and officials.	Salesmen and saleswomen.	Undertakers.	Wholesale and retail dealers.	Other pursuits.	PUBLIC SERVICE (NOT ELSEWHERE CLASSIFIED).	Firemen (fire department).	Laborers (public service).	Officials and inspectors (city, county, state).	Police.			
Pneumonia.	10 to 19.....	20 to 29.....	30 to 39.....	40 to 49.....	50 to 59.....	60 to 69.....	70 to 79.....	80 to 89.....	90 and over.....	Totals.....	12	25	16	9	4	11	1	10	17	75	41
Diseases of the digestive system.	10 to 19.....	20 to 29.....	30 to 39.....	40 to 49.....	50 to 59.....	60 to 69.....	70 to 79.....	80 to 89.....	90 and over.....	Totals.....	4	12	5	6	2	5	3	3	3	8	12
Nonvenereal diseases of the genito-urinary system and annexa.	10 to 19.....	20 to 29.....	30 to 39.....	40 to 49.....	50 to 59.....	60 to 69.....	70 to 79.....	80 to 89.....	90 and over.....	Totals.....	5	22	11	5	2	5	4	8	13	22	30

TABLE 3.—DEATHS BY OCCUPATIONS, AGE GROUPS AND

	[Public Service (not elsewhere classified)—Con.] Soldiers, sailors and marines.	Other pursuits.	PROFESSIONAL SERVICE.	Architects.	Chemists, assayers, etc.	Civil and mining engineers and surveyors.	Clergymen.	Dentists.	Lawyers, judges and justices.	Musicians and teachers of music.	Photographers.	Physicians and surgeons.
Pneumonia.												
10 to 19.....	1											
20 to 29.....							1					1
30 to 39.....								1				
40 to 49.....	1								1			
50 to 59.....					1					1		1
60 to 69.....					1							
70 to 79.....				1								1
80 to 89.....							1					1
90 and over.....												1
Totals.....	2	15	1	3	1	9	1	3	6	2	5	
Diseases of the respiratory system (pneumonia and tuberculosis of lungs excepted).												
10 to 19.....		1										
20 to 29.....												
30 to 39.....												
40 to 49.....		2										
50 to 59.....					1							1
60 to 69.....												1
70 to 79.....		1		1								1
80 to 89.....												1
90 and over.....												1
Totals.....	1	5	1	1	1	2	1	1	1	1	5	
Diseases of the digestive system.												
10 to 19.....	1											
20 to 29.....												
30 to 39.....								2				
40 to 49.....									1			
50 to 59.....		1										
60 to 69.....		2										
70 to 79.....	1				1						1	
80 to 89.....												
90 and over.....		2										
Totals.....	2	8	3	2	2	1	1	2	1	2	4	
Nonvenereal diseases of the genito-urinary system and annexa.												
10 to 19.....												
20 to 29.....	1											
30 to 39.....												
40 to 49.....												
50 to 59.....											1	
60 to 69.....											4	
70 to 79.....											1	
80 to 89.....											3	
90 and over.....											2	
Totals.....	1	18	1	16	3	2	2	15	5	2	11	

CERTAIN SELECTED CAUSES, NEW JERSEY, 1916—Continued.

Teachers.	Other professional and semi-professional pursuits.	DOMESTIC AND PERSONAL SERVICE.	Barbers, hairdressers and manicurists.	Bartenders.	Hotel keepers and managers.	Housekeepers and stewards.	Janitors and sextons.	Launderers and laundresses.	Porters (except in stores).	Servants.	Waiters.	Other pursuits.	CLERICAL OCCUPATIONS.	Agents, canvassers and collectors.	Bookkeepers, cusiters and accountants.	Clerks (except clerks in stores).	Other clerical pursuits.
2	1			2		6											
1	1			1		93											
4	4			1		138											
1	1			1		123											
4	4			1		162											
4	4			1		46											
1	1					2											
1	1					8											
15	12	8	8	5	781	15	5	8	25	4	23	7	17	55	4	6	1
				1	10				1							1	
				2	16											1	
				2	32											1	
				2	42											1	
				1	76											1	
				1	98											1	
				1	55												
				2	8												
				5	338				13							4	
				7	47				7							9	
				2	86				5							1	
				1	139				4							5	
				1	137				1							1	
				2	143				2							5	
				2	83				1							1	
				1	32				1							1	
				1	1				1							1	
6	7	7	8	9	675	4	1	21	7	18	5	10	41	4	11	6	1
4	1	1	1	5	54			1	1						2	4	1
2	1	1	5	3	128			4	4						2	8	
1		1	4	3	227			1	1						1	4	
3	4	5	4	4	244			2	2						1	13	
2	7	6	2	1	273			4	5						5	15	
3	6	1	1	2	208			1	1						5	6	
1	1		1		85			1							1		
				1	5				2						1		
16	20	17	12	14	1229	8	11	12	47	7	24	4	17	58	7	6	7

TABLE 3.—DEATHS BY OCCUPATIONS, AGE GROUPS AND

Summary of decedents from all causes.	Occupations											
	[Manuf'g & Mechanical Industries—Continued.] Laborers (clay, glass and stone industries).	Iron, steel and other metal industries.	Lumber and furniture industries.	Textile industries.	Other industries.	Machinists, millwrights and toolmakers.	Managers, superintendents and foremen (manufacturing).	Manufacturers and officials.	Mechanics (gunsmiths, locksmiths, wheelwrights, etc.).	Millers (grain, flour, feed, etc.).	Milliners and millinery dealers.	Molders, founders and casters.
10 to 19.....												
20 to 29.....												
30 to 39.....												
40 to 49.....												
50 to 59.....												
60 to 69.....												
70 to 79.....												
80 to 89.....												
90 and over.....												
Totals.....	2				1	7	2	3				2
Violent deaths (suicide excepted).												
10 to 19.....												
20 to 29.....												
30 to 39.....												
40 to 49.....												
50 to 59.....												
60 to 69.....												
70 to 79.....												
80 to 89.....												
90 and over.....												
Totals.....	3	15		2	21	34	24	5	5	4	1	11
All other diseases and causes of death.												
10 to 19.....												
20 to 29.....												
30 to 39.....												
40 to 49.....												
50 to 59.....												
60 to 69.....												
70 to 79.....												
80 to 89.....												
90 and over.....												
Totals.....	3	6	1	6	42	24	11	4	1	1	7	
Summary of decedents from all causes.												
10 to 19.....	1	1		5	10	4	1	1		2	1	
20 to 29.....	13	1		19	64	19				2	11	
30 to 39.....	13			20	55	33				4	18	
40 to 49.....	19			35	72	44				5	25	
50 to 59.....	24	1		19	53	37				3	20	
60 to 69.....	9			11	53	35				3	3	
70 to 79.....	3			7	28	16				1	11	
80 to 89.....				3	1	2					9	
90 and over.....												
Totals.....	32	82	1	10	119	354	190	110	52	12	22	103

CERTAIN SELECTED CAUSES, NEW JERSEY, 1916—Continued.

Summary of decedents from all causes.	Occupations																	
	Painters, glaziers, varnishers, enamellers, etc.	Paperchangers.	Plasterers.	Plumbers and gas and steamfitters.	Pressmen (printing).	Roofers and slaters.	Semi-skilled operatives (factory employees, industry not stated).	Chemical industries.	Cigar and tobacco factories.	Clay, glass and stone industries (excepting potteries).	Clothing industries.	Food industries.	Iron, steel and other metal industries.	Liquor and beverage industries.	Lumber and furniture industries.	Potteries.	Rubber industries.	Shoe factories.
10 to 19.....																		
20 to 29.....																		
30 to 39.....																		
40 to 49.....																		
50 to 59.....																		
60 to 69.....																		
70 to 79.....																		
80 to 89.....																		
90 and over.....																		
Totals.....	7					5	2						5				1	1
Violent deaths (suicide excepted).																		
10 to 19.....																		
20 to 29.....																		
30 to 39.....																		
40 to 49.....																		
50 to 59.....																		
60 to 69.....																		
70 to 79.....																		
80 to 89.....																		
90 and over.....																		
Totals.....	27			16	4	5	12	39	4	2	9	1	16	2	2	2	6	
All other diseases and causes of death.																		
10 to 19.....																		
20 to 29.....																		
30 to 39.....																		
40 to 49.....																		
50 to 59.....																		
60 to 69.....																		
70 to 79.....																		
80 to 89.....																		
90 and over.....																		
Totals.....	28	3	3	16	8	2	9	8	12	5	15	3	11		6	3	4	2

TABLE 4.—POPULATION; BIRTHS, MARRIAGES AND DEATHS REPORTED WITH RATES PER 1,000 POPULATION.

YEAR.	Popula- tion.*	BIRTHS.		MARRIAGES.		DEATHS.	
		Number of births reported.	Birth- rate per 1,000 popula- tion.	Number of mar- riages.	Persons married per 1,000 popula- tion.	Number of deaths.	Death- rate per 1,000 popula- tion.
1879.....	1,020,584	23,116	22.65	7,098	13.91	20,440	20.08
1880.....	1,130,892	23,680	20.94	7,963	14.08	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	8,637	14.86	25,959	21.82
1883.....	1,209,048	24,430	20.21	9,168	15.16	25,510	19.25
1884.....	1,248,224	25,263	20.20	8,968	14.37	21,716	17.40
1885.....	1,278,033	24,077	18.84	8,959	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
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	13,213	14.59	27,337	15.11
1899.....	1,855,872	29,419	15.84	13,336	14.37	30,999	16.70
1900.....	1,883,689	32,270	17.13	14,611	15.51	31,474	16.62
1901.....	1,925,781	34,812	18.08	16,539	17.18	31,739	16.48
1902.....	1,967,893	35,116	17.84	18,150	18.45	31,819	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	18.88	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	36,559	15.46
1910.....	2,537,167	53,942	21.26	27,912	22.00	39,494	15.57
1911.....	2,615,772	58,133	22.22	25,014	19.13	38,612	14.76
1912.....	2,694,377	60,073	22.30	26,821	19.91	37,772	14.02
1913.....	2,772,931	61,432	22.15	27,697	19.98	39,425	14.22
1914.....	2,851,586	65,403	22.94	28,528	20.01	39,967	14.02
1915.....	2,877,532	66,476	23.10	27,694	19.25	39,435	13.70
1916.....	2,948,016	70,211	23.82	31,169	21.15	43,376	14.71

* Estimated except for census years.

TABLE 5.—DEATHS IN NEW JERSEY PER 100,000 POPULATION, TOTAL, AND BY WHITE AND COLORED INHABITANTS—1916.

Abridged International List Number.	CAUSE OF DEATH.	Total deaths per 100,000 population.	White deaths per 100,000 white population.	Colored deaths per 100,000 colored population.
1	Typhoid fever	6.6	6.5	9.6
2	Typhus fever .....	.....	.....	.....
3	Malaria .....	.....	.....	.....
4	Smallpox .....	.....	.....	.....
5	Measles	11.7	11.5	17.3
6	Scarlet fever	2.3	2.4	1.0
7	Whooping cough	8.9	8.4	21.2
8	Diphtheria and croup	15.1	15.4	6.7
9	Influenza	21.6	21.4	27.0
10	Asiatic cholera .....	.....	.....	.....
11	Cholera nostras .....	.....	.....	.....
12	Other epidemic diseases	5.5	5.6	3.9
13	Tuberculosis of the lungs	130.4	123.7	315.0
14	Tuberculous meningitis	9.3	8.9	20.2
15	Other forms of tuberculosis	7.3	6.6	24.1
16	Cancer and other malignant tumors	80.0	80.1	75.1
17	Simple meningitis	7.9	7.8	11.6
18	Cerebral hæmorrhage and softening	87.3	86.4	110.8
19	Organic diseases of the heart	167.6	165.7	217.7
20	Acute bronchitis	13.7	13.4	22.2
21	Chronic bronchitis	5.8	5.7	7.7
22	Pneumonia	122.4	118.5	227.4
23	Other diseases of the respiratory system (tuberculosis excepted)	76.0	73.4	147.4
24	Diseases of the stomach (cancer excepted)	14.2	13.6	31.8
25	Diarrhœa and enteritis (under 2 years)	66.8	66.1	85.7
26	Appendicitis and typhlitis	9.4	9.4	8.7
27	Hernia, intestinal obstruction	8.2	8.3	3.9
28	Cirrhosis of the liver	14.5	14.6	11.6
29	Acute nephritis and Bright's disease	130.6	128.0	202.3
30	Noncancerous tumors and other diseases of the female genital organs	4.7	4.3	17.3
31	Puerperal septicæmia (puerperal fever, peritonitis)	5.7	5.7	3.9
32	Other puerperal accidents of pregnancy and labor	7.3	7.2	10.6
33	Congenital debility and malformations	80.6	79.8	103.1
34	Senility	9.8	9.7	12.5
36	Suicide	13.2	13.5	6.7
35	Violent deaths (suicide excepted)	86.5	85.5	113.7
37	Other diseases	237.7	234.7	320.8
38	Unknown or ill-defined diseases	2.4	2.3	6.7
Total		1471.4	1444.6	2205.3

TABLE 6.—PERCENTAGE OF DEATHS BY CAUSES TO TOTAL DEATHS AND BY SEX TO TOTAL.

Abridged International List Number.	CAUSE OF DEATH.	Percentage of total.	Percentage of total.	
			Males—	Females—
1	Typhoid fever .....	.4	62.4	37.6
2	Typhus fever			
3	Malaria .....	.0	40.0	60.0
4	Smallpox			
5	Measles .....	.3	54.5	45.5
6	Scarlet fever .....	.2	52.2	47.8
7	Whooping cough .....	.6	46.6	53.4
8	Diphtheria and croup	1.0	50.5	49.5
9	Influenza	1.5	43.9	56.1
10	Asiatic cholera			
11	Cholera nostras .....	.0	37.5	62.5
12	Other epidemic diseases .....	.4	57.4	42.6
13	Tuberculosis of the lungs	8.9	61.3	38.7
14	Tuberculous meningitis .....	.6	54.2	45.8
15	Other forms of tuberculosis .....	.5	57.5	42.5
16	Cancer and other malignant tumors	5.4	39.5	60.5
17	Simple meningitis .....	.5	61.5	38.5
18	Cerebral hæmorrhage and softening	5.9	47.1	52.9
19	Organic diseases of the heart	11.4	49.0	51.0
20	Acute bronchitis .....	.9	49.6	50.4
21	Chronic bronchitis .....	.4	39.4	60.6
22	Pneumonia	8.3	58.1	41.9
23	Other diseases of the respiratory system (tuberculosis excepted)	5.2	53.2	46.8
24	Diseases of the stomach (cancer excepted) .....	.9	58.6	41.4
25	Diarrhoea and enteritis (under 2 years)	4.5	54.8	45.2
26	Appendicitis and typhlitis .....	.6	62.1	37.9
27	Hernia, intestinal obstruction .....	.6	51.5	48.5
28	Cirrhosis of the liver	1.0	69.5	30.5
29	Acute nephritis and Bright's disease	8.9	51.8	48.2
30	Noncancerous tumors and other diseases of the female genital organs .....	.3		100.0
31	Puerperal septicaemia (puerperal fever, peritonitis) .....	.4		100.0
32	Other puerperal accidents of pregnancy and labor .....	.5		100.0
33	Congenital debility and malformations	5.5	55.7	44.3
34	Senility .....	.7	45.5	54.5
35	Suicide .....	.9	74.1	25.9
36	Violent deaths (suicide excepted)	5.9	77.1	22.9
37	Other diseases	18.2	54.4	45.6
38	Unknown or ill-defined diseases .....	.2	61.1	38.9
	Total	100.0	54.0	46.0

TABLE 7.—DEATHS FROM TUBERCULOSIS OF LUNGS AND ACUTE MILIARY TUBERCULOSIS IN NEW JERSEY—1900 TO 1916.

Year.	Population.	Deaths.	Death-rate per 100,000 Population.
1900.....	1,883,669	3,514	186.6
1901.....	1,925,781	3,257	169.1
1902.....	1,967,893	3,015	153.2
1903.....	2,016,797	3,380	167.6
1904.....	2,058,909	3,670	178.2
1905.....	2,144,143	3,587	167.3
1906.....	2,196,238	3,654	166.4
1907.....	2,248,331	3,749	166.7
1908.....	2,300,427	3,616	157.2
1909.....	2,352,522	3,608	153.4
1910.....	2,537,167	3,902	153.8
1911.....	2,615,772	3,986	152.4
1912.....	2,694,377	3,708	137.6
1913.....	2,772,981	3,683	132.8
1914.....	2,851,586	3,856	135.2
1915.....	2,877,532	3,917	136.1
1916.....	2,948,016	3,844	130.4

TABLE 8.—NUMBER OF DEATHS AT ALL AGES, UNDER ONE YEAR OF AGE AND UNDER FIVE YEARS OF AGE, AND THEIR PERCENTAGE OF THE TOTAL.

CALENDAR YEAR.	Deaths in New Jersey.				
	All Ages.	Under one year.		Under five years.	
		Number.	Percentage of total.	Number.	Percentage of total.
1904.....	35,298	7,472	21.2	10,927	31.0
1905.....	33,864	6,951	20.5	9,864	29.1
1906.....	35,670	7,773	21.8	11,246	31.5
1907.....	37,408	7,732	20.7	10,867	29.0
1908.....	35,597	7,823	22.0	10,869	30.5
1909.....	36,359	7,658	21.1	11,137	30.6
1910.....	39,494	8,352	21.1	11,648	29.5
1911.....	38,612	7,642	19.8	10,740	27.8
1912.....	37,772	7,457	19.7	10,309	27.3
1913.....	39,425	7,542	19.1	10,686	27.1
1914.....	39,967	7,431	18.6	10,278	25.7
1915.....	39,435	7,077	17.9	9,828	24.9
1916.....	43,376	7,348	16.9	11,188	25.8

Death Rates by Age Periods per 100,000 Pop'n
in New Jersey for 37 Years, 1879-1915.

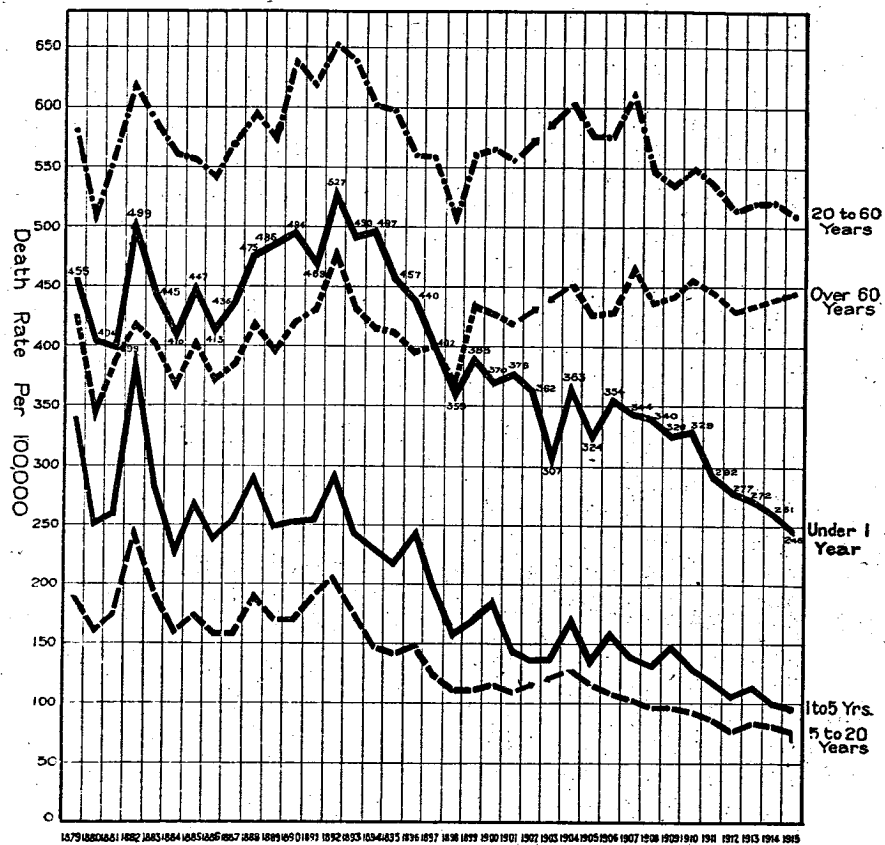


TABLE 9.—TOTAL DEATHS BY AGE PERIODS SHOWING PERCENTAGE OF TOTAL DEATHS.

	AGE PERIODS.																
	Under 1 year.	1 year.	2 years.	3 years.	4 years.	Under 5 years.	5 to 9.	10 to 19.	20 to 29.	30 to 39.	40 to 49.	50 to 59.	60 to 69.	70 to 79.	80 to 89.	90 and over.	Unknown.
Deaths	7,348	1,907	908	617	408	11,188	1,048	1,406	2,826	3,425	4,481	5,135	5,599	5,305	2,579	383	1
Percentage of total....	17.0	4.4	2.1	1.4	0.9	25.8	2.4	3.3	6.5	7.9	10.3	11.8	12.9	12.2	6.0	.9	.0
Total	43,376																

TABLE 10.—BIRTHS REPORTED, DEATHS UNDER ONE YEAR AND RATE OF DEATHS UNDER ONE YEAR PER THOUSAND BIRTHS.

	Births reported 1916.	Deaths under one year.	Infant mortality rate.
Atlantic County	1,529	118	77.2
Bergen County	4,112	406	98.7
Burlington County	1,541	204	132.4
Camden County	3,516	436	124.0
Cape May County	428	36	84.1
Cumberland County	1,109	119	107.3
Essex County	15,902	1,373	86.3
Gloucester County	817	105	128.5
Hudson County	14,780	1,570	106.2
Hunterdon County	535	58	108.4
Mercer County	3,930	508	129.3
Middlesex County	4,540	586	129.1
Monmouth County	1,841	206	111.9
Morris County	1,608	145	90.2
Ocean County	316	19	60.1
Passaic County	6,169	721	116.9
Salem County	754	72	95.5
Somerset County	891	80	89.8
Sussex County	520	42	80.8
Union County	4,455	451	101.2
Warren County	918	93	101.3
State Total	70,211	7,348	104.7

TABLE 11.—BIRTHS, BY MONTHS FOR THE YEAR 1916, IN THE COUNTIES OF NEW JERSEY AND MUNICIPALITIES HAVING 5,000 OR MORE POPULATION APRIL 15, 1910.

	Jan.	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Atlantic County	145	97	132	132	131	126	133	140	142	128	117	106	1,529
Atlantic City	80	61	77	67	78	76	78	100	89	83	68	70	927
Hammonton	18	10	11	17	11	11	20	13	12	15	10	15	161
Bergen County	350	216	374	319	321	334	350	318	350	349	351	474	4,112
Burlington County	29	18	25	24	19	13	27	21	28	21	26	21	272
Englewood	57	38	43	45	38	47	50	53	47	30	46	45	549
Garfield	53	34	46	29	49	26	39	33	43	40	35	38	471
Hackensack	8	5	5	5	6	6	11	6	5	6	5	7	78
Ridgewood	15	9	8	10	6	13	4	13	8	5	12	18	125
Rutherford	134	112	139	122	126	129	137	146	118	118	118	142	1,341
Burlington City	14	19	21	18	13	12	20	18	21	12	22	24	214
Burlington City	277	250	296	290	291	271	290	326	325	318	310	302	3,516
Camden County	191	166	195	183	175	181	218	252	213	230	229	203	2,416
Camden City	16	22	23	26	20	23	11	19	24	12	22	22	230
Gloucester	33	28	41	32	34	28	33	59	48	30	33	29	428
Cape May County	91	78	88	85	83	101	79	103	103	95	119	81	1,109
Cumberland County	21	16	28	20	22	22	14	27	32	15	41	20	278
Bridgeton	34	29	27	20	29	24	31	28	26	37	28	27	340
Millville	11	10	17	17	11	17	11	19	12	14	13	9	144
Vineland	13	10	8	10	8	1,260	1,391	1,437	1,325	1,361	1,300	1,423	15,902
Essex County	1,323	1,271	1,404	1,202	1,215	1,260	1,391	1,437	1,325	1,361	1,300	1,423	15,902
Bloomfield	28	22	35	31	33	24	32	38	38	34	31	26	372
Past Orange	40	41	54	52	40	43	45	68	39	53	56	56	587
Irvington	38	28	24	30	35	42	47	41	38	35	53	43	454
Montclair	38	36	39	29	32	32	32	46	32	38	19	35	404
Newark	959	941	1,021	848	869	921	1,019	1,009	970	968	912	1,018	11,455
Nutley	17	13	21	22	13	13	19	23	12	22	17	19	206
Orange	90	78	92	84	79	76	78	85	87	93	101	113	1,056
South Orange	9	5	8	6	7	8	13	11	4	9	7	10	97
West Orange	40	22	29	26	20	35	38	11	25	21	19	18	312
Gloucester County	67	71	82	56	84	62	84	65	47	56	51	46	797
Hudson County	1,329	1,102	1,316	1,161	1,184	1,155	1,297	1,226	1,268	1,247	1,198	1,291	14,780
Hudson City	220	209	184	192	190	178	202	205	214	254	192	176	2,456
Bayonne	11	15	15	17	16	17	16	24	13	24	22	21	211
Guttenberg	63	19	22	27	18	33	30	22	22	55	21	19	330
Harrison	140	125	150	158	133	124	147	142	147	131	140	145	1,682
Jersey City	609	434	537	537	562	548	594	540	570	541	535	609	6,755
Kearny	54	47	46	30	30	46	45	49	39	36	31	54	538
Town of Union	30	43	39	34	25	30	47	35	31	31	29	31	405

TABLE 12.—DEATHS, BY MONTHS FOR THE YEAR 1916, IN THE COUNTIES OF NEW JERSEY AND MUNICIPALITIES HAVING 5,000 OR MORE POPULATION APRIL 15, 1910—Continued.

DEPARTMENT OF HEALTH.

	Jan	Feb.	March.	April.	May.	June.	July.	August.	Sept.	Oct.	Nov.	Dec.	Total.
Hudson County—Continued.													
West Hoboken	51	45	50	37	39	38	47	54	38	42	38	30	509
West New York	36	33	31	35	27	26	30	38	17	24	27	26	350
Hunterdon County	62	67	65	54	45	30	41	45	38	39	29	53	568
Mercer County	266	199	202	193	186	140	137	207	238	178	186	195	2,327
Princeton	12	7	11	1	4	4	8	7	15	10	6	5	99
Trenton	214	151	153	145	128	112	100	161	185	123	147	149	1,768
Middlesex County	221	188	178	168	151	166	209	260	172	170	147	197	2,227
New Brunswick	49	49	36	41	39	43	45	45	34	36	37	58	536
North Amboy	47	44	40	41	44	38	57	72	43	46	42	46	560
Roosevelt	14	11	13	4	7	17	12	15	16	12	9	13	148
South Amboy	14	8	13	12	7	6	6	10	8	6	8	15	113
Mounmouth County	167	130	127	118	110	124	133	180	148	109	106	166	1,618
Asbury Park	15	12	14	16	12	14	17	25	21	11	12	22	101
Long Branch	14	19	24	10	22	18	13	15	13	12	12	14	180
Red Bank	14	8	10	8	18	12	12	15	12	5	9	23	143
Morris County	99	118	97	97	104	91	74	99	89	75	85	100	1,138
Dover	10	13	11	6	8	13	7	13	9	7	6	10	113
Morristown	19	15	16	18	15	12	11	9	16	10	15	15	171
Ocean County	25	28	33	29	34	20	23	24	15	22	22	16	251
Passaic County	406	328	390	354	269	187	252	266	237	241	274	290	3,494
Passaic City	100	86	109	78	73	56	70	70	60	65	71	71	899
Paterson	230	190	214	227	145	91	137	139	131	140	168	164	1,982
Salem City	54	57	45	37	29	32	37	43	42	45	30	46	497
Somerset County	18	11	11	6	12	7	8	14	12	10	10	9	124
Somerset Plainfield	78	55	53	57	56	39	37	50	43	47	53	71	632
Somerville	11	8	7	7	6	9	6	8	2	5	7	8	81
Sussex County	9	10	8	10	14	7	6	7	6	12	5	8	102
Union County	34	31	50	40	34	18	25	24	19	30	33	36	364
Elizabeth	309	215	222	207	170	187	161	218	194	201	192	180	2,456
Plainfield	150	115	102	114	87	104	74	99	102	104	97	82	1,230
Rahway	50	45	40	31	26	33	29	43	23	29	32	27	408
Summit	19	19	16	13	8	16	18	18	8	8	10	17	163
Warren County	18	12	14	10	11	7	8	9	7	9	13	13	131
Westfield	9	4	11	6	7	4	7	7	4	10	14	10	98
Phillipsburg	70	63	69	55	61	43	41	57	55	47	48	58	670
Phillipsburg	25	27	27	21	18	13	18	21	17	17	20	28	252
Total	4,653	3,803	4,157	3,597	3,415	2,853	3,387	4,077	3,305	3,141	3,125	3,861	43,379

TABLE 15.—TABULATION OF DEATHS IN BURLINGTON COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.—Continued.

Table with columns for Cause of Death, Total, Male, Female, Color, Under 1 yr., 1 yr. to 4 yrs., 5 to 9 yrs., 10 to 19 yrs., 20 to 29 yrs., 30 to 39 yrs., 40 to 49 yrs., 50 to 59 yrs., 60 to 69 yrs., 70 to 79 yrs., 80 and over, and Unknown.

Total deaths including non-residents of State, 1,186. Deaths excluding non-residents of State, 1,165. Estimated population, 71,708. Rate per 1,000 population, 16.52. Rate per 1,000 population, 16.23.

TABLE 16.—TABULATION OF DEATHS IN CAMDEN COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns for Cause of Death and counts for age groups: 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 9 yrs., 10 to 19 yrs., 20 to 29 yrs., 30 to 39 yrs., 40 to 49 yrs., 50 to 59 yrs., 60 to 69 yrs., 70 to 79 yrs., 80 and over, and Unknown.

TABLE 16.—TABULATION OF DEATHS IN CAMDEN COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH—Continued.

Abridged International List Number.	CAUSE OF DEATH.	Total.	Male.	Female.	Color, If other than white.	AGE PERIODS.													Under 1 yr.	Under 2 yrs.	Under 3 yrs.	Under 4 yrs.	Under 5 yrs.	Under 6 yrs.	Under 9 and over.	Unknown.							
						1	2	3	4	5	10	15	20	25	30	35	40	45									50	55	60	65	70	75	80
35	Violent deaths (suicide excepted)	147	106	41	7	7	7	2	7	1	2	3	20	11	17	18	16	16	18	14	12	14	5									
37	Other diseases	352	194	158	28	35	16	12	8	87	19	15	22	35	35	55	40	17	3	.....	.....	.....								
38	Unknown or ill-defined diseases	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1										
Total	.....	2500	1383	1213	262	480	96	47	34	30	643	59	91	145	204	255	285	374	370	147	147	23	.....									
Estimated population, 163,642.		Rate per 1,000 population, 16.00.																															
Total deaths including non-residents of State, 2,610.		Rate per 1,000 population, 15.86.																															
Deaths excluding non-residents of State, 2,596.		Rate per 1,000 population, 15.86.																															

TABLE 17.—TABULATION OF DEATHS IN CAPE MAY COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

1	Typhoid fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	Typhus fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	Malaria	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	Smallpox	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	Measles	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	Scarlet fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	Whooping cough	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	Diphtheria and croup	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	Influenza	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	Asiatic cholera	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	Cholera nostris	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	Other epidemic diseases	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

13	Tuberculosis of the lungs	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
14	Tuberculous meningitis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	Other forms of tuberculosis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	Cancer and other malignant tumors	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	Simple meningitis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	Cerebral hemorrhage and softening	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	Organic diseases of the heart	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	Acute bronchitis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	Chronic bronchitis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	Pneumonia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	Other diseases of the respiratory system (tuberculosis excepted)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	Diseases of the stomach (cancer excepted)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
25	Diarrhea and enteritis (under 2 years)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	Appendicitis and typhlitis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	Hernia, intestinal obstruction	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
28	Cirrhosis of the liver	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29	Acute nephritis and Bright's disease	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	Noncancerous tumors and other diseases of the female genital organs	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
31	Puerperal septicemia (puerperal fever, peritonitis)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
32	Other puerperal accidents of pregnancy and labor	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
33	Congenital debility and malformations	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
34	Senility	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
35	Suicide	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
36	Violent deaths (suicide excepted)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
37	Other diseases	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
38	Unknown or ill-defined diseases	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total	.....	298	150	148	24	36	10	4	3	1	54	6	7	9	8	24	31	57	68	20	.....	.....	.....	.....	.....
Estimated population, 23,850.		Rate per 1,000 population, 14.20.																								
Total deaths including non-residents of State, 341.		Rate per 1,000 population, 14.30.																								
Deaths excluding non-residents of State, 298.		Rate per 1,000 population, 12.40.																								

TABLE 21.—TABULATION OF DEATHS IN HUDSON COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.—Continued.

Table with columns for Cause of Death, Total, Male, Female, Color, Under 1 yr, and Age Periods (1 yr, 2 yrs, 3 yrs, 4 yrs, Under 5 yrs, 5 to 9 yrs, 10 to 19 yrs, 20 to 29 yrs, 30 to 39 yrs, 40 to 49 yrs, 50 to 59 yrs, 60 to 69 yrs, 70 to 79 yrs, 80 to 89 yrs, 90 and over). Rows include 35 Violent deaths (suicide excepted), 37 Other diseases, 38 Unknown or ill-defined diseases.

Estimated population, 622,270.
Total deaths including non-residents of State, 9,452.
Deaths excluding non-residents of State, 9,344.
Rate per 1,000 population, 14.95.
Rate per 1,000 population, 14.78.

TABLE 22.—TABULATION OF DEATHS IN HUNTERDON COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns for Cause of Death, Total, Male, Female, Color, Under 1 yr, and Age Periods. Rows include 1 Typhoid fever, 2 Typhus fever, 3 Malaria, 4 Smallpox, 5 Measles, 6 Scarlet fever, 7 Whooping cough, 8 Diphtheria and croup, 9 Influenza, 10 Asiatic cholera, 11 Cholera nostras, 12 Other epidemic diseases, 13 Tuberculosis of the lungs, 14 Tuberculous meningitis, 15 Other forms of tuberculosis, 16 Cancer and other malignant tumors, 17 Simple meningitis, 18 Cerebral hemorrhage and softening, 19 Organic diseases of the heart, 20 Acute bronchitis, 21 Chronic bronchitis, 22 Pneumonia, 23 Other diseases of the respiratory system (tuberculosis excepted), 24 Diseases of the stomach (cancer excepted), 25 Diarrhea and enteritis (under 2 years), 26 Appendicitis and typhlitis, 27 Hernia, intestinal obstruction, 28 Cirrhosis of the liver, 29 Acute nephritis and Bright's disease, 30 Noncancerous tumors and other diseases of the female genital organs, 31 Fecopurulent sacculoma (puerperal fever, peritonitis), 32 Other puerperal accidents of pregnancy and labor, 33 Congenital debility and malformations, 34 Senility, 35 Suicide, 36 Violent deaths (suicide excepted), 37 Other diseases, 38 Unknown or ill-defined diseases.

Total deaths including non-residents of State, 571.
Deaths excluding non-residents of State, 568.
Estimated population, 32,970.
Rate per 1,000 population, 17.51.
Rate per 1,000 population, 17.22.

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TABLE 24.—TABULATION OF DEATHS IN MIDDLESEX COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.—Continued.

Table with columns for Cause of Death, Total, Male, Female, Color, and Age Periods (Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 9 yrs., 10 to 19 yrs., 20 to 39 yrs., 40 to 59 yrs., 60 to 79 yrs., 80 and over, Unknown).

Summary table for Table 24: Violent deaths (suicide excepted) 176; Other diseases 355; Unknown or ill-defined diseases 12; Total 2227.

Estimated population, 136,210.

Total deaths including non-residents of State, 2,250. Deaths excluding non-residents of State, 2,227.

Rate per 1,000 population, 16.68. Rate per 1,000 population, 16.55.

TABLE 25.—TABULATION OF DEATHS IN MONMOUTH COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns for Cause of Death, Total, Male, Female, Color, and Age Periods (Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 9 yrs., 10 to 19 yrs., 20 to 39 yrs., 40 to 59 yrs., 60 to 79 yrs., 80 and over, Unknown).

Summary table for Table 25: Typhoid fever 15; Typhus fever 7; Malaria 8; Smallpox 1; Measles 2; Scarlet fever 6; Whooping cough 6; Diphtheria and croup 6; Influenza 15; Asiatic cholera 21; Cholera nostris 1; Other epidemic diseases 1; Tuberculosis of the lungs 8; Tuberculous meningitis 4; Other forms of tuberculosis 4; Cancer and other malignant tumors 95; Simple meningitis 5; Cerebral hemorrhage and softening 194; Organic diseases of the heart 63; Acute bronchitis 14; Chronic bronchitis 6; Pneumonia 2; Other diseases of the respiratory system (tuberculosis excepted) 126; Diseases of the stomach (cancer excepted) 54; Diarrhea and enteritis (under 2 years) 21; Appendicitis and typhilitis 12; Hernia, intestinal obstruction 20; Cirrhosis of the liver 8; Acute nephritis and Bright's disease 103.

TABLE 26.—TABULATION OF DEATHS IN MORRIS COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH—Continued.

Abridged International List Number.	CAUSE OF DEATH.	Total.	Male.	Female.	Color, If other than white.	Under 1 yr.	AGE PERIODS.										90 and over.	Unknown.																																																																																					
							1 yr.	2 yrs.	3 yrs.	4 yrs.	Under 5 yrs.		5 to 9	10 to 19	20 to 29	30 to 39			40 to 49	50 to 59	60 to 69	70 to 79	80 to 89																																																																																
							1	2	3	4	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
35	Violent deaths (suicide excepted)...	88	74	14	1	3	2	2	2	12	3	8	17	10	10	8	12	2	6																																																																																				
37	Other diseases	211	102	109	10	23	10	7	7	49	14	7	6	13	23	21	23	26	5																																																																																				
38	Unknown or ill-defined diseases.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1																																																																																				
	Total	1128	595	533	30	145	30	13	8	309	43	35	71	74	83	123	174	111	16																																																																																				

Estimated population, 80,707.

Total deaths including non-residents of State, 1,147.

Rate per 1,000 population, 14.21.

Deaths excluding non-residents of State..... 1,128.

Rate per 1,000 population, 13.98.

TABLE 27.—TABULATION OF DEATHS IN OCEAN COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

1	Typhoid fever	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
2	Typhus fever	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
3	Malaria	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
4	Smallpox	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
5	Measles	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
6	Scarlet fever	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
7	Whooping cough	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
8	Diphtheria and croup	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
9	Influenza	5	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
10	Asiatic cholera	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
11	Cholera nostrum	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
12	Other epidemic diseases.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

TABLE 27.—TABULATION OF DEATHS IN OCEAN COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH—Continued.

13	Tuberculosis of the lungs.....	26	8	18	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	Tuberculous meningitis	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
15	Other forms of tuberculosis.....	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
16	Cancer and other malignant tumors.	22	10	12	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
17	Simple meningitis	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
18	Cerebral hemorrhage and softening.	27	7	20	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1
19	Organic diseases of the heart.....	40	21	19	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1
20	Acute bronchitis	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21	Chronic bronchitis	18	10	8	1	2	1	1	1	1	1	1	1	1	1	1	1	1	1
22	Pneumonia	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
23	Other diseases of the respiratory system (tuberculosis excepted)...	6	6	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
24	Diseases of the stomach (cancer excepted)	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
25	Diarrhea and enteritis (under 2 years)	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
26	Appendicitis and typhlitis.....	27	17	10	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
27	Hernia, intestinal obstruction.....	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
28	Cirrhosis of the liver	36	20	16	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
29	Acute nephritis and Bright's disease	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
30	Noncancerous tumors and other diseases of the female genital organs.	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
31	Puerperal septicemia (puerperal fever, peritonitis)	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
32	Other puerperal accidents of pregnancy and labor	8	5	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
33	Congenital debility and malformations	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
34	Senility	11	8	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35	Suicide	55	37	18	1	3	2	3	1	1	1	1	1	1	1	1	1	1	1
36	Violent deaths (suicide excepted)...	291	150	141	12	10	7	7	1	34	8	10	11	17	26	29	52	68	33
37	Other diseases	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
38	Unknown or ill-defined diseases.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1

Estimated population, 22,305.

Total deaths including non-residents of State, 313.

Rate per 1,000 population, 14.03.

Deaths excluding non-residents of State..... 291.

Rate per 1,000 population, 13.05.

TABLE 30.—TABULATION OF DEATHS IN SOMERSET COUNTY FOR 1916, ACCORDING TO THE ABBRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.—Continued.

Table with columns: Cause of Death, Total, Male, Female, Color, Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 9, 10 to 19, 20 to 29, 30 to 39, 40 to 49, 50 to 59, 60 to 69, 70 to 79, 80 and over, Unknown. Includes sub-tables for 'CAUSE OF DEATH' and 'AGE PERIODS'. Total deaths: 632.

TABLE 31.—TABULATION OF DEATHS IN SUSSEX COUNTY FOR 1916, ACCORDING TO THE ABBRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns: Cause of Death, Total, Male, Female, Color, Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 9, 10 to 19, 20 to 29, 30 to 39, 40 to 49, 50 to 59, 60 to 69, 70 to 79, 80 and over, Unknown. Includes sub-tables for 'CAUSE OF DEATH' and 'AGE PERIODS'. Total deaths: 632.

TABLE 31.—TABULATION OF DEATHS IN SUSSEX COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH—Continued.

Abridged International List Number.	CAUSE OF DEATH.	AGE PERIODS.													90 and over.						
		AGE PERIODS.																			
		Total.	Male.	Female.	Color, If other than white.	Under 1 yr.	1 yr. yrs.	2 yrs.	3 yrs.	4 yrs.	Under 5 yrs.	5 to 9	10 to 19	20 to 30		30 to 40	40 to 50	50 to 60	60 to 70	70 to 80	80 to 90	Unknown.
35	Violent deaths (suicide excepted)...	31	28	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
37	Other diseases.....	45	27	18	6	8	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
38	Unknown or ill-defined diseases.....	4	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Total.....	304	220	144	3	42	2	4	4	1	53	4	4	28	27	31	34	55	73	40	6

Total deaths including non-residents of State, 369.
Deaths excluding non-residents of State..... 304.
Estimated population, 28,445. Rate per 1,000 population, 12.07.
Rate per 1,000 population, 12.80.

TABLE 32.—TABULATION OF DEATHS IN UNION COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

1	Typhoid fever.....	7	3	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
2	Typhus fever.....																					
3	Scarlet fever.....																					
4	Smallpox.....																					
5	Measles.....	21	12	9	2	4	6	5	3	2	20	1	1	1	1	1	1	1	1	1	1	
6	Scarlet fever.....	6	3	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	
7	Whooping cough.....	19	12	7	3	11	5	3	3	3	19	8	1	1	1	1	1	1	1	1	1	
8	Diphtheria and croup.....	30	16	20	3	6	6	3	3	3	21	15	1	1	1	1	1	1	1	1	1	
9	Influenza.....	31	12	19	2	1	1	1	1	1	3	1	1	1	1	1	1	1	1	1	1	
10	Asiatic cholera.....																					
11	Cholera nostras.....																					
12	Other epidemic diseases.....	4	2	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	

13	Tuberculosis of the lungs.....	211	127	84	21	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
14	Tuberculous meningitis.....	20	8	12	3	2	3	3	3	2	15	2	2	2	2	2	2	2	2	2	2
15	Other forms of tuberculosis.....	15	11	4	4	2	5	4	4	1	7	2	2	2	2	2	2	2	2	2	2
16	Cancer and other malignant tumors, simple and other malignant tumors, lymphatic.....	104	76	88	14	2	3	1	1	1	6	2	2	2	2	2	2	2	2	2	2
17	Cancer and other malignant tumors, epithelial.....	10	4	6	1	2	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1
18	Cerebral hemorrhage and softening.....	171	77	94	8	11	15	11	11	11	19	1	1	1	1	1	1	1	1	1	1
19	Organic diseases of the heart.....	284	133	161	15	11	15	11	11	11	19	1	1	1	1	1	1	1	1	1	1
20	Acute bronchitis.....	25	11	14	4	12	3	2	1	1	1	1	1	1	1	1	1	1	1	1	1
21	Chronic bronchitis.....	7	5	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
22	Pneumonia.....	229	125	104	11	40	18	3	2	2	65	3	6	17	19	23	24	28	31	11	2
23	Other diseases of the respiratory system (tuberculosis excepted).....	107	48	59	5	36	17	2	3	3	61	2	3	3	2	4	10	10	8	1	1
24	Diseases of the stomach (cancer excepted).....	17	11	6	2	3	3	3	3	3	6	1	1	1	1	1	1	1	1	1	1
25	Diarrhea and enteritis (under 2 years).....	123	66	57	8	111	12	1	1	1	133	1	1	1	1	1	1	1	1	1	1
26	Appendicitis and typhilitis.....	19	12	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
27	Hernia, intestinal obstruction.....	8	6	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
28	Chirrosis of the liver.....	15	12	3	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
29	Acute nephritis and Bright's disease.....	102	106	80	14	1	1	1	1	1	4	2	1	5	10	30	31	43	42	20	4
30	Noncancerous tumors and other diseases of the female genital organs.....	7	7	0	2	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
31	Puerperal septicemia (puerperal fever, peritonitis).....	10	10	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
32	Other puerperal accidents of pregnancy and labor.....	4	4	0	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
33	Congenital debility and malformations.....	147	70	71	9	146	1	1	1	1	147	1	1	1	1	1	1	1	1	1	1
34	Senility.....	9	2	7	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
35	Suicide.....	21	17	4	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
36	Violent deaths (suicide excepted).....	121	80	31	5	6	5	5	5	5	13	4	11	10	17	18	12	13	9	3	2
37	Other diseases.....	885	108	187	21	59	16	22	16	10	123	15	12	26	34	41	33	43	37	18	3
38	Unknown or ill-defined diseases.....	11	6	5	2	7	1	1	1	1	9	1	1	1	1	1	1	1	1	1	1
	Total.....	2456	1271	1179	159	451	104	54	37	28	674	58	60	151	177	269	264	316	312	138	28

Total deaths including non-residents of State, 2,497. Rate per 1,000 population, 15.05.
Deaths excluding non-residents of State..... 2,456. Rate per 1,000 population, 14.81.
Estimated population, 165,875.

DEPARTMENT OF HEALTH.

TABLE 33.—TABULATION OF DEATHS IN WARREN COUNTY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns for Cause of Death, Total, Sex (Male, Female), Color, and Age Periods (Under 1 yr., 1-4 yrs., 5-9 yrs., 10-14 yrs., 15-19 yrs., 20-24 yrs., 25-29 yrs., 30-39 yrs., 40-49 yrs., 50-59 yrs., 60-69 yrs., 70-79 yrs., 80 and over, Unknown). Rows include Typhoid fever, Typhus fever, Malaria, Smallpox, Measles, Scarlet fever, Whooping cough, Diphtheria and croup, Influenza, Asiatic cholera, Cholera nostras, Other epidemic diseases, Tuberculosis of the lungs, Tuberculosis of other organs, Other forms of tuberculosis, Cancer and other malignant tumors, Simple meningitis, Cerebral hemorrhage and softening, Organic diseases of the heart, Acute bronchitis, Chronic bronchitis, Pneumonia, Other diseases of the respiratory system, Diseases of the stomach (cancer excepted).

BUREAU OF VITAL STATISTICS.

Table with columns for Cause of Death, Total, Sex (Male, Female), Color, and Age Periods (Under 1 yr., 1-4 yrs., 5-9 yrs., 10-14 yrs., 15-19 yrs., 20-24 yrs., 25-29 yrs., 30-39 yrs., 40-49 yrs., 50-59 yrs., 60-69 yrs., 70-79 yrs., 80 and over, Unknown). Rows include Diarrhoea and enteritis, Appendicitis, Typhoid fever, Typhus fever, Malaria, Acute necrotic ulceration of the liver, Acute nephritis, Bright's disease, Noncancerous tumors, Cancer of the female genital organs, Puerperal septicemia, Other puerperal accidents, Congenital debility, Semifery, Suicide, Violent deaths, Other diseases, Unknown or ill-defined diseases.

TABLE 34.—TABULATION OF DEATHS IN ATLANTIC CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns for Cause of Death, Total, Sex (Male, Female), Color, and Age Periods (Under 1 yr., 1-4 yrs., 5-9 yrs., 10-14 yrs., 15-19 yrs., 20-24 yrs., 25-29 yrs., 30-39 yrs., 40-49 yrs., 50-59 yrs., 60-69 yrs., 70-79 yrs., 80 and over, Unknown). Rows include Typhoid fever, Typhus fever, Malaria, Smallpox, Measles, Scarlet fever, Whooping cough, Diphtheria and croup, Influenza, Asiatic cholera, Cholera nostras, Other epidemic diseases, Tuberculosis of the lungs, Tuberculosis of other organs, Other forms of tuberculosis, Cancer and other malignant tumors.

Estimated population, 46,589. Total deaths including non-residents of State, 675. Rate per 1,000 population, 14.49. Deaths excluding non-residents of State, 670. Rate per 1,000 population, 14.38.

TABLE 36.—TABULATION OF DEATHS IN ENGLEWOOD CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.—Continued.

Table with columns: Abridged International List Number, Cause of Death, Total, Male, Female, Color, If other than white, Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 9, 10 to 19, 20 to 29, 30 to 39, 40 to 49, 50 to 59, 60 to 69, 70 to 79, 80 to 89, 90 and over, Unknown.

Total deaths, including non-residents of State, 177. Deaths excluding non-residents of State..... 168.

Estimated population, 12,231.

Rate per 1,000 population, 14.47. Rate per 1,000 population, 13.74.

TABLE 37.—TABULATION OF DEATHS IN GARFIELD BOROUGH FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns: Cause of Death, Total, Male, Female, Color, If other than white, Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 9, 10 to 19, 20 to 29, 30 to 39, 40 to 49, 50 to 59, 60 to 69, 70 to 79, 80 to 89, 90 and over, Unknown.

Total deaths including non-residents of State, 196. Deaths excluding non-residents of State..... 196.

Estimated population, 14,420.

Rate per 1,000 population, 13.58. Rate per 1,000 population, 13.58.

TABLE 48.—TABULATION OF DEATHS IN EAST ORANGE CITY FOR 1910, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Abridged International List Number.	CAUSE OF DEATH.	Total.	Male.	Female.	Color, If other than white.	AGE PERIODS.										90 and over.								
						Under 5 yrs.					5 to 20 yrs.						Unknown.							
						1 yr.	2 yrs.	3 yrs.	4 yrs.	Under 5 yrs.														
						1 yr.	2 yrs.	3 yrs.	4 yrs.	5 to 10 yrs.	10 to 15 yrs.	15 to 20 yrs.	20 to 25 yrs.	25 to 30 yrs.	30 to 40 yrs.			40 to 50 yrs.	50 to 60 yrs.	60 to 70 yrs.	70 to 80 yrs.			
1	Typhoid fever																							
2	Typhus fever																							
3	Schistosomiasis																							
4	Malaria																							
5	Smallpox																							
6	Measles	2	2	1	1																			
7	Scarlet fever	1	1	1	1																			
8	Whooping cough																							
9	Diphtheria and croup	5	4	1	1																			
10	Asiatic cholera																							
11	Cholera nostras																							
12	Cholera sicca																							
13	Typhoid fever	36	19	17	11																			
14	Typhus fever																							
15	Schistosomiasis	4	4	2	2																			
16	Malaria	4	4	2	2																			
17	Cancer and other malignant tumors	44	17	27	2																			
18	Simple meningitis	2	1	1	1																			
19	Cerebral hemorrhage and softening	23	14	9	4																			
20	Aortic aneurysm	26	40	4	4																			
21	Acute bronchitis	4	1	3	1																			
22	Chronic bronchitis	4	1	3	1																			
23	Pneumonia	86	21	65	2																			
24	Other diseases of the respiratory tract (infective excepted)	10	10	0	4																			
25	Other diseases of the stomach (excepted)	1	1	1	1																			

Estimated population, 42,468.

Total deaths including non-reporting of State, 604.

Deaths excluding non-reporting of State, 496.

Rate per 1,000 population, 11.87.

Rate per 1,000 population, 11.68.

TABLE 49.—TABULATION OF DEATHS IN IRVINGTON TOWN FOR 1910, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Abridged International List Number.	CAUSE OF DEATH.	Total.	AGE PERIODS.																							
			Under 1 yr.	1 yr.	2 yrs.	3 yrs.	4 yrs.	Under 5 yrs.	5 to 10 yrs.	10 to 15 yrs.	15 to 20 yrs.	20 to 25 yrs.	25 to 30 yrs.	30 to 40 yrs.	40 to 50 yrs.	50 to 60 yrs.	60 to 70 yrs.	70 to 80 yrs.	80 and over.							
1	Typhoid fever	1																								
2	Typhus fever																									
3	Schistosomiasis																									
4	Malaria																									
5	Smallpox																									
6	Scarlet fever																									
7	Whooping cough																									
8	Diphtheria and croup	1	1																							
9	Asiatic cholera																									
10	Cholera nostras																									
11	Cholera sicca																									
12	Typhoid fever	1																								
13	Typhus fever																									
14	Schistosomiasis	2																								
15	Malaria	1																								
16	Cancer and other malignant tumors	16																								

TABLE 40.—TABULATION OF DEATHS IN IRVINGTON TOWN FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.—Continued.

Table with columns: Cause of Death, Total, Male, Female, Color, If other than white, Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 9, 10 to 19, 20 to 29, 30 to 39, 40 to 49, 50 to 59, 60 to 69, 70 to 79, 80 to 89, 90 and over, Unknown.

Summary table for Table 40: Violent deaths (suicide excepted) 141, Other diseases 52, Unknown or ill-defined diseases 62, Total 276. Includes rates per 1,000 population for non-residents and State.

Estimated population, 16,039. Total deaths including non-residents of State, 280. Deaths excluding non-residents of State, 276.

TABLE 50.—TABULATION OF DEATHS IN MONTCLAIR TOWN FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns: Cause of Death, Total, Male, Female, Color, If other than white, Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 9, 10 to 19, 20 to 29, 30 to 39, 40 to 49, 50 to 59, 60 to 69, 70 to 79, 80 to 89, 90 and over, Unknown.

Summary table for Table 50: Violent deaths (suicide excepted) 141, Other diseases 52, Unknown or ill-defined diseases 62, Total 276. Includes rates per 1,000 population for non-residents and State.

TABLE 51.—TABULATION OF DEATHS IN NEWARK CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH—Continued.

Abridged International List Number.	Cause of Death.	Total.	Male.	Female.	Color, If other than white.	AGE PERIODS.											90 and over.	Unknown.						
						Under 1 yr.	1 yr.	2 yrs.	3 yrs.	4 yrs.	Under 5 yrs.	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49			50 to 59	60 to 69	70 to 79	80 to 89		
						11	10	11	4	60	34	20	41	55	48	28			23	8	6	3		
35	Violent deaths (suicide excepted)...	895	246	80	*20	18	11	10	11	4	60	34	20	41	55	48	28	23	8	6	3			
37	Other diseases.....	1218	650	550	60	205	116	103	58	41	522	48	46	50	70	91	182	108	95	42	5			
38	Unknown or ill-defined diseases.....	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
	Total.....	6312	3520	2792	377	1033	394	200	100	70	1815	166	236	425	585	736	765	757	552	230	83			

Total deaths including non-residents of State, 6,354.
Deaths excluding non-residents of State..... 6,312.

Rate per 1,000 population, 15.54.
Rate per 1,000 population, 15.44.

TABLE 52.—TABULATION OF DEATHS IN NUTLEY TOWN FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

List Number.	Cause of Death.	Total.	Male.	Female.	Color, If other than white.	Under 1 yr.	1 yr.	2 yrs.	3 yrs.	4 yrs.	Under 5 yrs.	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Unknown.			
1	Typhoid fever.....																								
2	Typhus fever.....																								
3	Malaria.....																								
4	Smallpox.....																								
5	Measles.....	5	2	3		2	1	1	1		5														
6	Scarlet fever.....																								
7	Whooping cough.....	1		1																					
8	Diphtheria and croup.....	3	2	1							2	1													
9	Influenza.....	2	1	1																					
10	Adultic cholera.....	2	1	1																					
11	Cholera nostras.....																								
12	Other epidemic diseases.....																								

List Number.	Cause of Death.	Total.	Male.	Female.	Color, If other than white.	Under 1 yr.	1 yr.	2 yrs.	3 yrs.	4 yrs.	Under 5 yrs.	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59	60 to 69	70 to 79	80 to 89	90 and over.	Unknown.			
13	Tuberculosis of the lungs.....	7	5	2		1					1	1													
14	Tuberculous meningitis.....	2	2																						
15	Other forms of tuberculosis.....	1	1								1														
16	Cancer and other malignant tumors.....	8	5	3		1																			
17	Simple meningitis.....	1	1																						
18	Cerebral meningitis.....	2	2																						
19	Organic diseases of the heart.....	10	4	6																					
20	Acute diseases of the heart.....	1	1																						
21	Chronic bronchitis.....	1	1																						
22	Pneumonia.....	5	1	4							1														
23	Other diseases of the respiratory system (tuberculosis excepted).....	3	2	1							2														
24	Diseases of the stomach (cancer excepted).....	2	1	1																					
25	Diarrhea and enteritis (under 2 years).....	4	1	3																					
26	Appendicitis and typhitis.....																								
27	Hernia, intestinal obstruction.....	1	1																						
28	Cirrhosis of the liver.....	1	1																						
29	Acute nephritis and Bright's disease.....	5	2	3																					
30	Noncancerous tumors and other diseases of the female genital organs.....	2		2																					
31	Puerperal septicemia (puerperal fever, septichemia).....																								
32	Other puerperal accidents of pregnancy and labor.....																								
33	Congenital debility and malformations.....	7	4	3																					
34	Senility.....	1	1																						
35	Suicide.....	7	5	2																					
36	Violent deaths (suicide excepted).....	10	8	2																					
37	Other diseases.....																								
38	Unknown or ill-defined diseases.....																								
	Total.....	90	47	43	3	18	6	2	6	1	33	5	1	11	2	5	13	7	8	4	1				

Total deaths including non-residents of State, 93.
Deaths excluding non-residents of State..... 90.

Rate per 1,000 population, 12.45.
Rate per 1,000 population, 12.04.

TABLE 56.—TABULATION OF DEATHS IN BAYONNE CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.—Continued.

Abridged International List Number.	Cause of Death.	Total.	Male.	Female.	Color, if other than white.	AGE PERIODS.										Under 1 yr.	Under 5 yrs.	Under 9 yrs.	90 and over.				
						1 yr.	2 yrs.	3 yrs.	4 yrs.	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59				60 to 69	70 to 79	80 to 89		
35	Violent deaths (suicide excepted)	69	54	15	1	2	4	2	2	10	4	8	13	14	13	2	2	1	2	1	2		
37	Other diseases	165	95	70	2	37	9	9	5	65	6	7	9	17	20	17	13	7	4	4	4		
38	Unknown or ill-defined diseases	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1		
Total		933	537	396	13	231	61	26	10	380	21	96	73	90	99	108	86	54	20	4	4		
Total deaths including non-residents of State, 951.																						Rate per 1,000 population, 13.61.	
Deaths excluding non-residents of State, 933.																						Rate per 1,000 population, 13.35.	

TABLE 57.—TABULATION OF DEATHS IN GUTTENBERG TOWN FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

1	Typhoid fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
2	Typhus fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
3	Malaria	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
4	Malta	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
5	Scrub typhus	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
6	Measles	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
7	Scarlet fever	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
8	Whooping cough	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
9	Diphtheria and croup	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
10	Influenza	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
11	Asiatic cholera	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	Cholera nostras	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
13	Other epidemic diseases	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....

13	Tuberculosis of the lungs	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
14	Tuberculous meningitis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
15	Other forms of tuberculosis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
16	Cancer and other malignant tumors	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
17	Simple meningitis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
18	Cerebral hemorrhage and softening	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
19	Organic diseases of the heart	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
20	Acute bronchitis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
21	Chronic bronchitis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
22	Pneumonia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
23	Other diseases of the respiratory system (tuberculosis excepted)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
24	Diseases of the stomach (cancer excepted)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
25	Diarrhoea and enteritis (under 2 years)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
26	Appendicitis and typhlitis	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
27	Hernia, intestinal obstruction	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
28	Cirrhosis of the liver	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
29	Acute nephritis and Bright's disease	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
30	Noncancerous tumors and other diseases of the female genital organs	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
31	Puerperal septicemia (puerperal fever, puerperal abscess)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
32	Other puerperal accidents of pregnancy and labor	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
33	Congenital debility and malformations	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
34	Senility	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
35	Suicide	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
36	Violent deaths (suicide excepted)	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
37	Other diseases	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
38	Unknown or ill-defined diseases	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Total		89	49	40	4	16	5	4	3	4	8	2	3	6	14	8	11	5	6	2	.....	.....	.....	.....	.....	.....	.....
Total deaths including non-residents of State, 89.																						Rate per 1,000 population, 13.10.					
Deaths excluding non-residents of State, 80.																						Rate per 1,000 population, 13.10.					

Estimated population, 6,703.

TABLE 59.—TABULATION OF DEATHS IN HOOKEN CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.—Continued.

Table with columns: Cause of Death, Total, Male, Female, Color, Age Periods (Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., 5 yrs., Under 5 yrs., 5 to 9 yrs., 10 to 19 yrs., 20 to 29 yrs., 30 to 39 yrs., 40 to 49 yrs., 50 to 59 yrs., 60 to 69 yrs., 70 to 79 yrs., 80 and over, Unknown).

TABLE 60.—TABULATION OF DEATHS IN JERSEY CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns: Cause of Death, Total, Male, Female, Color, Age Periods, Rate per 1,000 population (Total, Non-residents).

TABLE 61.—TABULATION OF DEATHS IN KEARNY TOWN FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.—Continued.

Table with columns for Cause of Death, Total, Male, Female, Color, Age Periods (Under 1 yr, 1 yr, 2 yrs, etc.), and Total deaths including/excluding non-residents of State.

TABLE 62.—TABULATION OF DEATHS IN TOWN OF UNION FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns for Cause of Death, Total, Male, Female, Color, Age Periods (Under 5 yrs, 5 to 9, etc.), and Total deaths including/excluding non-residents of State.

Table with columns for Cause of Death, Total, Male, Female, Color, Age Periods (5, 10, 15, etc.), and Total deaths including/excluding non-residents of State.

TABLE 63.—TABULATION OF DEATHS IN WEST HOBOKEN TOWN FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns for Cause of Death, Abridged International List Number, Total, Male, Female, Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 10, 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 and over, and Unknown.

AGE PERIODS.

Table with columns for Cause of Death, Total, Male, Female, Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 10, 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 and over, and Unknown. Includes summary statistics at the bottom.

Estimated population, 43,129.

Total deaths including non-residents of State, 510.

Deaths excluding non-residents of State, 509.

Rate per 1,000 population, 11.82.
Rate per 1,000 population, 11.80.

TABLE 64.—TABULATION OF DEATHS IN WEST NEW YORK TOWN FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns for Cause of Death, Total, Male, Female, Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 10, 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 and over, and Unknown.

TABLE 66.—TABULATION OF DEATHS IN TRENTON CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH—Continued.

Abridged International List Number.	Cause of Death.	Total.	Male.	Female.	Color, If other than white.	AGE PERIODS.												90 and over.	Unknown.				
						Under 1 yr.	1 yr.	2 yrs.	3 yrs.	4 yrs.	Under yrs.	5 to 9	10 to 19	20 to 29	30 to 39	40 to 49	50 to 59			60 to 69	70 to 79	80 to 89	
																							Rate per 1,000 population, 1901.	Rate per 1,000 population, 1914.
35	Violent deaths (suicide excepted)	78	63	15	3	3	4	4	2	2	15	5	7	11	6	9	14	5	4	2			
37	Other diseases	280	158	122	9	48	26	15	12	3	104	17	10	9	18	23	24	30	26	16	3		
38	Unknown or ill-defined diseases	3	2	1	1	3					3												
	Total	1768	971	797	72	413	127	45	38	12	635	36	50	100	116	104	194	500	103	90	11		
	Estimated population, 111,533.	Total deaths including non-residents of State, 1,801.																				Rate per 1,000 population, 16.14.	
		Deaths excluding non-residents of State..... 1,708.																				Rate per 1,000 population, 15.84.	

TABLE 67.—TABULATION OF DEATHS IN NEW BRUNSWICK CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

1	Typhoid fever																								
2	Typhus fever																								
3	Malaria																								
4	Smallpox																								
5	Measles																								
6	Scarlet fever																								
7	Whooping cough																								
8	Diphtheria and croup																								
9	Influenza																								
10	Asiatic cholera																								
11	Cholera nostras																								
12	Other epidemic diseases																								
13	Tuberculosis of the lungs	37	21	16	4	1	1	1																	
14	Tuberculous meningitis	7	4	3	1	1																			
15	Other forms of tuberculosis	4	4	1	1																				
16	Cancer and other malignant tumors	34	16	18	3																				
17	Simple meningitis	2	1	1																					
18	Cerebral hemorrhage and softening	27	11	16	2																				
19	Organic diseases of the heart	56	30	26	3	1																			
20	Acute bronchitis	1																							
21	Chronic bronchitis	1																							
22	Pneumonia	44	23	21	4	3	0	2																	
23	Other diseases of the respiratory system (tuberculosis excepted)	25	13	12	2	0	3	1																	
24	Diseases of the stomach (cancer excepted)	9	4	5	0	2																			
25	Diarrhoea and enteritis (under 2 years)	36	20	16	26	10																			
26	Appendicitis and typhlitis	2	2																						
27	Hernia, intestinal obstruction	3	3																						
28	Cirrhosis of the liver	2	1																						
29	Acute nephritis and Bright's disease	33	19	14	1																				
30	Nonneoplastic tumors and other diseases of the female genital organs	1																							
31	Puerperal septicemia (puerperal fever, peritonitis)	1																							
32	Other puerperal accidents of pregnancy and labor	2																							
33	Congenital debility and malformations	40	23	17	3	40																			
34	Senility	9	4	5	2																				
35	Suicide	5	4	1																					
36	Violent deaths (suicide excepted)	44	32	12	4	3																			
37	Other diseases	91	47	44	1	15	5	11	3																
38	Unknown or ill-defined diseases	2	2																						
	Total	536	285	251	33	113	31	17	4	1	166	12	20	40	48	48	53	60	54	30	5				
	Estimated population, 25,512.	Total deaths including non-residents of State, 544.																				Rate per 1,000 population, 21.32.			
		Deaths excluding non-residents of State..... 536.																				Rate per 1,000 population, 21.01.			

TABLE 71.—TABULATION OF DEATHS IN ASBURY PARK CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.—Continued.

Abridged International List Number.	Cause of Death.	Total.	Male.	Female.	Color, If other than white.	Under 1 yr.	1 yr.	2 yrs.	3 yrs.	4 yrs.	Under 5 yrs.	AGE PERIODS.											90 and over.	Unknown.																														
												5 to 9		10 to 14		15 to 19		20 to 24		25 to 29		30 to 34			35 to 39		40 to 44		45 to 49		50 to 54		55 to 59		60 to 64		65 to 69		70 to 74		75 to 79													
												t	e	t	e	t	e	t	e	t	e	t			e	t	e	t	e	t	e	t	e	t	e	t	e	t	e	t	e	t	e	t	e	t	e	t	e	t	e			
35	Violent deaths (suicide excepted).....	11	5	6	3	1	1	1	1		1	1	1																																									
37	Other diseases	47	21	26	8	1	1	3	6	1	2	1	1	2	5	3	4	1	1	2	1	1	2	4	1	1	2	1	1	1	1	1	2	1	1	2	1	1	1	1	1													
38	Unknown or ill-defined diseases.....	1	1			1																																																
	Total	101	83	108	47	18	7	4	2	3	34	5	3	12	12	16	31	29	23	20	20																																	
	Estimated population, 14,007.		Total deaths including non-residents of State, 204.		Rate per 1,000 population, 14.56.																																																	
			Deaths excluding non-residents of State,.....		191.																																																	

TABLE 72.—TABULATION OF DEATHS IN LONG BRANCH CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

1	2	3	4	5	6	7	8	9	10	11	12
Typhoid fever											
Typhus fever											
Malaria											
Smallpox											
Measles											
Scarlet fever											
Whooping cough											
Diphtheria and croup											
Influenza											
Asiatic cholera											
Cholera nostras											
Other epidemic diseases.....											

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
Tuberculosis of the lungs	14	10	4	8																					
Other forms of tuberculosis	1	1		1																					
Cancer and other malignant tumors	2	2		1																					
Simple meningitis	10	4	6	1																					
Cerebral hemorrhage and softening	1	1		1																					
Organic diseases of the heart	16	7	9																						
Acute bronchitis	25	9	16																						
Chronic bronchitis	4	1	3	2	3																				
Pneumonia	21	8	5	1	3	2	1																		
Other diseases of the respiratory system (tuberculosis excepted)	13																								
Diseases of the stomach (cancer excepted)	5	2	3	2	1																				
Diarrhoea and enteritis (under 2 years)	3	1	2	2	2																				
Appendicitis and typhlitis	7	5	2	1	7																				
Hernia, intestinal obstruction	1				1																				
Cirrhosis of the liver																									
Acute nephritis and Bright's disease	19	7	12	4																					
Non-neuritic tumors and other diseases of the female genital organs																									
Puerperal septicemia (puerperal fever, peritonitis)	1		1																						
Other puerperal accidents of pregnancy and labor	2																								
Congenital debility and malformations	9	6	3	9																					
Seizure	1	1																							
Suicide	2	1																							
Violent deaths (suicide excepted)	11	10	1	3	1																				
Other diseases	33	21	13	3	7																				
Unknown or ill-defined diseases																									
Total	180	98	88	29	34	3	1																		

Estimated population, 15,305.

Total deaths including non-residents of State, 207.
Deaths excluding non-residents of State,..... 186.

Rate per 1,000 population, 13.45.
Rate per 1,000 population, 12.08.

Abridged International List Number.	CAUSE OF DEATH.	Total.	Male.	Female.	Color, If other than white.	AGE PERIODS.											90 and over.	Unknown.											
						Under 1 yr.		1 yr. to 4 yrs.		Under 5 yrs.		5 to 10		10 to 20		20 to 30			30 to 40		40 to 50		50 to 60		60 to 70		70 to 80		
						Under 1 yr.	1 yr. to 4 yrs.	1 yr. to 4 yrs.	4 yrs. to 5 yrs.	5 to 10	10 to 20	20 to 30	30 to 40	40 to 50	50 to 60	60 to 70			70 to 80	80 to 90	90 and over.								
17	Simple meningitis	1	1																										
18	Cerebral hemorrhage and softening	9	5	4																									
19	Organic diseases of the heart	12	4	8																									
20	Acute bronchitis	1	1																										
21	Chronic bronchitis																												
22	Pneumonia	11	4	7																									
23	Other diseases of the respiratory system (tuberculosis excepted)	2	1	1																									
24	Diseases of the stomach (cancer excepted)																												
25	Diarrhoea and enteritis (under 2 years)	4	2	2																									
26	Appendicitis and typhilitis	1		1																									
27	Hernia, intestinal obstruction																												
28	Cirrhosis of the liver	2	1	1																									
29	Acute nephritis and Bright's disease	10	5	5																									
30	Noncancerous tumors and other diseases of the female genital organs																												
31	Puerperal septicemia (puerperal fever, peritonitis)																												
32	Other puerperal accidents of pregnancy and labor																												
33	Congenital debility and malformations	4	2	2																									
34	Senility																												
36	Suicide																												

35	Violent deaths (suicide excepted)	8	7	1																						
37	Other diseases	24	9	15																						
38	Unknown or ill-defined diseases																									
	Total	113	50	57	1	17	3	1	1	2	24	4	5	8	8	8	16	15	15	0	1					

Estimated population, 8,430. Total deaths including non-residents of State, 113. Deaths excluding non-residents of State, 113. Rate per 1,000 population, 13.40. Rate per 1,000 population, 13.40.

TABLE 75.—TABULATION OF DEATHS IN MORRISTOWN TOWN FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

1	Typhoid fever	1	1																							
2	Typhus fever																									
3	Scarlet fever																									
4	Smallpox																									
5	Measles	1	1																							
6	Scarlet fever	3	1	2																						
7	Whooping cough	1	1																							
8	Diphtheria and croup	1	1																							
9	Influenza																									
10	Asiatic cholera																									
11	Cholera nostras																									
12	Other epidemic diseases																									
13	Tuberculosis of the lungs	11	5	6																						
14	Tuberculous meningitis	1	1																							
15	Other forms of tuberculosis	1	1																							
16	Cancer and other malignant tumors	13	4	9																						
17	Simple meningitis	1	1																							
18	Cerebral hemorrhage and softening	4	8	6																						
19	Organic diseases of the heart	18	10	8																						
20	Acute bronchitis	10	8	2																						
21	Chronic bronchitis	2	1	1																						
22	Pneumonia	12	7	5																						
23	Other diseases of the respiratory system (tuberculosis excepted)	7	5	2																						
24	Diseases of the stomach (cancer excepted)																									
25	Diarrhoea and enteritis (under 2 years)	2	1	1																						
26	Appendicitis and typhilitis	2	1	1																						
27	Hernia, intestinal obstruction	1	1																							
28	Cirrhosis of the liver	2	2																							
29	Acute nephritis and Bright's disease	18	9	9																						

TABLE 76.—TABULATION OF DEATHS IN PASSAIC CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH—(continued).

Abridged International List Number.	Cause of Death.	Total.	Male.	Female.	Color, if other than white.	AGE PERIODS.										90 and over.	Unknown.					
						Under 1 yr.	1 yr.	2 yrs.	3 yrs.	4 yrs.	Under 5 yrs.	5 to 9	10 to 19	20 to 29	30 to 39			40 to 49	50 to 59	60 to 69	70 to 79	80 to 89
						26	4	4	1	1	8	5	2	7	9			7	8	8	15	9	8
35	Violent deaths (suicide excepted)	46	39	7	1	1	3	4	1	8	5	2	7	9	7	5	3					
37	Other diseases	101	64	37	1	26	4	5	1	36	2	3	8	8	15	9	8	4				
38	Unknown or ill-defined diseases	1	1	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0				
	Total	889	520	379	17	294	70	23	20	91	416	19	28	75	67	73	72	66	53	28	2	

Estimated population, 71,744.

Total deaths including non-residents of State, 906.

Rate per 1,000 population, 12.63.

Deaths excluding non-residents of State, 889.

Rate per 1,000 population, 12.53.

TABLE 77.—TABULATION OF DEATHS IN PATERSON CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Abridged International List Number.	Cause of Death.	Total.	Male.	Female.	Color, if other than white.	AGE PERIODS.										90 and over.	Unknown.				
						Under 1 yr.	1 yr.	2 yrs.	3 yrs.	4 yrs.	Under 5 yrs.	5 to 9	10 to 19	20 to 29	30 to 39			40 to 49	50 to 59	60 to 69	70 to 79	80 to 89
1	Typhoid fever	6	2	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	Typhus fever	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	Malaria	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	Smallpox	18	12	6	1	7	1	2	0	16	2	1	2	1	1	2	1	1	1	1	1
5	Measles	3	1	2	0	2	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0
6	Scarlet fever	17	9	8	1	1	4	4	2	11	6	1	1	2	4	7	7	2	2	2	2
7	Whooping cough	25	11	14	1	1	1	1	1	1	1	1	1	2	4	7	7	2	2	2	2
8	Diphtheria and croup	5	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	Influenza	203	126	77	9	23	21	5	2	53	2	1	5	18	29	38	28	12	1	1	1
10	Asiatic cholera	11	5	6	0	2	0	0	0	2	2	0	0	0	0	0	0	0	0	0	0
11	Cholera nostras	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	Other epidemic diseases	106	62	44	3	44	19	3	3	70	4	1	2	5	7	7	9	1	1	1	1
13	Tuberculosis of the lungs	183	120	63	7	0	1	1	1	5	1	1	12	48	57	40	18	6	1	1	1
14	Tuberculous meningitis	7	3	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	Other forms of tuberculosis	5	1	4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	Cancer and other malignant tumors	105	30	76	3	3	1	1	1	5	1	3	1	0	20	24	30	16	10	10	10
17	Simple meningitis	10	7	3	0	0	0	0	0	1	1	1	1	1	1	1	1	1	1	1	1
18	Cerebral hemorrhage and softening	95	44	51	3	2	1	1	1	2	7	8	15	11	38	53	65	34	20	20	20
19	Organic diseases of the heart	268	148	120	7	2	1	1	1	8	2	1	1	1	1	1	1	1	1	1	1
20	Acute bronchitis	17	9	8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	Chronic bronchitis	5	3	2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	Pneumonia	203	126	77	9	23	21	5	2	53	2	1	5	18	29	38	28	12	1	1	1
23	Other diseases of the respiratory system (tuberculosis excepted)	106	62	44	3	44	19	3	3	70	4	1	2	5	7	7	9	1	1	1	1
24	Diseases of the stomach (cancer excepted)	33	15	18	2	5	2	1	1	0	0	0	2	1	3	2	7	5	4	4	4
25	Diarrhea and enteritis (under 2 years)	56	30	26	1	49	7	1	1	56	0	0	0	0	0	0	0	0	0	0	0
26	Appendicitis and typhlitis	13	8	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	Hernia, intestinal obstruction	15	8	7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	Cirrhosis of the liver	25	18	7	1	2	1	1	1	3	1	1	1	1	1	1	1	1	1	1	1
29	Acute nephritis and Bright's disease	102	94	8	1	2	0	0	0	2	1	1	0	8	32	31	44	40	24	3	3
30	Noncancerous tumors and other diseases of the female genital organs	5	0	5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	Puerperal septicemia (puerperal fever, puerperitis)	9	0	9	0	0	0	0	0	0	0	0	1	4	3	1	3	1	1	1	1
32	Other puerperal accidents of pregnancy and labor	12	0	12	0	0	0	0	0	0	0	0	2	5	5	5	5	5	5	5	5
33	Congenital debility and malformations	105	50	55	3	104	1	0	0	105	0	0	0	0	0	0	0	0	0	0	0
34	Senility	10	4	6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	Suicide	23	10	13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	Violent deaths (suicide excepted)	107	74	33	2	3	1	3	3	10	11	14	24	16	30	11	5	5	2	2	2
37	Other diseases	286	182	104	5	53	3	6	2	67	7	7	11	18	35	45	42	40	14	14	14
38	Unknown or ill-defined diseases	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
	Total	1982	1065	917	49	310	73	24	15	13	435	45	56	137	162	231	263	285	253	110	5

Estimated population, 138,443.

Total deaths including non-residents of State, 1,997.

Rate per 1,000 population, 14.42.

Deaths excluding non-residents of State, 1,982.

Rate per 1,000 population, 14.32.

TABLE S1.—TABULATION OF DEATHS IN ELIZABETH CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH—Continued.

Table S1: Tabulation of deaths in Elizabeth City for 1916, categorized by cause of death and age periods. Includes columns for cause of death, total deaths, and age groups (Under 1 yr. to 80 and over).

TABLE S2.—TABULATION OF DEATHS IN PLAINFIELD CITY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table S2: Tabulation of deaths in Plainfield City for 1916, categorized by cause of death and age periods. Includes columns for cause of death and age groups (Under 1 yr. to 80 and over).

Table S3: Tabulation of deaths in Elizabeth City for 1916, categorized by cause of death and age periods. Includes columns for cause of death and age groups (Under 1 yr. to 80 and over).

Estimated population, 23,805.

Total deaths including non-residents of State, 412. Deaths excluding non-residents of State, 408.

Rate per 1,000 population, 17.31. Rate per 1,000 population, 17.14.

TABLE 86.—TABULATION OF DEATHS IN PHILLIPSBURG TOWN FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.—Continued.

Table with columns for Cause of Death, Total, Male, Female, Color, Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 9 yrs., 10 to 19 yrs., 20 to 29 yrs., 30 to 39 yrs., 40 to 49 yrs., 50 to 59 yrs., 60 to 69 yrs., 70 to 79 yrs., 80 and over, and Unknown. Includes sub-totals for Total deaths including non-residents of State and Deaths excluding non-residents of State.

TABLE 87.—TABULATION OF DEATHS IN NEW JERSEY FOR 1916, ACCORDING TO THE ABRIDGED INTERNATIONAL LIST OF CAUSES OF DEATH.

Table with columns for Cause of Death, Total, Male, Female, Color, Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 9 yrs., 10 to 19 yrs., 20 to 29 yrs., 30 to 39 yrs., 40 to 49 yrs., 50 to 59 yrs., 60 to 69 yrs., 70 to 79 yrs., 80 and over, and Unknown. Includes sub-totals for Total deaths including non-residents of State and Deaths excluding non-residents of State.

Table with columns for Cause of Death, Total, Male, Female, Color, Under 1 yr., 1 yr., 2 yrs., 3 yrs., 4 yrs., Under 5 yrs., 5 to 9 yrs., 10 to 19 yrs., 20 to 29 yrs., 30 to 39 yrs., 40 to 49 yrs., 50 to 59 yrs., 60 to 69 yrs., 70 to 79 yrs., 80 and over, and Unknown. Includes sub-totals for Total deaths including non-residents of State and Deaths excluding non-residents of State.

List of Licensed Health Officers and Sanitary Inspectors.

Following is a list of the persons who have successfully passed the examination provided for in the act approved April 18th, 1903:

HEALTH OFFICERS.

Henry D. Abbott, M. D.	Bayonne.	Frank A. Frederick, Sr.	West Hoboken.
John K. Adams, M. D.	Orange.	Richard Frederick	Jersey City.
T. Lee Adams	Ocean City.	A. I. Goehrig	Trenton.
Jos. Adler, M. D.	Bayonne.	Hyman L. Goldstein, M. D.	Camden.
Martin E. Alpers	Dover.	Wm. S. Green, M. D.	Paterson.
Henry V. Amerman	Kearny.	Chas. A. Griffin, D. V. M.	Orange.
Fritz M. Arnolt	Hackensack.	I. N. Griscom, M. D.	Ocean City.
T. Dudley Ballinger	Princeton.	Edward Guion, M. D.	Atlantic City.
Wm. M. Barns, M. D.	Millburn.	Selskar M. Gunn	Orange.
Howard L. Baumgartner	Asbury Park.	James J. Hagan	Jersey City.
Joseph V. Bergen, M. D.	Paterson.	Orville R. Hagen	Paterson.
Richard Bew, M. D.	Atlantic City.	John J. Haley, M. D.	Gloucester City.
Duncan W. Blake, Jr., M. D.	Gloucester City.	John Hall	Long Branch.
Chas. B. Bleasby, M. D.	Garfield.	Lester Hamblet	Asbury Park.
Perkins Boynton	Little Falls.	Carl Hegstrom	Perth Amboy.
Henry H. Brinkerhoff, M. D.	Jersey City.	Alex. M. Heron, M. D.	Lakewood.
Chas. S. Brady, M. D.	Town of Union.	F. M. Hoffman, M. D.	New Brunswick.
John J. Broderick, M. D.	Jersey City.	Wm. L. Holt, M. D.	Maplewood.
Wm. H. Brooke, M. D.	Bayonne.	J. I. Hoverder, M. D.	Atco.
James E. Brooks	Glen Ridge.	Robert N. Hunt	Summit.
J. Alex Browne, M. D.	Paterson.	Edward R. Hunter, M.D.	Delanco.
Dundas R. Campbell, M. D.	Newark.	Morton W. Huttenloch	Montclair.
Collis H. Case	Plainfield.	Ralph L. Huttenloch	Montclair.
John J. Casey	Plainfield.	H. W. Ingling, M. D.	Freehold.
N. J. Randolph Chandler	Plainfield.	Wm. H. Iszard, M. D.	Camden.
T. A. Clay, M. D.	Paterson.	Maximilian Jakoby, M.D.	Chrome.
Ralph O. Clock, M. D.	Burlington.	Henry C. James, M. D.	Mays Landing.
Morris W. Clouse, M. D.	Kearny.	Ralph R. Jones, M. D.	Toms River.
Nathan A. Cohen, M. D.	Wildwood.	Chas. A. Keating, M. D.	Paterson.
Max J. Colton	New Brunswick.	I. Warner Knight, M. D.	Penn's Grove.
John T. Connelly, M. D.	Bayonne.	W. U. Kurtz, M. D.	Asbury Park.
Wm. C. Craig, M. D.	Ridgewood.	Chas. J. Larkey, M. D.	Bayonne.
Chas. V. Craster, M. D.	Rosebank, N. Y.	Geo. W. Lawrence, M. D.	Lakewood.
Jos. J. Craven, M. D.	Jersey City.	Malcolm Lewis	Montclair.
E. Irving Cronk, M. D.	New Brunswick.	J. William Long	Trenton.
Grant P. Curtis, M. D.	Town of Union.	J. C. Loper, M. D.	Bridgeton.
Samuel S. DeCon	Trenton.	John L. Lund, M. D.	Perth Amboy.
Jeremiah J. Donovan, M. D.	Rosindale, Mass.	Henry MacDonald	Newark.
W. D. Dotterer	Princeton.	J. Scott MacNutt	Orange.
Thos. J. Duffield	Asbury Park.	L. F. Maloney, M. D.	Clifton.
Wallace T. Eakins	New Brunswick.	Alex. Marcy, M. D.	Riverton.
Chas. P. Eaton	Jersey City.	V. M. D. Marcy, M. D.	Cape May.
Frank H. Edsall, M. D.	Jersey City.	Elias J. Marsh, M. D.	Paterson.
Nelson Elliott, M. D.	Passaic.	Emery Marvel, M. D.	Atlantic City.
R. Clifford Errickson	Long Branch.	Harriet O. Mattison	Plainfield.
Edward P. Essertier, M. D.	Hackensack.	Samuel D. Mayhew, M. D.	Bridgeton.
James A. Exton, M. D.	Arlington.	John T. McClure	Harrison.
Wm. T. Fales	Glen Ridge.	Charles McNabb	Bound Brook.
Morris Farkas, M. D.	West Orange.	John J. McDonald	Jersey City.
A. S. Fell, M. D.	Trenton.	Frank B. Meeker, M. D.	Newark.
Geo. W. Finke, M. D.	Hackensack.	Josiah Meigh, M. D.	Bernardsville.
Geo. W. Fithian, M. D.	Perth Amboy.	Chas. J. Merrell	Bound Brook.
Jay G. Foose	Montclair.	Chas. S. Mills, M. D.	Riverton.
Morris Frank, M. D.	Bayonne.	Philip Morris, C. E.	Passaic.
Frank A. Frederick, Jr.	West Hoboken.	William Morris	Roselle Park.

Alfred A. Mutter, M. D. Arlington.
 Nels A. Nelson. Long Branch.
 Marcus W. Newcomb, M. D. Burlington.
 Paul F. Nichols. Jersey City.
 Stanley H. Nichols, M. D. Long Branch.
 Budd H. Obert. Asbury Park.
 John O'Brien, Jr. Montclair.
 James L. Oliff. Plainfield.
 Frank J. Osborne. Montclair.
 George T. Palmer. Trenton.
 Wm. B. Palmer. Orange.
 R. H. Parsons, M. D. Mt. Holly.
 H. T. Partrce, M. D. Eatontown.
 Joseph Payne, M. D. Midland Park.
 Ror G. Perham, M. D. Hasbrouck Heights.
 Harry H. Pettit, M. D. Ridgewood.
 Carl T. Pomeroy. Plainfield.
 David N. Rappoport, M. D. Philadelphia, Pa.
 Talbot Reed, M. D. Atlantic City.
 Louis J. Richards. Elizabeth.
 W. R. Reick, M. D. Carteret.
 Edward B. Rogers, M. D. Collingswood.
 John N. Ryan, M. D. Passaic.
 Jos. C. Saile. Bloomfield.
 Ferdinand N. Sauer. Jersey City.
 Wm. D. Sayre, M. D. Red Bank.
 Wm. G. Schauflier, M. D. Lakewood.
 Wm. Schleur. Orange.
 Wm. H. Schmidt, M. D. Atlantic City.
 Fred W. Sell, M. D. Rahway.
 Maurice Shapiro, M. D. Bayonne.
 Lewis L. Sharp, M. D. Palmyra.
 Wm. H. Shipp, M. D. Bordentown.
 Ellen B. Smith, M. D. Salem.
 W. Brand Smith. Belleville.
 Wm. R. Smith, M. D. Roselle Park.

Milton L. Somers, M. D. Atlantic City.
 Henry J. Spalding, M. D. Union Hill.
 Gobin Stair. Jersey City.
 Fred A. Stetter. Asbury Park.
 Ellsmore Stites, M. D. Bridgeton.
 Fred H. Stover. Boston, Mass.
 Frank H. Straightoff. Montclair.
 Eugene H. Sullivan. Orange.
 Eugene M. Syrett. Montclair.
 George H. Taylor, M. D. Maplewood.
 John G. Taylor. Dover.
 Walter Taylor, M. D. Jersey City.
 Lewis O. Tayntor. Montclair.
 James A. Tobey. Summit.
 Leon R. Thurlow. Plainfield.
 George T. Tracey, M. D. Beverly.
 John A. C. Tull, M. D. Ventnor.
 Wm. Veenstra, M. D. Paterson.
 Maria M. Vintor, M. D. East Orange.
 Gordon G. Walton, M. D. Paterson.
 Jos. Wantoch, M. D. Carteret.
 Alex. Weir, Jr. West Hoboken.
 Chester H. Wells. Montclair.
 Wm. A. Westcott, M. D. Berlin.
 Wm. J. Whalen, M. D. Paterson.
 John H. Whiticar, M. D. Ocean City.
 Arthur G. Wigley. New Brunswick.
 Hiram Williams, M. D. Passaic.
 Wm. J. Willsey. New Brunswick.
 John S. Wilson. Bridgeton.
 Clarence W. Winchell. Jersey City.
 John H. Winslow, M. D. Vineland.
 Wm. C. Woodward, M. D. Washington, D. C.
 Shirley W. Wynn, M. D. New York City.
 Warren H. Young, M. D. Little Falls.

SANITARY INSPECTORS OF THE FIRST CLASS.

Frank Ackley. Woodbury.
 William H. Addis. Plainfield.
 Thomas Ainge. Lausang, Mich.
 Wm. C. Allen. Trenton.
 Henry V. Amerman. Kearny.
 Fred J. Anderson. Hoboken.
 Fritz M. Arnolt. Albany, N. Y.
 Nathan Aronson. Newark.
 Samuel Bachman. Newark.
 Fred S. Ball, M. D. Lakewood.
 Joseph R. Bartlett. Atlantic City.
 Milton E. Baxter. Jersey City.
 John H. Becker, M. D. Fair Haven.
 J. Alonzo Beek, M. D. Gloucester City.
 John J. Belbey. Morristown.
 Charles E. Bellows. Bayonne.
 Alfred C. Benedict, M. D. South Orange.
 Chester L. Bennett. Newark.
 John K. Bennett, M. D. Gloucester City.
 Casper Benz. Newark.
 Harry K. Berry. Paterson.
 Joseph C. Bitler, M. D. Hammonton.
 Thomas F. Boles. Newark.
 Henry A. Bonyng, M. D. Ridgewood.
 Fred S. Bootay, M. D. Belleville.
 Lewis E. Boutfiller. Newark.
 John F. Boylan. Bayonne.
 Peter Brancato, M. D. Wyckoff.
 Patrick J. Brogan. Newark.
 Alonzo Brower. Freehold.
 Frank Brouwer, M. D. Toms River.
 David E. Buckley. West Orange.
 Robert A. Buhler. Belmar.
 Chauncey V. Bunnell. Jersey City.
 S. Alton Burk. Atlantic City.
 Stephen Campbell, M. D. Woodbury.
 Andrew Carney, Jr. North Plainfield.
 Thomas J. Carter. Newark.
 Collis H. Case. Plainfield.

John J. Casey. Plainfield.
 Mathew P. Casey. Jersey City.
 N. J. R. Chandler. Plainfield.
 Edward A. Cleary. Newark.
 Max J. Colton. New Brunswick.
 Obadiah S. Cole. Newark.
 John H. Concannon. Woodbridge.
 Charles F. Conrad. Newark.
 John D. Corrigan. Newark.
 Irwin C. Dakin. Newark.
 Harris Day, M. D. Chester.
 Newton DeBaun. Hackensack.
 Burdick Decker. Paterson.
 Walter B. Delaney. Jersey City.
 Frank Dencklan. Plainfield.
 Samuel Denton. Bayonne.
 Edward J. Devitt. Jersey City.
 C. P. Deyoe, M. D. Ramsey.
 Charles E. Divine. Newark.
 John A. Donavan. Newark.
 Daniel J. Donohue, M. D. Jersey City.
 John J. Duff. Jersey City.
 Leo. G. Duffy. Newark.
 Marine Dunn. Rutherford.
 Fred J. Dyer. Grantwood.
 H. G. Eakin. Union Hill.
 Wallace T. Eakins. New Brunswick.
 J. I. Ebbels. Montclair.
 Adolph O. Elsassner. Newark.
 Charles W. Feeney. Paterson.
 Edward F. Flynn. Newark.
 Jay G. Foose. Montclair.
 Helen E. Forbes, R. N. Morristown.
 Frank A. Frederick. West Hoboken.
 Richard Frederick. Jersey City.
 Gustavus E. Freideman. Newark.
 Charles S. Gall. Paterson.
 John W. Garey. Atlantic City.
 Dennis E. Gavin. North Plainfield.

Albert E. Geissler. Kearny.
 Wallace M. Gill. Perth Amboy.
 George W. Gilmore. Newark.
 William Glueck, Jr. Newark.
 A. I. Goehrig. Trenton.
 Hyman I. Goldstein, M. D. Camden.
 John Greaves. Jersey City.
 Louis H. Greenwald. New Brunswick.
 A. M. Grier. Penn's Grove.
 Robert H. Hall. Jersey City.
 Lester J. Hamblet. Asbury Park.
 H. L. Harlet, M. D. Pleasantville.
 John C. Harnett. Jersey City.
 Charles W. Harrays, M. D. Ridgewood.
 Frank S. Harris. Salem.
 Fred C. Harris. Jersey City.
 Wm. H. Harrison. Paterson.
 H. W. Hartman, M. D. Keypport.
 Eugene G. Hebener, M. D. Lakewood.
 William W. Heberton, M. D. South Orange.
 Carl Hegstrom. Perth Amboy.
 Wm. H. Helm, Jr. Belmar.
 Patrick J. Hennessy. Jersey City.
 Fred W. Hering. Jersey City.
 Alex. M. Heron, M. D. Lakewood.
 A. Gertrude Hines. Franklin.
 Harry M. Hitchner. Salem.
 Adolph E. Hoernig. Newark.
 James A. Howard. Trenton.
 Howard H. Huffert. Newark.
 J. H. C. Hunter. Dover.
 Ralph L. Huttenloch. Montclair.
 Harry R. Ingalls. Asbury Park.
 H. Wesley Jack. Collingswood.
 Richard Jackson. Newark.
 William F. Kearney. Paterson.
 Charles A. Keating, M. D. Paterson.
 Gerald J. Keating. Jersey City.
 Leavett F. Kelley. Newark.
 Harry E. Kelly. Jersey City.
 John A. Kelly. Newark.
 Robert J. Kelly. Jersey City.
 Stewart Kidd. Paterson.
 John F. Kilkenny. Morristown.
 Jay E. Kilpatrick. Montclair.
 Tunis Kivett. Paterson.
 Henry F. Kneller. Newark.
 William C. Kraemer. Linden.
 Henry A. Kuhmann. Newark.
 Clarence A. Lamont. Asbury Park.
 Btram S. Lambertson. Newark.
 Patrick J. Lang. Jersey City.
 Geo. W. Langdon. Jersey City.
 John A. Larkin. Jersey City.
 Sadie H. Layton. Asbury Park.
 Gilbert C. Leigh. Asbury Park.
 John Levine. Newark.
 Hilliard L. Lockwood, M. D. Jersey City.
 George C. Losey. Washington.
 William H. Lowe, D. V. S. Paterson.
 John L. Lund, M. D. Perth Amboy.
 Abram A. Lydecker, M. D. Haledon.
 John J. Magner, M. D. Jersey City.
 John A. Manson. Jersey City.
 Timothy U. Margerum. Princeton.
 Charles F. Martin. Newark.
 Cullen B. Mason, M. D. Jersey City.
 Henry S. McAuley. Atlantic City.
 James J. McCarron. Newark.
 John T. McClure. Harrison.
 John T. McClure, Jr. Harrison.
 Jas. L. McEneaney. Jersey City.
 Felix McGee. Millburn.
 Edward McGiverin, M. D. Jersey City.
 Richard J. McGrath. Jersey City.
 William McKeon. Paterson.
 Edward F. McLarnay. Jersey City.
 Frank J. McLaughlin, M. D. Jersey City.
 Charles McNabb. Bound Brook.

James P. McNair. Paterson.
 Claudis E. McNeeney, M. D. Jersey City.
 Robert W. Meeker. Plainfield.
 Chas. E. Messerschmidt. Newark.
 Harry P. Moffet. Newark.
 John Morlot. Paterson.
 Philip Morris, C. E. Passaic.
 William Morris. Roselle Park.
 Elmer M. Mount, Jr., M. D. Jersey City.
 Edward Mulvaney, M. D. Jersey City.
 Abraham J. Newman, M. D. Jersey City.
 Frederick W. Nichols. Newark.
 George C. Nicol. Jersey City.
 A. C. Obergfell. Atlantic City.
 M. William O'Gorman, M. D. Jersey City.
 Bernard F. O'Hara. Jersey City.
 James L. Oliff. Plainfield.
 Eric Ordell. Newark.
 Jos. G. O'Sullivan. Newark.
 Richard H. L. Osthoff. Bogota.
 Clarence I. Palmer. Newark.
 William B. Palmer. Orange.
 William D. Pelan. Trenton.
 Christian Petry. Jersey City.
 Peter Pirola. Trenton.
 Elmer D. Prickett, M. D. Mt. Holly.
 J. J. Reason, M. D. Carteret.
 Thomas E. Reynolds. Atlantic City.
 James E. Rich. Trenton.
 Fred C. Robertson, M. D. Jersey City.
 Edward S. Rogers. Trenton.
 John E. Rowe, D. V. S. Summit.
 John H. Rowland. New Brunswick.
 Joseph C. Saile. Bloomfield.
 Garrett E. St. John. Newark.
 Edward H. Salmon, M. D. Jersey City.
 Richard Savage. Orange.
 George Scales. Rahway.
 Wm. C. Schirmer. Jersey City.
 Elvia Scott. South Orange.
 Paul Scott. Penn's Grove.
 Timothy J. Scott. Summit.
 B. F. Seaman, M. D. Raritan.
 W. J. E. Seeler. Newark.
 Myron J. Seely. Montclair.
 George R. Sees. Atlantic City.
 Leon A. Sever. Beverly.
 Henry J. Seymour. Roselle Park.
 George F. Shafer. Hackensack.
 Geo. W. Shinn. Burlington.
 Ruth S. Sickler. Newark.
 Percy W. Sipp. Salem.
 C. C. Slesman. Newark.
 George N. Smith, M. D. Bayonne.
 Wm. R. Smith. Roselle Park.
 F. Wm. Stahuber. Trenton.
 Thomas J. Steele. Jersey City.
 Louis D. Stern. Hoboken.
 Frederick A. Stetter. Asbury Park.
 Herbert A. Stine. Plainfield.
 Andrew F. Stoveken. Jersey City.
 John P. Stout, M. D. Jersey City.
 Dennis J. Sullivan, Jr. Jersey City.
 J. Frank Summers. Salem.
 Eugene M. Syrett. Montclair.
 Edwin E. Taber. Long Branch.
 John G. Taylor. Dover.
 Joseph Ten Broeck. Asbury Park.
 David R. Thompson. Delaware City, Del.
 Edward L. Titus. Trenton.
 Wm. Tompkins, M. D. Ridgewood.
 Thomas A. Tonge. Paterson.
 J. F. Travers. New Brunswick.
 Emil J. Tschupp. West Hoboken.
 Lynford E. Tuttle, M. D. V. Bernardsville.
 Sylvester Utter, M. D. Paterson.
 Albert Van Eerde, M. D. Hawthorne.
 Alfred J. Van Horn. Paterson.
 William Van Loo. Paterson.

Lloyd M. Van Ness.....New Brunswick.	Thomas D. Wilhelm.....Perth Amboy.
C. H. W. Van Seiver.....Burlington.	Frank V. Wilkinson.....Newark.
Charles S. Voorhis.....Palmyra.	Fred. M. Williams.....Rahway.
Burt F. Walsh.....Jersey City.	Stanley S. Williams.....Newark.
Thomas P. Walsh.....Newark.	John H. Winslow, M. D.....Vineland.
James J. Waters.....Newark.	Frederick E. Wilson.....Bayonne.
Harry E. Watt.....New Brunswick.	H. S. Winterhalter.....Bayonne.
James Weldon.....Jersey City.	John Wodder.....Perth Amboy.
William A. Weber.....Orange.	James A. Woods.....Atlantic City.
George A. West.....Raritan.	James A. Young, Jr.....Paterson.
Joseph Whalley.....Passaic.	John S. Young, M. D.....Rahway.

SANITARY INSPECTORS OF THE SECOND CLASS.

Robert Ballagh.....Hackensack.	Frederick J. Dyer.....Grantwood.
John M. Bensel.....Pleasantville.	George S. Everitt.....Linden.
Frank Born.....Carteret.	J. C. Shinn, M. D.....Jamesburg.
John C. Clayton, M. D.....Freehold.	Franklin P. Vanlier.....Woodstown.
Joseph J. Chickenger.....Irvington.	George Wildman.....Belmar.
Charles Cunningham, M. D.....Hammonon.	

SANITARY INSPECTORS OF THE THIRD CLASS.

John J. Bennett.....Belleville.	Robert A. Hirner.....Woodbridge.
Charles Butcher, M. D.....Heislerville.	Adrian Hummel.....Asbury Park.
Joseph G. Coleman, M. D.....Hamburg.	Fred D. Hurley.....Asbury Park.
Charles Covert.....Leesburg.	David Jamieson.....Gloucester City.
Ellis W. Crater, M. D.....Oceanport.	T. Nelson Lillagore.....Ocean Grove.
William B. Davis.....Morris Plains.	Stanley H. Lyon.....Morris Plains.
Robert Dickson.....Fair Haven.	Henry Moser.....North Bergen.
George W. Earl.....Mt. Tabor.	Lewis E. Potter.....Woodbridge.
J. N. Fowler.....Port Norris.	William B. Smith.....Belleville.

MEAT INSPECTORS.

Willet H. Cooper, D. V. S.....Trenton.	Richard W. Hewitt, D. V. S.....Camden.
G. F. Harker, D. V. S.....Trenton.	Albert T. Sellers, D. V. S.....Camden.

MILK AND DAIRY INSPECTORS.

Herman C. Alberts.....Jersey City.	Herman H. North.....Jersey City.
Matthew P. Casey.....Jersey City.	Ansel D. Parker.....Delaware, N. J.
Richard Jackson.....Newark.	Clarence H. Rider.....Jersey City.
W. Wesley Hibbard.....Jersey City.	Samuel J. Shultise, Jr.....New Brunswick.
Henry F. Kneller.....Newark.	Harold E. Stearns, D. V. S.....Kearny.
J. Wesley Maple.....Trenton.	Thomas J. Steele.....Jersey City.
Arthur McRoberts.....Jersey City.	George D. White, Jr.....Newark.

MILK AND FOOD INSPECTORS.

Harry P. Cassidy.....Philadelphia, Pa.	Harold Mellen.....Hoboken.
Louis J. Levy.....Hoboken.	Abe L. Telfeld.....Hoboken.

FOOD AND DRUG INSPECTORS.

Chester L. Bennett.....Newark.	Henry F. Kneller.....Newark.
John J. Coughlin.....Elizabeth.	

PLUMBING INSPECTORS.

R. C. Adamson, Jr.....Long Branch.	Thos. W. Bradley.....Edgewater.
Vincent Ablemeyer.....Jersey City.	William F. Brode.....Atlantic City.
Gustave A. Albiez.....Newark.	Herbert A. Buzzard.....Aububon.
Henry J. Babcock.....Caldwell.	John Campbell.....Paterson.
Richard T. Bagg.....Vineland.	John L. Campbell.....Hammonon.
G. E. Bangs.....West Hoboken.	Cornelius V. Cartly.....East Rutherford.
Wm. C. Banta.....Ridgewood.	Anthony P. Ciardi.....Nutley.
James Barnard.....Trenton.	Thomas D. Clark.....Woodbury.
Lewis Barnett.....Millville.	Joseph P. Cochran.....Ventnor.
Wm. C. Beucler.....Bergenfield.	Benjamin M. Cohen.....Newark.
Hugo W. Bobertz.....Elizabeth.	George M. Crawley, Jr.....Newark.
P. W. Borrows.....Ridgefield Park.	Sidney S. Craythorn.....Beverly.

LIST OF HEALTH OFFICERS.

Francis Cumiskey.....Guttenberg.	Herbert J. Mason.....Vineland.
Newton DeBaun.....Hackensack.	Henry F. Metzger.....Jersey City.
Peter A. Degnan.....Newark.	Andrew McGookin, Jr.....Newark.
Irring J. Demarest.....Westwood.	Robert A. McGuire.....Perth Amboy.
Herbert L. de Nourie.....East Orange.	George F. McIntyre.....Hammonon.
J. Elmer Deppe.....Newark.	Harry L. McIntyre.....Hammonon.
Conrad Deuchler.....Newark.	James McTague.....Jersey City.
Luke J. Devine.....Elizabeth.	Frank Miller.....Newark.
Charles J. Dignum.....West Orange.	Patrick J. Monaghan.....Newark.
Edward F. Doran.....Jersey City.	William S. Mooney.....Jersey City.
William J. Dorney.....Newark.	Robert F. Morgan, Jr.....Newark.
Thomas J. Dowling.....Orange.	George M. Mortenson.....South Amboy.
Martin V. Driscoll.....Jersey City.	James F. Mulhall.....East Orange.
Edward A. Dugan.....Gloucester City.	Charles Munzing.....Jersey City.
Frederick J. Dyer.....Grantwood.	Edward F. Murphy.....North Bergen.
Marcus L. Eisele.....Newark.	Robert B. Murphy.....Ridgewood.
David M. Elin.....Newark.	Frederick W. Nichols.....Newark.
Charles R. Ellis.....Rutherford.	John Nolan.....Bayonne.
Alfred T. England.....Haddonfield.	George H. Northam.....Long Branch.
David Entwistle.....Jersey City.	Joseph J. Norton.....East Orange.
Robert Evans.....Guttenberg.	Richard J. O'Crowley, Jr.....Newark.
Robert J. Fair.....Gloucester City.	John O'Shea.....West New York.
Charles W. Fenny.....Paterson.	Richard W. L. Osthoff.....Bogota.
Hubbard Ferguson.....Ridgewood.	Hugh F. Parle.....Jersey City.
Frank H. Fitzgeorge.....Trenton.	Raymond W. Pettibone.....Island Heights.
Joseph Fleming.....West Orange.	Samuel Powell.....Roselle Park.
Henry B. Francis.....Camden.	Charles Reeve.....Long Branch.
Howard Frey.....Red Bank.	Arthur G. Reeves.....Cape May City.
Napoleon Gomm.....Englewood.	John B. Reeves.....Haddon Heights.
George T. Haines.....Ventnor.	Bernards B. Relley.....New Brunswick.
Adam J. Hammer.....Elizabeth.	Rudolph Riemenschneider.....Town of Union.
James T. G. Hand.....Ventnor.	Edward A. Rogers.....Trenton.
August Handley.....West Hoboken.	Alfred B. Rooney.....Jersey City.
Thomas F. Harris.....Orange.	Anthony S. Ruddy.....East Orange.
Michael H. Healey.....Lyndhurst.	Patrick J. Ryan.....Wallington.
Thomas P. Healy.....Verona.	Anthony H. Sachs.....Carlstadt.
James F. Hefferty.....New Brunswick.	Michael Saul.....Newark.
Wm. H. Helm, Jr.....Belmar.	Edgar A. Scurman.....Perth Amboy.
George Helmer.....Rutherford.	George J. Scheurle.....Weehawken.
Patrick J. Hennessy.....Jersey City.	Wm. A. Sehnor.....Palisades Park.
Fred Henniger.....Jersey City.	George F. Shafer.....Hackensack.
Henry Herman.....Passaic.	Michael A. Shanahan.....Jersey City.
Thos. V. Higgins.....Jersey City.	Charles F. Shaw.....Collingswood.
Conrad C. Hoffmeier.....West Hoboken.	R. LeRoy Skillman.....Newark.
Joseph F. Hourigan.....Hoboken.	Clarence B. Slack.....Trenton.
Maurence Huckman.....Newark.	Henry A. W. Smith.....Ocean City.
Arthur A. Hulse.....South Amboy.	Joseph Sonnenberg.....Irvington.
A. E. Irwin.....Atlantic Highlands.	John Specht.....Newark.
John E. Joyce.....Newark.	William F. Specht, Jr.....Atlantic City.
James A. Judge.....Jersey City.	B. H. Sooy.....Atlantic City.
Archibald A. Kafar, Jr.....Bordentown.	Charles Steller.....Town of Union.
Martin D. Karl.....Garfield.	G. H. Sout.....Ridgewood.
Joseph E. Keeton.....East Orange.	Edward A. Sullivan.....Newark.
Edward J. Kelly.....Jersey City.	Charles Turkowsky.....West New York.
Leavett F. Kelly.....Newark.	Thomas Vall.....South Amboy.
Wm. J. Kelton.....Aububon.	Geo. W. VanVarck.....Clifton.
John H. Kerr.....Perth Amboy.	Oscar J. Verhoek.....Irvington.
James H. Kiernan.....Jersey City.	Robert J. Walker, Jr.....Atlantic City.
Frank S. Kievlitt.....Passaic.	Thomas Walton.....Camden.
John F. Kilkenny.....Morristown.	Michael Warrhowsky.....Bayonne.
John N. Krauss.....Leonla.	John J. Waters.....Jersey City.
Jacob Kull.....Newark.	George S. Webb.....Wildwood.
Charles Kunz.....West Orange.	James C. Wegham.....Wildwood.
W. George Lambert.....Riverside.	Alex. Weir, Jr.....West Hoboken.
George W. Lang.....East Orange.	C. H. Weller.....Hightstown.
Eugene Lau.....Newark.	Charles F. West.....Gloucester City.
W. J. Large.....Vineland.	Joseph Whalley.....Passaic.
Joseph P. Lee.....Jersey City.	Charles M. Whelan.....Trenton.
Joseph Lendner.....West New York.	Jason H. Wildrick.....Washington.
Tunis Lool.....Lodi.	Leslie H. Williams.....East Orange.
Joseph M. Loeffler.....Newark.	Charles S. Wilmot.....Haddon Heights.
Warren Mack.....East Orange.	John Wodder.....Perth Amboy.
Louis Maloney.....Jersey City.	Harry A. Wilkins.....Newark.
William Marengli.....Roselle Park.	Louis V. Ziegler.....Ridgefield Park.
James A. Marnell.....Hoboken.	William G. Ziegler.....West Hoboken.
Howard H. Martindell.....Trenton.	

List of Sanitary Districts.

With names and addresses of Officers.

CITIES.

- *Absecon**, Atlantic county. Samuel Johnson, Secretary.
- Asbury Park**, Monmouth county. Howard D. LeRoy, Director Public Safety; B. H. Obert, Health Officer and Registrar; John Bennett, Inspector.
- Atlantic City**, Atlantic county. Talbot Reed, M. D., Health Officer; Alfred T. Glenn, Clerk and Registrar; Harry C. Beck, Inspector.
- Bayonne**, Hudson county. Henry Wilson, President; C. C. Slesman, Secretary; W. W. Brooke, M. D., Health Officer; H. S. Winterhalter, Inspector.
- Beverly**, Burlington county. Jos. E. Hammell, President; Andreas Henning, Secretary and Registrar; Leon A. Sever, Health Officer.
- Bordentown**, Burlington county. S. F. Garrison, Commissioner; Jos. R. Malone, Secretary; C. D. Mendenhall, Health Officer; A. P. Thorn, Inspector.
- Bridgeton**, Cumberland county. William E. Glaspell, President; Sidney O. Williams, Secretary; Chas. E. Bellows, Sanitary Inspector.
- Burlington**, Burlington county. Geo. W. Shinn, Sanitary Inspector.
- Camden**, Camden county. H. H. Davis, M. D., President; Eugene B. Roberts, Secretary; John F. Leavitt, M. D., Health Officer.
- Cape May City**, Cape May county. W. R. Sheppard, President; Wm. Porter, Secretary; V. M. D. Marcy, Health Officer; Arthur C. Reeves, Plumbing Inspector.
- *Clifton City**, Passaic county. Edward Close, Secretary.
- East Orange**, Essex county. Frank B. Lane, President; T. Dudley Ballinger, Health Officer.
- Egg Harbor City**, Atlantic county. Henry M. Cressman, President; Wm. Morgenweck, Secretary.
- Elizabeth**, Union county. Henry C. Hooley, President; Louis J. Richards, Health Officer.
- Englewood**, Bergen county. Walter Phillips, M. D., President; Chas. T. Watson, Secretary; John A. Manson, Sanitary Inspector.
- Gloucester City**, Camden county. Harlan S. Miner, President; A. W. Redfield, Secretary; Dr. J. A. Beek, Health Officer.
- Hoboken**, Hudson county. Patrick R. Griffin, President; John Berocchio, Clerk and Registrar.
- *Jersey City**, Hudson county. James J. Hagen, Health Officer.
- Lambertville**, Hunterdon county. Chas. Mathews, President; Samuel A. Finger, Clerk.
- Long Branch**, Monmouth county. Chas. Rosencrans, President; R. C. Errickson, Health Officer.
- Margate City**, Atlantic county. William A. McArdle, Clerk.
- Millville**, Cumberland county. Dr. F. V. Ware, President; H. L. Thomas, Secretary; F. Bullock, Sanitary Inspector.
- Newark**, Essex county. William J. Buehler, Secretary; Chas. V. Craster, Health Officer.
- *New Brunswick**, Middlesex county. E. I. Cronk, M. D., Health Officer.
- Northfield City**, Atlantic county. Spencer Price, President; A. R. Vickers, Secretary.
- Orange**, Essex county. John O'Brien, Health Officer.
- Passaic**, Passaic county. Geo. N. Seger, President; Virginia Hand, Secretary; John N. Ryan, M. D., Health Officer.
- Paterson**, Passaic county. Frank M. Barr, President; Tunis Kivett, Secretary; Orville R. Hagen, M. D., Health Officer.

*No report received.

- Perth Amboy**, Middlesex county. Edw. H. Dilts, President; William J. Willsey, Health Officer and Secretary.
- Plainfield**, Union county. C. B. Lufburrow, President; E. T. Barrows, Secretary; N. J. Randolph Chandler, Health Officer.
- Port Republic City**, Atlantic county. John C. Brown, President; G. H. Champin, Secretary.
- Rahway**, Union county. Wm. H. Randolph, President; Chas. H. Lambert, Secretary; Fred M. Williams, Health Officer.
- ***Salem**, Salem county. Geo. Kirk, Clerk and Registrar.
- ***Sea Isle City**, Cape May county. Robert C. Scott, President; Irving Fitch, Secretary.
- Somer's Point**, Atlantic county. Walter A. Smith, Secretary.
- South Amboy**, Middlesex county. Geo. E. Kress, Secretary; N. J. Hawley, Sanitary Inspector.
- Summit**, Union county. Burton L. Boye, President; Wm. S. Bird, Acting Secretary and Registrar.
- Trenton**, Mercer county. A. S. Fell, Health Officer; Howard H. Ely, Registrar.
- Ventnor City**, Atlantic county. Dr. Thos. Youngman, President; James G. Scull, Secretary.
- Wildwood**, Cape May county. N. A. Cohen, Health Officer.
- Woodbury**, Gloucester county. Geo. W. Pettyjohn, President; William E. Keat, Secretary; Frank Ackley, Inspector.

BOROUGHES.

- ***Allendale**, Bergen county. Ambrose K. Merrill, Secretary.
- ***Allenhurst**, Monmouth county. Chas. E. King, Secretary.
- ***Allentown**, Monmouth county. Dr. H. M. Anderson, Secretary.
- Alpha**, Warren county. Cleveland M. Rhen, Secretary and Registrar.
- Alpine**, Bergen county. Joseph M. Garvey, President; Robert H. Monroe, Secretary.
- ***Andover**, Sussex county.
- Atlantic Highlands**, Monmouth county. H. A. Hendrickson, M. D., President; Rev. Geo. H. Gardner, Secretary.
- Audubon**, Camden county. John Yardley, President; T. Jos. Williams, Secretary; Wm. J. Kelton, Sanitary Inspector.
- Avalon**, Cape May county. R. W. Rosenbaum, Clerk and Registrar.
- Avon**, Monmouth county. John Thomson, President; John Supple, Clerk; John S. Hart, Inspector.
- ***Barnegat City**, Ocean county. John N. Barber, Secretary.
- Barrington**, Camden county. John S. Roberts, President; Herbert H. Ball, Secretary and Registrar.
- ***Bay Head**, Ocean county. Julius Foster, Jr., Secretary and Registrar.
- Beach Haven**, Ocean county. Walter C. Sharp, President; Dr. Herbert Willis, Clerk and Health Officer.
- Belmar**, Monmouth county. Chas. F. Goff, President; Fred V. Thompson, M. D., Clerk and Registrar.
- Bergenfield**, Bergen county. Frank Riehl, President; Henry J. Brock, Secretary; John W. Radford, Registrar.
- ***Bloomsbury**, Hunterdon county. J. A. S. Stone, Clerk and Registrar.
- Bogota**, Bergen county. Chas. B. Ryan, President; John F. Hill, Secretary.
- Bound Brook**, Somerset county. John W. Reed, Secretary; Chas. McNabb, Health Officer and Registrar.
- ***Bradley Beach**, Monmouth county. James Jones, Clerk and Registrar.
- ***Branchville**, Sussex county. John A. McCarrick, Clerk and Registrar.
- ***Butler**, Morris county. Samuel K. Owens, Secretary.
- Caldwell**, Essex county. Richard J. Waugh, President; A. E. Broadbent, Secretary; H. J. Babcock, Plumbing Inspector.
- Cape May Point**, Cape May county. Washington Le Noir, President; John T. Huff, Health Officer.
- Carlstadt**, Bergen county. Louis Cuneo, President; Mathew Fitting, Secretary and Registrar.

*No report received.

LIST OF SANITARY DISTRICTS.

- Chatham**, Morris county. Walter A. Jaquith, M. D., President; J. Thomas Scott, Secretary.
- Chesilhurst**, Camden county. J. T. Humphries, Clerk.
- Clayton**, Gloucester county. C. F. Fisler, M. D., Clerk and Registrar.
- Cliffside Park**, Bergen county. Robert Cadien, President; O. R. McElwain, Secretary.
- Clinton**, Hunterdon county. A. S. Leatherman, President; Geo. A. Hall, Clerk and Reporting Officer.
- ***Closter**, Bergen county. Alfred Anderson, Secretary and Registrar.
- ***Collingswood**, Camden county. C. C. Powell, Clerk and Registrar.
- Cresskill**, Bergen county. Walter J. Dean, President; John Maguire, Secretary; Dr. J. B. W. Lansing, Inspector.
- ***Deal**, Monmouth county. Jas. G. Conover, Secretary.
- ***Delford**, Bergen county. G. R. Spalding, Secretary.
- Demarest**, Bergen county. Watson J. Mosier, President; George V. Morton, Secretary and Registrar.
- Dumont**, Bergen county. Dr. A. B. Spiegelglass, President; Henry J. Bersch, Secretary; George F. Shafer, Sanitary Inspector.
- Dunellen**, Middlesex county. Lorin M. Treichler, President; H. W. Bearce, Secretary.
- ***East Atlantic City**, Atlantic county. E. R. Smith, Registrar.
- East Newark**, Hudson county. Jos. A. McDonald, Secretary.
- East Paterson**, Bergen county. David F. Gall, President; Raymond Hopper, Clerk.
- East Rutherford**, Bergen county. Frederick Taylor, President; Wm. Eigenrauch, Secretary and Registrar; Dr. C. D. Brooks, Health Officer; C. V. Carty, Inspector.
- ***Edgewater**, Bergen county. Arthur J. Carleton, Secretary and Registrar.
- Elmer**, Salem county. H. J. Conover, President; E. S. Prickett, Clerk.
- Emerson**, Bergen county. George Bauckham, President; Arthur J. Sharpe, Secretary; Geo. Shafer, Inspector.
- Englewood Cliffs**, Bergen county. Dr. Christian E. G. Porst, President; William Hamilton, Secretary.
- Englishtown**, Monmouth county. James A. Lambert, President; Harry Lake, Secretary; S. B. Ely, Registrar; Samuel H. Mount, Inspector.
- Essex Fells**, Essex county. Howard M. Cook, President; Earle L. Legg, Secretary.
- ***Fair Haven**, Monmouth county. Harold S. Allen, Secretary.
- Fairview**, Bergen county. Ruiggiero Frugali, President; E. R. Greenhalgh, Secretary and Registrar.
- Fanwood**, Union county. Dr. F. W. Westcott, President; W. Y. Bellerjeau, Secretary.
- Farmingdale**, Monmouth county. John Cook, President; Harry Hulsart, Secretary; Dr. John B. Boyd, Inspector.
- ***Fieldsboro**, Burlington county. W. H. Errickson, Secretary.
- Flemington**, Hunterdon county. George Webster, President; Barclay S. Fuhrman, Secretary.
- Florham Park**, Morris county. William V. Tunis, Clerk and Registrar.
- Folsom**, Atlantic county. Louis Schulze, Secretary.
- Fort Lee**, Bergen county. George Lane, President; Alfred Junghaus, Secretary and Registrar; Dr. Max Wyler, Health Officer; Fred Dyer, Sanitary Inspector.
- Franklin**, Sussex county. Dr. C. M. Denning, President; James R. Stephens, Secretary.
- Frenchtown**, Hunterdon county. Hugh Taylor, President; E. J. Stryker, Secretary; O. E. Broderick, Health Officer.
- ***Garfield**, Bergen county. Louis Heinzmann, Secretary.
- Garwood**, Union county. Louis M. Wenzel, President; Wm. T. Froat, Secretary.
- Glen Ridge**, Essex county. F. D. Bell, President; Gertrude Ward, Health Officer and Registrar.
- Glen Rock**, Bergen county. C. M. Viel, President; G. H. Lane, Clerk; Dr. Albert Van Eerde, Inspector.
- Haddonfield**, Camden county. Allen Clymer, Clerk.

*No report received.

***Haddon Heights**, Camden county. W. H. Carney, Clerk.
Haledon, Passaic county. Max Melhorn, President; Theo. B. Kegelman, Clerk and Registrar; A. A. Lydecker, Health Officer.
Hampton, Hunterdon county. Lloyd D. Bawbly, President; H. J. Dallymple, Secretary.
Harrington Park, Bergen county. Gustave Frank, President; Chas. H. Odell, Secretary; J. F. Hallenbeck, Registrar; Dr. Chas. Richardson, Inspector.
Harvey Cedars, Ocean county. Fletcher Andrews, Clerk; J. B. Kinsey, Reporting Officer.
Hasbrouck Heights, Bergen county. H. B. Vannote, President; Wm. J. Schweickert, Secretary; Roy G. Perham, M. D., Health Officer.
Haworth, Bergen county. Chas. S. Forbes, President; I. N. Clark, Secretary and Registrar.
Hawthorne, Passaic county. Paul A. Weiland, President; Henry V. Tietzell, Secretary; Richard Reefer, Reporting Officer; Joseph Payne, M. D., Health Officer.
Helmetta, Middlesex county. Clinton M. Clemons, President; Wm. Trundt, Secretary.
High Bridge, Hunterdon county. A. B. Beavers, Secretary and Registrar.
Highland Park, Middlesex county. A. P. Daire, President; Wm. H. Holman, Secretary.
Highlands, Monmouth county. B. J. Niemark, President; Wm. M. Hennessey, Secretary and Registrar; Geo. Britton, Jr., Inspector.
Hightstown, Mercer county. G. Allen Ely, President; C. H. Weller, Secretary and Inspector.
Hohokus, Bergen county. J. B. Harmon, Secretary and Registrar.
Hopatcong, Sussex county. Chas. O. Rafer, Clerk and Registrar.
Hopewell, Mercer county. Fred I. Sutphen, Secretary and Registrar.
Island Heights, Ocean county. Wm. T. McKaig, Clerk and Registrar.
Jamesburg, Middlesex county. J. B. Pownall, President; J. A. Thompson, Secretary; J. L. Suydam, M. D., Inspector.
Keansburg, Monmouth county. Edwar T. Compton, Secretary and Inspector.
Kenilworth, Union county. S. S. Ruth, President; Louis Nathanson, Secretary.
Keyport, Monmouth county. Gustave Maurer, President; Chas. F. Tuthill, Secretary and Registrar.
Lavallette, Ocean county. T. S. Mellinger, Clerk and Registrar.
Laurel Springs, Camden county. Frank B. Cook, M. D., President; Vanderbilt Arnold, Secretary; Jos. W. Du Rand, Registrar; Geo. W. Cline, Inspector.
Leonia, Bergen county. H. M. Thompson, Secretary and Registrar.
Linden, Union county. J. L. Neubauer, President; J. M. Capraun, Secretary and Registrar.
Lindwood, Atlantic county. Daniel L. Sutton, Secretary.
Little Ferry, Bergen county. Henry Bergman, Sr., President; E. Dannacher, Secretary; Fred Knapp, Inspector.
Lodi, Bergen county. John W. Lane, President; G. H. Van Vorst, Secretary.
Longport, Atlantic county. William S. Gilmore, Secretary and Registrar.
Madison, Morris county. A. C. Puddington, President; C. W. Scarborough, M. D., Secretary; S. Fred Burnet, Registrar.
Magnolia, Morris county. John Howard Crossley, Secretary.
Manasquan, Monmouth county. H. D. Newman, President; Robert M. Marks, Secretary and Registrar; Alonzo Mount, Inspector.
Mantoloking, Ocean county. S. C. Shadinger, Secretary.
Matawan, Monmouth county. William Rodgers, Secretary.
Maywood, Bergen county. G. M. Tetzler, Secretary and Registrar.
Mendham, Morris county. G. S. De Groot, M. D., President; G. Silas Thompson, Registrar and Inspector.
Merchantville, Camden county. Joseph D. Lawrence, M. D., President; John W. Mickie, Secretary and Registrar.

*No report received.

Metuchen, Middlesex county. Herman Cross, President; Chas. P. Hull, Secretary.
Middlesex, Middlesex county. Henry J. Oesterling, President; Stewart C. Crouse, Secretary.
Midland Park, Bergen county. Henry G. Rohrs, President; Jacob H. Olthuis, Secretary and Registrar.
Milford, Hunterdon county. A. D. Spoor, President; Frank P. Vanderbilt, Secretary; A. Arling Hill, Inspector.
Milstone, Somerset county. Dr. S. O. B. Taylor, President; William H. Polhemus, Clerk; John Danety, Inspector.
Milltown, Middlesex county. J. Milton Brinder, Secretary.
Monmouth Beach, Monmouth county. Richard West, Secretary.
Montvale, Bergen county. Edgar C. Eldridge, Secretary.
Moonachie, Bergen county. Bernard A. Love, Secretary and Registrar.
Mountainside, Union county. T. J. Ketts, Secretary.
Mount Arlington, Morris county. R. T. Chaplin, President; F. L. Schafer, Secretary; F. H. Tappen, Inspector.
Mount Tabor, Morris county. R. A. Lawless, Clerk.
National Park, Gloucester county. P. B. Milligan, President; Wm. E. Beers, Secretary and Registrar.
Neptune City, Monmouth county. Frank Larrison, President; Sharon F. Smith, Secretary; Daniel Gouldy, Inspector.
Netcong, Morris county. T. H. Mahaney, President; J. P. Meade, Clerk and Secretary.
New Providence, Union county. Chas. B. Nevius, President; William Woodruff, Clerk and Registrar; Rufus B. Samson, Inspector.
North Arlington, Bergen county. John W. Whitla, President; John H. Shields, Clerk and Registrar.
North Caldwell, Essex county. W. B. McCall, President; Frank Francisco, Secretary.
North Haledon, Passaic county. Joseph Graham, Secretary; Dr. A. A. Lydecker, Inspector.
North Plainfield, Somerset county. Jas. L. Ollif, Health Officer; Dr. A. H. Dundon, Reporting Officer.
Northvale, Bergen county. Joseph Argenti, President; Jacob Scharer, Secretary and Registrar; Chas. De Molinari, Inspector.
North Wildwood, Cape May county. Dr. Margaret Mace, President; Chas. F. Sanders, Secretary.
Norwood, Bergen county. William F. Harra, President; Clifton Demarest, Secretary and Registrar.
Oakland, Bergen county. E. L. McNamee, Secretary.
Oaklyn, Camden county. Samuel W. Worrilow, President; Richard D. Early, Clerk.
Ocean City, Cape May county. T. Lee Adams, Health Officer.
Ocean Grove, Monmouth county. A. E. Ballard, President; H. B. Alday, Secretary and Health Officer.
Ogdensburg, Sussex county. Leonard A. Sweeney, Secretary.
Old Tappan, Bergen county. J. Z. Bogert, President; Chas. De Wolf, Clerk and Registrar.
Palisade Park, Bergen county. Louis Quad, President; W. G. Stevens, Secretary and Registrar.
Park Ridge, Bergen county. Dr. S. Alexander, President; T. G. Forbes, Secretary and Registrar.
Paulsboro, Gloucester county. Frank Richards, President; S. Walter Loucks, Secretary.
Peapack, Somerset county. W. D. Vanderbeck, President; F. H. Ludlow, Clerk.
Pemberton, Burlington county. Benjamin T. Cramer, President; J. J. Brander, Clerk.
Pennington, Mercer county. Dr. I. F. P. Turner, President; Chas. M. Titus, Secretary; Frank A. Blackwell, Inspector.
Penns Grove, Salem county. Edward Harris, President; Wm. F. Yeager, Secretary.
Pitman, Gloucester county. David H. Schock, President; Albert V. Peterson, Secretary and Registrar; B. F. Mattison, Health Officer.

*No report received.

- Pleasantville**, Atlantic county. R. A. Cole, President; Jesse Bowen, Secretary; Dr. W. J. Hudson, Reporting Officer.
- Point Pleasant Beach**, Ocean county. Chas. W. Dampman, President; H. O. Shoemaker, Secretary and Registrar.
- Pompton Lakes**, Passaic county. H. Seymore Smith, President; A. W. Van Saun, Secretary and Registrar.
- Princeton**, Mercer county. Prof. Ulrie Dahlgren, President; Walter B. Howe, Secretary; T. W. Margerum, Registrar and Sanitary Inspector.
- Prospect Park**, Passaic county. Lambertus Touw, Clerk; Abraham A. Lydecker, Health Officer.
- Ramsey**, Bergen county. Henry R. Parvin, Clerk.
- Red Bank**, Monmouth county. W. A. Rullman, President; W. A. Clayton, Secretary.
- Ridgefield**, Bergen county. James A. Massie, Secretary.
- Riverside**, Bergen county. A. J. Scrivens, President; W. L. Reihl, Secretary.
- Riverton**, Burlington county. Samuel W. Collin, Secretary.
- Rockaway**, Morris county. Wm. A. Parilman, Clerk and Registrar.
- Rocky Hill**, Somerset county. I. M. Nelson, Secretary.
- Roosevelt**, Middlesex county. R. Joseph Murphy, Clerk.
- Roseland**, Essex county. H. J. Rinkie, President; E. A. Williams, Secretary.
- Roselle**, Union county. C. P. Higgins, President; E. S. Waller, Secretary.
- Roselle Park**, Union county. F. J. Mountford, President; H. P. Ernst, Secretary and Registrar.
- Rumson**, Monmouth county. V. A. Ligier, Secretary and Registrar.
- Rutherford**, Bergen county. Dr. William C. Williams, President; Geo. C. Barrows, Secretary; Marvin Duns, Sanitary Inspector.
- Saddle River**, Bergen county. A. Forshay, Clerk.
- Sea Bright**, Monmouth county. Dr. Jas. J. Reed, President; M. J. Deveraux, Secretary; Abram Embly, Inspector.
- Seaside Heights**, Ocean county. Chas. F. Horner, Secretary and Registrar.
- Seaside Park**, Ocean county. H. P. Hoff, Clerk.
- Secaucus**, Hudson county. Thomas Sprouls, President; Gerson Lowenstein, Clerk.
- Sea Girt**, Monmouth county. Dr. C. A. Morris, President; Ezilphia Cranmer, Secretary.
- Somerville**, Somerset county. Dr. Aaron L. Stillwell, President; Wm. R. Sutphin, Secretary.
- South Bound Brook**, Somerset county. Peter Merlett, Clerk and Registrar.
- South Cape May**, Cape May county. E. B. Martin, Clerk.
- South River**, Middlesex county. James Black, President; John W. Ledman, Registrar; Albert Applegate, Secretary and Inspector.
- Spottswood**, Middlesex county. Louis E. Appleby, Secretary and Registrar.
- Spring Lake**, Monmouth county. Dr. S. R. Knight, President; D. H. Hill, Secretary.
- Stanhope**, Sussex county. Peter J. Kelly, President; J. J. Shaw, Secretary and Health Officer.
- Stockton**, Hunterdon county. Col. H. M. Reading, President; Wm. P. Mason, Secretary.
- Stone Harbor**, Cape May county. C. O. Letzkus, Clerk.
- Surf City**, Ocean county. H. L. Lukens, Clerk.
- Sussex**, Sussex county. H. D. Van Gaasbeck, President; H. E. Wells, Secretary; L. J. Fuller, Inspector.
- Svedesboro**, Gloucester county. Dr. J. G. Halsey, President; W. H. Rieger, Secretary and Registrar; Dr. V. E. De Grafft, Reporting Officer.
- Tenafly**, Bergen county. Dr. J. B. Lansing, President; Herman D. Hensel, Secretary; Arthur Powell, Inspector.
- Totowa**, Passaic county. John Duffghe, President; W. E. Pattberg, Clerk and Registrar; Dr. William Veenstra, Health Officer.

*No report received.

- Tuckerton**, Ocean county. S. T. Blackman, President; L. A. Fiske, Secretary.
- Upper Saddle River**, Bergen county. James D. Carlough, President; August Weiss, Secretary.
- Verona**, Essex county. Louis C. Miller, Secretary.
- Vineland**, Cumberland county. Louis Basso, President; Fred Koetz, Secretary and Registrar; Dr. John H. Winslow, Health Officer.
- Wallington**, Bergen county. James J. Brennan, Secretary and Registrar.
- Washington**, Warren county. Harry E. Taylor, Clerk.
- Wenonah**, Gloucester county. William C. Cattell, President; Jesse W. English, Secretary and Registrar; William Hubert, Health Officer.
- West Caldwell**, Essex county. J. D. McChimon, President; P. S. Johnson, Secretary.
- West Cape May**, Cape May county. F. R. Hughes, M. D., Clerk.
- West Long Branch**, Monmouth county. C. H. Stillwagon, President; Frank A. Poole, Secretary and Registrar.
- West Paterson**, Passaic county. Geo. Mills, President; John L. Merkel, Jr., Clerk.
- Westville**, Gloucester county. E. T. Addison, President; W. B. Atkinson, Secretary.
- Westwood**, Bergen county. James Musson, President; James E. Ackerman, Secretary.
- Wharton**, Morris county. John R. Spargo, Secretary.
- Wildwood Crest**, Cape May county. R. Scampton, President; E. B. Fagan, Secretary and Registrar.
- Woodbine**, Cape May county. Dr. Behrman, President; M. B. Marcus, Secretary; R. Zellermeier, Inspector.
- Woodbury Heights**, Gloucester county. Philip C. Bishop, President; H. C. Brose, Secretary and Registrar.
- Woodcliffe Lake**, Bergen county. J. H. Wortendyke, President; H. W. Fisk, Secretary.
- Woodlyne**, Camden county. Willard Riggs, President; Christian Dupont, Secretary and Registrar.
- Wood Ridge**, Bergen county. E. J. Palmer, President; H. J. Klein, Secretary.
- Woodstown**, Salem county. H. V. Foster, President; Wm. B. Foster, Secretary and Registrar.

TOWNS.

- Belleville**, Essex county. J. F. Flanagan, Secretary.
- Belvidere**, Warren county. Geo. H. Weaver, Clerk and Inspector.
- Bloomfield**, Essex county. Jacob S. Wolfe, M. D., President; Jas. C. Saile, Health Officer and Reporting Officer.
- Boonton**, Morris county. Geo. W. Righter, President; E. C. Gigliotte, Secretary and Registrar.
- Dover**, Morris county. Martin E. Alpers, President; William H. Tonking, Secretary; William G. Hummel, Registrar.
- Freehold**, Monmouth county. Alonzo Brouwer, Clerk and Registrar.
- Guttenberg**, Hudson county. Jacob Saredy, Clerk.
- Hackensack**, Bergen county. M. Androrrico, President; E. A. Goodhart, Secretary; Richard H. L. Osthoff, Sanitary Inspector.
- Hackettstown**, Warren county. A. G. Boettger, Secretary.
- Hammonont**, Atlantic county. C. R. Scullin, President; Wayland Du Puy, Secretary.
- Harrison**, Hudson county. John T. Malone, President; Eugene A. Rioridan, Secretary; John T. McClure, Health Officer and Reporting Officer.
- Irvington**, Essex county. Joseph K. Clickinger, Reporting Officer and Sanitary Inspector.
- Kenary**, Hudson county. Dr. A. A. Mutter, President; A. B. Anderson, Secretary.
- Montclair**, Essex county. Edward Winslow, President; A. Prescott Folwell, Secretary; C. H. Wells, Health Officer.
- Morristown**, Morris county. John R. Burr, President; Robert C. Caskey, Secretary.

*No report received.

Newton, Sussex county. Dr. Warren H. Smith, President; A. V. B. Mackerley, Secretary; Ross McPeck, Inspector.

Nutley, Essex county. Ernest P. Cook, Commissioner; Ralph L. Huttenloch, Health Officer.

Phillipsburg, Warren county. John Perdoe, Clerk; Alma L. Milliston, M. D., Health Officer and Reporting Officer.

Town of Union, Hudson county. James J. Vervoort, President; Jesse P. Clayton, Secretary and Registrar.

Westfield, Union county. Dr. R. G. Savoye, President; C. N. Harden, Secretary and Registrar.

West Hoboken, Hudson county. Louis A. Menegaux, President; Frank A. Frederick, Health Officer.

West New York, Hudson county. A. C. Einbeck, President; William McDowell, Clerk; Rudolph Kunze, Reporting Officer.

West Orange, Essex county. H. P. Maurer, President; Dr. Alton L. Sherman, Registrar and Health Officer.

VILLAGES.

Ridgefield Park, Bergen county. Joseph Fletcher, President; Howard B. Ficken, Secretary.

Ridgewood, Bergen county. G. T. White, President; C. A. Demarest, Secretary; H. H. Pettit, Health Officer.

South Orange, Essex county. Dr. R. D. Freeman, President; J. Budd Smith, Secretary; A. C. Benedict, Inspector and Registrar.

TOWNSHIPS.

***Alexandria**, Hunterdon county. B. Wean, Clerk, R. F. D. Milford.

***Allamuchy**, Warren county. George Hartman, Secretary and Registrar, Allamuchy.

Alloway, Salem county. John Crawley, President, Alloway; H. M. Loveland, Secretary, Bridgeton, R. F. D. No. 8.

Andover, Sussex county. Aaron Marker, President, Newton, R. F. D. No. 3; W. H. Fritts, Secretary, Newton, R. F. D. No. 1.

Atlantic, Monmouth county. Frank E. Heyer, Clerk, Colts Neck.

Bass River, Burlington county. William T. Cramer, President; C. S. Cramer, Secretary; both of New Gretna.

Bedminster, Somerset county. Jacob Powelson, President; H. M. McMurry, Secretary; both of Somerville, R. F. D. No. 3.

Berkeley, Ocean county. J. Frank Johnson, President, Ocean Gate; Marcus E. Allen, Secretary, Bayville; Dr. Frank Brouwer, Medical Director, Toms River.

Berlin, Camden county. W. C. Raughley, President; X. F. Ottiger, Secretary; Dr. F. O. Stern, Inspector; all of Berlin.

Bernards, Somerset county. David Buist, President; Joseph B. Kronenberg, Secretary and Registrar; Dr. R. E. Mosedale, Health Officer; all of Bernardsville.

Bethlehem, Hunterdon county. John McCrea, Secretary, Bloomsbury, R. F. D.

Beverly, Burlington county. Jos. B. Carter, Clerk, Delanco.

Blairstown, Warren county. F. B. Bunnell, President, Blairstown; Jos. A. Dugan, Clerk, Vails; H. O. Carhart, M. D., Inspector, Blairstown.

Boonton, Morris county. Edmund H. Stickle, Clerk and Registrar, Boonton, R. F. D. No. 2.

Bordentown, Burlington county. C. D. Mendenhall, M. D., President; Samuel Johnson, Secretary; Dr. Hugh Le Jambre, Inspector; all of Bordentown.

Branchburg, Somerset county. D. N. Conover, President, Neshanic Station; William H. Higgins, Assessor, North Branch Depot.

***Brick**, Ocean county. J. A. Dorsett, West Point Pleasant.

Bridgewater, Somerset county. Peter Gulick, President; John Slattery, Clerk and Registrar; Dr. B. T. Seaman, Inspector; all of Raritan.

Buena Vista, Atlantic county. Orville E. Searle, President; Douglas Reed, Secretary; both of Vineland.

***Burlington**, Burlington county. Thomas B. Gandy, Secretary, Burlington.

*No report received.

Byram, Sussex county. George P. Hart, President; William Sickles, Secretary; both of Stanhope.

***Caldwell**, Essex county. Thomas J. Duffee, Clerk, Caldwell.

***Cedar Grove**, Essex county. H. B. Whitehorn, M. D., Secretary, Verona.

Centre, Camden county. John H. Bowers, Jr., President; William F. Miller, Secretary; both of Mount Ephraim.

Chatham, Morris county. Chas. A. Johnson, President; J. Herbert Bebout, Secretary; both of Chatham.

Chester, Burlington county. Dr. F. G. Stroud, Health Inspector and Secretary, Moorestown.

Chester, Morris county. Spafford Teek, President; J. Cecil Hoffman, Secretary; both of Chester.

Chesterfield, Burlington county. C. M. Bunting, President; William Wallace, Assessor and Registrar; both of Crosswicks.

Cinnaminson, Burlington county. Howard G. Taylor, President; George C. Frank, Secretary; Dr. J. D. Janny, Sanitary Inspector; all of Riverton.

Clark, Union county. Charles H. Brewer, President, Rahway, R. F. D. No. 2; William J. Thompson, Assessor, Rahway, R. F. D. No. 1.

Clementon, Camden county. William R. Sentman, President, Berlin, R. F. D. No. 2; George W. Evans, Secretary, Lindenwald.

Clinton, Hunterdon county. William Gano, President; Howard Biggs, Secretary and Registrar; Dr. C. G. Boyer, Health Physician; all of Annandale.

Commercial, Cumberland county. Ogden Shropshire, President; Walter Sharp, Secretary; Jas. N. Fowler, Inspector; all of Port Morris.

***Cranbury**, Middlesex county. C. R. Wicoff, Registrar and Health Officer, Cranbury.

Cranford, Union county. Alfred H. Miller, Secretary, Cranford.

Deerfield, Cumberland county. Elijah R. Parvin, President; James McNab, Secretary; both of Deerfield.

Delaware, Camden county. Wm. Graff, President; U. B. Jennings, Secretary; both of Haddonfield.

***Delaware**, Hunterdon county. N. V. Myers, Secretary, Sergeantsville.

***Delran**, Burlington county. George Friday, Clerk and Registrar, R. F. D., Riverside.

Dennis, Cape May county. R. B. Mason, President, Belleplain; Rolla Hewitt, Secretary, Ocean View; Eugene Way, Medical Inspector, Dennisville.

Denville, Morris county. Calvin L. Lawrence, President, Dover, R. F. D.; Joseph Ellsworth, Clerk, Denville; George H. Foster, Medical Adviser, Rockaway.

***Deptford**, Gloucester county. Ellison K. Turner, Registrar, Sewell.

Dover, Ocean county. Lucien B. Gravatt, President; Theodore Fischer, Clerk; Dr. Frank Brouwer, Sanitary Inspector; all of Toms River.

***Downe**, Cumberland county. Sheppard Campbell, Clerk and Registrar, Newport.

Eagleswood, Ocean county. Howard G. Shinn, President; Philip R. Sprague, Secretary; both of West Creek.

Eastampton, Burlington county. Harry D. Willitts, President; Harry Githens, Secretary; both of Smithville.

East Amwell, Hunterdon county. Ira M. Snook, President, Three Bridges, R. F. D. No. 1; John J. Horn, Secretary, Hopewell, R. F. D.; Dr. P. C. Young, Inspector, Ringoes.

***East Brunswick**, Middlesex county. H. Warnsdorfer, Secretary, New Brunswick, R. F. D. No. 3.

East Greenwich, Gloucester county. Amos G. Haines, President, Clarksboro; James C. Dausen, Secretary, Mickleton.

East Windsor, Mercer county. L. Black, President, Hightstown; William Kirby, Clerk, Ettra.

Eatontown, Monmouth county. William Carlile, President; Perry B. Cook, Secretary; both of Eatontown; E. W. Crater, Inspector, Oceanport.

Egg Harbor, Atlantic county. Wm. Hauenstein, Assessor, Atlantic City, Motor Route A.

Elk, Gloucester county. Warren Garrison, President; Lorenzo Nelson, Assessor; both of Monroeville, R. F. D.

Elsinboro, Salem county. J. L. Smith, President; David B. Fox, Clerk; both of Elsinboro, R. F. D. No. 3.

*No report received.

Evesham, Burlington county. C. Ellis Read, President; B. K. Brick, M. D., Secretary, Marlton.

Ewing, Mercer county. William C. Cook, President; William G. V. Haas, Secretary; both of Trenton, R. F. D. No. 1; Dr. F. S. Watson, Health Officer, 811 Stuyvesant Avenue, Trenton.

Fairfield, Cumberland county. James B. Mulford, President, Fairton; W. Mulford Johnson, Secretary, Bridgeton, R. F. D. No. 7.

Florence, Burlington county. William Foulks, President; Byron Carty, Secretary; both of Florence.

Frankford, Sussex county. George G. Clark, President; J. W. Fountain, Secretary; both of Branchville, R. F. D. No. 2; George W. Smith, Registrar, Augusta.

Franklin, Bergen county. A. S. Z. Demarest, President, Wortendyke; C. H. Bush, Secretary, Crystal Lake; Dr. Peter Brancato, Medical Inspector, Wyckoff.

Franklin, Gloucester county. Henry Finger, Jr., President, Franklinville; Charles H. Lincoln, Clerk, Vineland, R. F. D.

***Franklin**, Hunterdon county. Elwood Nixon, Secretary and Registrar, Flemington.

Franklin, Somerset county. Elias Baker, President; Cornelius Cadmus, Clerk and Secretary; both of Franklin Park; Dr. J. H. Cooper, Inspector, East Millstone.

Franklin, Warren county. Chas. W. Osmun, President; Chas. W. Hoagland, Secretary; both of Asbury.

Fredon, Sussex county. J. M. Budd, President; W. N. Westbrook, Secretary; both of Newton, R. F. D. No. 1.

Freehold, Monmouth county. C. Arthur Burke, President; Joseph S. Thompson, Secretary; both of Freehold, R. F. D.

Frelinghuysen, Warren county. William E. Angle, Secretary, Blairstown, R. F. D. No. 1.

***Galloway**, Atlantic county. Chester Conover, Registrar, Oceanville.

Glassboro, Gloucester county. Harry L. Pierce, President; Burriss T. Tomlin, Secretary; both of Glassboro.

Gloucester, Camden county. J. S. Carter, President, Turnerville; Joseph R. Powell, Clerk, Sicklerville, R. F. D. No. 1; J. Ansen Smith, M. D., Health Officer, Blackwood.

Green, Sussex county. A. Hull, President, Huntsville; I. L. La Bar, Secretary, Tranquility; L. Cooke Osmun, Medical Adviser, Hackettstown.

Greenwich, Cumberland county. Ethan P. Glaspey, Assessor, Greenwich.

Greenwich, Gloucester county. James D. DeVault, President, Paulsboro; Jacob M. Allen, Secretary; Dr. C. I. Ulmer, Inspector; both of Gibbstown.

Greenwich, Warren county. John N. Kinkle, Assessor, Stewartsville.

Haddon, Camden county. Alfred M. Matthews, President; J. M. Ackley, Secretary; both of Westmont.

Hamilton, Atlantic county. Curtis Hazelton, President; Thompson Hoover, Clerk; Henry C. James, Health Officer; all of Mays Landing.

Hamilton, Mercer county. Dr. F. B. Zandt, President, Hamilton Square; W. C. Rockhill Hart, Secretary, Johnston and Walnut Avenues, Trenton; Harry N. Rogers, Registrar, Hamilton Square.

Hampton, Sussex county. J. Martin Couse, President; J. W. Thompson, Secretary; both of Newton, R. F. D. No. 5.

Hanover, Morris county. Judd Condit, President, Boonton; Stanley H. Lyon, Registrar, Morris Plains.

Hardwick, Warren county. Harry Messler, Blairstown, R. F. D.; A. R. Mott, Secretary, Marksboro.

Hardyston, Sussex county. Nicholas Farber, Assessor, Hamburg.

Harmony, Warren county. Elston Stoop, President; William S. Hoffman, Secretary; H. B. Bossard, Inspector; all of Phillipsburg, R. F. D. No. 1.

Harrison, Gloucester county. William Skinner, President; George S. Kier, Secretary; both of Richwood.

Hillsboro, Somerset county. J. D. Quick, President, South Branch; J. E. Anderson, M. D., Secretary, Neshanic; Walter French, Inspector, Millstone, R. F. D.

Hillsdale, Bergen county. George W. Saul, President; Arthur J. Stever, Registrar of Vital Statistics; both of Hillsdale.

*No report received.

***Hillsdale**, Union county. John Leyser, Secretary, Lyons Farms.

***Hohokus**, Bergen county. Albert Winter, Clerk and Registrar, Mahwah.

Holland, Hunterdon county. Samuel Vanzelous, President; Frank S. Huff, Secretary; both of Milford.

Holmdel, Monmouth county. Jacob Wyckoff, Jr., President, Keyport, R. F. D.; Alex L. McCless, Secretary, Holmdel.

Hope, Warren county. I. B. Hopkins, President, Great Meadows; C. R. Westbrooke, Secretary; Dr. Walter Storm, Medical Inspector; both of Hope.

Hopewell, Cumberland county. Wm. C. Hannan, President; C. E. Bowen, Secretary, Shiloh.

Hopewell, Mercer county. John C. Errickson, President, Pennington, R. F. D. No. 1; Jos. R. Burroughs, Secretary, Glen Moore; Dr. J. W. Richards, Inspector, Pennington, R. F. D. No. 1.

Howell, Monmouth county. Howard Ketchams, President, Farmingdale; James H. Butcher, Secretary, Freehold, R. F. D.; George W. McMillan, Inspector, Freehold.

***Hudson county**. James L. Lynch, Secretary, Jersey City.

***Independence**, Warren county. E. Y. Williams, Registrar, Vienna.

Jackson, Ocean county. Thos. Harker, President, Cassville; Atwood Horner, Secretary, Lakewood, R. F. D. No. 3.

Jefferson, Morris county. Horace Poulis, President; O. A. Johnson, Clerk; both of Milton; E. W. Bright, Secretary, Wharton, R. F. D.

Kingwood, Hunterdon county. Wm. B. Stevens, President, Stockton, R. F. D.; W. W. Case, Secretary and Registrar, Baptistown; F. S. Guin, M. D., Medical Inspector.

Knowlton, Warren county. Andrew N. Vanhorn, President; William B. Gilbert, Secretary; both of Columbia.

Lacey, Ocean county. Daniel S. Holmes, President; William V. Wilbert, Secretary; both of Forked River.

Lafayette, Sussex county. Harvey Plotts, President; William S. Vought, Secretary; both of Lafayette.

Lakewood, Ocean county. Jos. F. Conly, President; George H. Hulburt, Clerk; I. Scudder Fisher, Registrar; all of Lakewood.

Landis, Cumberland county. Dr. Theo. Foote, President, Vineland; Ernest E. Howe, Clerk, R. F. D. No. 3, Vineland.

Lawrence, Cumberland county. Morgan B. Husted, President; J. Wayne Mulford, Clerk; both of Cedarville.

Lawrence, Mercer county. Thomas S. Stevens, President, R. F. D. No. 4, Trenton; Frank Pierson, Secretary and Inspector, Lawrenceville.

Lebanon, Hunterdon county. Irving B. Trimmer, Secretary, Califon.

Linden, Union county. Albert Weber, Assessor, Linden.

Little Egg Harbor, Ocean county. Eugene Cummings, President; Wm. Cummings, Clerk; both of Parkertown; Dr. C. H. Conover, Medical Director, Tuckerton.

Little Falls, Passaic county. James Steel, Secretary, Little Falls.

***Livingston**, Essex county. Wm. Rathbun, Registrar, Livingston.

Lodi, Bergen county. Frank Kotlaba, President; John Clausen, Jr., Secretary; both of Sub-Station No. 2, Hackensack.

Logan, Gloucester county. Chas. Lamson, President, Swedesboro; S. B. Platt, Secretary, Bridgeport.

***Long Beach**, Ocean county. Jos. B. Willets, Clerk, Toms River.

***Lopatcong**, Warren county. Stanley Drake, Secretary, R. F. D., Phillipsburg.

Lower, Cape May county. I. R. Hoffman, President; Aaron Woolson, Secretary; Dr. W. A. Lake, Health Officer; all of Cape May City, R. F. D. No. 1.

Lower Alloways Creek, Salem county. Jediah O. Plummer, President, Quinton; Edward Hancock, Assessor, Hancock's Bridge.

Lower Penns Neck, Salem county. David Dixon, President, Salem, R. F. D. No. 4; Chas. Casperson, Clerk, Pennsville.

Lumberton, Burlington county. L. H. Baumbach, President; R. B. Stermer, Secretary and Inspector; both of Lumberton.

Lyndhurst, Bergen county. Abraham Leavitt, President, Lyndhurst; Fred P. Wagner, Jr., Secretary, 336 Travers Place, Lyndhurst.

Madison, Middlesex county. Richard Burham, President; Ebenezer Bowne, Secretary; both of Matawan; Ira C. Cranden, Inspector, Old Bridge.

*No report received.

Manalapan, Monmouth county. Ed. Hendrickson, President; Garret B. Conover, Clerk; both of Englishtown.

***Manchester**, Ocean county. Dr. Harold Pittis, Clerk, Lakehurst.

***Mannington**, Salem county. Elmer Criscom, Clerk and Registrar, Salem.

Mansfield, Burlington county. Wm. R. Sharp, President; Jos. H. Armstrong, Secretary; J. E. Dubell, M. D., Inspector; all of Columbus.

Mansfield, Warren county. Thomas Miller, President, Hackettstown; John C. Beaty, Secretary, Port Murray.

***Mantua**, Gloucester county. Richard Kincaid, Secretary, Mantua.

***Marlboro**, Monmouth county. J. D. Ely, M. D., Clerk, Marlboro.

***Matawan**, Monmouth county. Daniel Martin, Clerk, Matawan.

Maurice River, Cumberland county. Henry Reeves, Jr., Secretary, Leesburg.

Medford, Burlington county. Joshua S. Wills, President; William M. Potts, Secretary; both of Medford.

***Mendham**, Morris county. Frank Dean, Clerk, Brookside.

Middle, Cape May county. V. N. Errickson, Secretary, Dias Creek.

Middleton, Monmouth county. Isaac Morris, President, Middleton; Howard W. Roberts, Secretary, New Monmouth; Dr. O. W. Budlong, Inspector, Belford.

Midland, Bergen county. Otto Weisgerber, President; John D. Bogert, Clerk; both of Ridgewood.

***Millburn**, Essex county. Charles R. Reeve, Clerk and Registrar, Millburn.

Millstone, Monmouth county. Geo. J. Ely, Secretary and Registrar, Ely's Corner, R. F. D., Cranbury.

Monroe, Gloucester county. John W. McClure, Secretary, Williamstown.

Monroe, Middlesex county. John D. Butcher, President, Cranbury, R. F. D. No. 4; Robert R. Vandenburg, Clerk, Prospect Plains.

Montague, Sussex county. Lewis A. Marthis, President; George McCarty, Secretary and Registrar; G. Otto Pobe, M. D., Health Officer; all of R. F. D. No. 1, Port Jervis, N. Y.

Montgomery, Somerset county. H. A. Duryea, President; P. S. Terhune; both of R. F. D., Skillman.

Montville, Morris county. Fred Van Duyn, Clerk, Towaco.

***Morris**, Morris county. J. Paul Jamieson, Clerk, Morristown.

Mount Laurel, Burlington county. Lewis W. Wells, President; W. Clifford Godfrey, Secretary; both of Morristown.

Mount Olive, Morris county. Watson McPeak, President; Hez Smith, Secretary; both of Flanders.

Mullica, Atlantic county. Henry J. Tappen, President, R. F. D., Egg Harbor; Arthur S. Walker, Secretary and Registrar, Elwood.

***Neptune**, Monmouth county. Fred D. Hurley, Clerk, 120 Main Avenue, Ocean Grove.

New Hanover, Burlington county. John Nash, President; E. J. Bunting, Secretary; both of Wrightstown.

New Providence, Union county. Percy G. Honeyman, President, R. F. D. No. 2, Chatham; David Hardy, Clerk and Registrar, Scotch Plains.

Northampton, Burlington county. C. C. Cowperthwait, President; John D. Mason, Secretary; Elmer D. Prickett, M. D., Health Officer; all of Mount Holly.

North Bergen, Hudson county. James Nolan, President, North Bergen; Fred Sternkopf, Clerk, 923 Traphagen Street, North Bergen.

North Brunswick, Middlesex county. Albert Yorston, President; Gilbert H. Pardon, Secretary; both of New Brunswick.

North Hanover, Burlington county. Harry Borden, Secretary, Jacobstown.

***North Plainfield**, Somerset county. John Herrman, Clerk and Registrar, 369 Somerset Street, North Plainfield.

Ocean, Monmouth county. Frank A. Wells, Long Branch, R. F. D. No. 1, President; H. G. Van Note, Clerk and Registrar, Oakhurst.

Ocean, Ocean county. M. E. Johnson, President; W. B. Wilkins, Clerk, Waretown.

Oldmans, Salem county. Harvey Gaventa, President; David G. Henderson, Clerk; both of Pedricktown.

*No report received.

Orvil, Bergen county. Frank R. Doty, President; Wm. H. Shuart, Clerk; both of Waldwick.

Oxford, Warren county. Dr. L. B. Hoagland, President; George Docker, Jr., Secretary; both of Oxford.

***Pahaquarry**, Warren county. Isaac E. Wildrick, Clerk, Mill Brook.

Pallsade, Bergen county. Thos. A. Yearsley, President, River Edge; George Gengenagel, Clerk, Registrar and Inspector, Peetzburg.

***Palmyra**, Burlington county. John W. Shade, Clerk and Registrar, Palmyra.

***Passaic**, Morris county. Henry R. King, Clerk and Registrar, Sterling.

Pemberton, Burlington county. Thos. S. Shreve, President; Barclay Seeds, Secretary; both of Pemberton.

Pensauken, Camden county. Albert E. Scheffen, Clerk and Registrar, 125 Bethel Avenue, Merchantville.

***Pequanock**, Morris county. A. Gilland, Clerk and Registrar, Pompton Plains.

Filesgrove, Salem county. Warren C. Richman, President; M. W. Buzby, Clerk and Registrar, Woodstown.

Piscataway, Middlesex county. Wm. Fitz-Randolph, President; Geo. W. Coriell, Secretary; both of New Market.

***Pittsgrove**, Salem county. Geo. Schalick, Clerk and Registrar, Centerton.

Plumsted, Ocean county. Richard Francis, President; Geo. Hartshorn, Clerk; Dr. M. A. Moran, Inspector; all of New Egypt.

***Pohatcong**, Warren county. W. I. Jacoby, Clerk and Registrar, Finesville.

***Pompton**, Passaic county. J. C. Beam, Clerk and Registrar, Midvale.

Princeton, Mercer county. Wm. E. Dempsey, President, 177 Harrison Street, Princeton; John H. Warren, Secretary and Registrar, 195 Harrison Street, Princeton; E. H. Bergen, Health Officer, 25 Mercer Street, Princeton.

Quinton, Salem county. Wm. Radle, President; C. A. Miller, Clerk; both of Quinton; W. T. Good, M. D., Inspector, Alloway.

Randolph, Morris county. William C. Spargo, President, R. F. D. No. 2, Dover; Stephen H. Briant, Clerk, Dover, P. O. Box 171.

***Raritan**, Hunterdon county. Theo. H. Dilts, Secretary and Registrar, Three Bridges.

Raritan, Middlesex county. Wm. T. Woerner, Clerk, Metuchen.

Raritan, Monmouth county. J. L. T. Webster, President, Hazlet; William T. Walling, Clerk, Keyport.

Readington, Hunterdon county. David H. Miller, President, White House; W. T. Hoffman, Clerk, White House Station; Dr. F. L. Johnson, Inspector, Stanton.

Riverside, Burlington county. Edward Stoops, President; Chas. Heiss, Secretary; both of Riverside.

***Rivervale**, Bergen county. Lucas C. Blauvelt, Clerk, F. F. D. No. 1, Westwood.

Rockaway, Morris county. William Winters, Clerk, Hibernia.

***Roxbury**, Morris county. E. N. Kilpatrick, Secretary and Registrar, Succasunna.

Saddle River, Bergen county. Chas. Gindech, President, Rochelle Park; Isaac A. Hopper, Clerk, Fair Lawn.

***Sandyston**, Sussex county. Dr. A. A. Ranson, Secretary, Layton.

Sayreville, Middlesex county. Edward E. Clark, President; P. F. McCutchen, Clerk; both of Sayreville.

Scotch Plains, Union county. Henry C. Meyer, President; Geo. H. Johnston, Secretary; both of Scotch Plains; Dr. F. W. Wescott, Inspector, Fanwood.

Shamong, Burlington county. Mahlon Prickett, Clerk, Indian Mills.

Shrewsbury, Monmouth county. Harry G. Borden, President, Shrewsbury; Geo. H. Lippincott, Secretary, Little Silver; Dr. Benj. F. King, Inspector, Shrewsbury.

Southampton, Burlington county. E. O. Haines, Clerk, Vincentown, Box 147.

South Brunswick, Middlesex county. J. W. Grover, President, Dayton; Wm. Perkins, Secretary, Kingston.

South Harrison, Gloucester county. D. C. Lippincott, Secretary, Harrisonville; Samuel S. Ashereft, Inspector, Mullica Hill.

*No report received.

***South Orange**, Essex county. Edward R. Arcularius, Clerk, Maplewood.

Sparta, Sussex county. William Hoffman, President; Floyd Kays, Secretary; both of Sparta.

Springfield, Burlington county. Aaron H. Burtis, Secretary and Reporting Officer, R. F. D. No. 2, Mount Holly.

Springfield, Union county. Chas. Ruby, President; Lewis L. Terry, Clerk; Dr. H. P. Dengler, Inspector; all of Springfield.

Stafford, Ocean county. Geo. F. Pharo, Clerk, Manahawkin.

Stillwater, Sussex county. James Kithcart, President, R. F. D. No. 2, Blairstown; O. Van Horn, Secretary, Stillwater.

Stow Creek, Cumberland county. George Schaible, President, Shiloh; Wm. H. Davis, Clerk, R. F. D. No. 3, Bridgeton.

Tabernacle, Burlington county. I. Nelson Haines, Clerk, R. F. D. No. 2, Vincentown.

Teaneck, Bergen county. Floyd H. Farrant, Secretary, Hackensack.

Tewksbury, Hunterdon county. Hez. Philhower, Secretary and Health Officer, Califon.

Union, Hunterdon county. Wm. Best, President; Morris Stockton, Clerk, Pattenburg.

Union, Ocean county. August Cranmer, President; M. N. Olnowich, Secretary; both of Barnegat.

***Union**, Union county. Fred Stone, Clerk and Registrar, Union.

Upper, Cape May county. Jesse T. Young, Clerk, Beesley's Point.

Upper Freehold, Monmouth county. Jas. C. Johnston, President, Allentown; John Y. Sinton, Secretary, Imlaystown.

Upper Penns Neck, Salem county. David W. Wright, President; Homer I. B. Wright, Penns Grove.

***Upper Pittsgrove**, Salem county. R. A. Robinson, Clerk, Monroeville.

Vernon, Sussex county. Wm. M. Drew, President; Wm. D. Parker, Secretary; both of Vernon.

Voorhees, Camden county. W. I. Tomlinson, President, Laurel Springs; Randall B. Stafford, Secretary, R. F. D., Marlton.

Wall, Monmouth county. E. S. V. Woolley, President; Geo. E. Rogers; both of Belmar.

Walpack, Sussex county. Nathaniel Van Auken, Secretary, Flatbrookville.

Wantage, Sussex county. Jacob Shred, President; S. M. Pariell, Clerk; D. Vangesbeck, Inspector; all of Sussex.

Warren, Somerset county. Daniel Scott, President; Geo. Bowers, Clerk, Warrentown.

Washington, Bergen county. J. Henry Thomas, Clerk, Westwood.

Washington, Burlington county. George Leek, President, Batsto; Gilbert H. Irons, Clerk, Lower Bank.

Washington, Gloucester county. John Barrett, President, R. F. D., Sewell; G. R. Hurff, Clerk, Turnerville.

***Washington**, Mercer county. E. B. Yard, Secretary, Robbinsville.

Washington, Morris county. A. T. Trimmer, President; G. H. Sliker, Secretary and Registrar; both of Fort Murray, R. F. D.

Washington, Warren county. Clyde Shannon, President; E. C. Snyder, Secretary, R. F. D., No. 1; both of Washington.

Waterford, Camden county. Wm. L. Duble, Clerk and Registrar, Atco.

Wayne, Passaic county. Larry Berdan, President, R. F. D. No. 1, Pater-son; Thos. D. Ryerson, Secretary, Wayne.

Weehawken, Hudson county. Emile W. Granert, President, 21 Boon Place; John G. Meister, Clerk, 1 Potter Place; Thomas J. Gallagher, Park Avenue; all of Weehawkin.

Westhampton, Burlington county. M. Haines, President; Chas. Gaskill, Secretary; both of Mount Holly.

West Amwell, Hunterdon county. James H. Wilson, President, Ringoes; Geo. H. Carr, Clerk; Frank N. Larrison, Inspector; both of Lambertville.

***West Deptford**, Gloucester county. Chas. H. Budd, Clerk, Thorofare.

West Milford, Passaic county. John C. Ryerson, President, West Milford; John M. Weaver, Secretary, Newfoundland.

West Windsor, Mercer county. Hiram A. Cook, Clerk, Dutch Neck.

Weymouth, Atlantic county. H. F. Madden, Clerk, Tuckahoe.

*No report received.

White, Warren county. Dr. L. B. Hoagland, President, Inspector and Health Officer, Oxford; D. L. Spangenberg, Secretary, Belvidere.

Willingboro, Burlington county. John Stokly, President. Rancocas; Albert Hansell, Jr., Secretary, Burlington.

Winslow, Camden county. Archibald Boardam, President, R. F. D., Winslow; James T. Russell, Secretary, Cedar Brook.

Woodbridge, Middlesex county. B. C. Baldwin, Secretary; Lewis E. Potter, Woodbridge.

***Woodland**, Burlington county. Jacob Dunfee, Clerk and Registrar, Chatsworth.

Woolwich, Gloucester county. Henry A. Salisbury, President; T. W. Hendrickson, Secretary; both of Swedesboro.

*No report received.

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